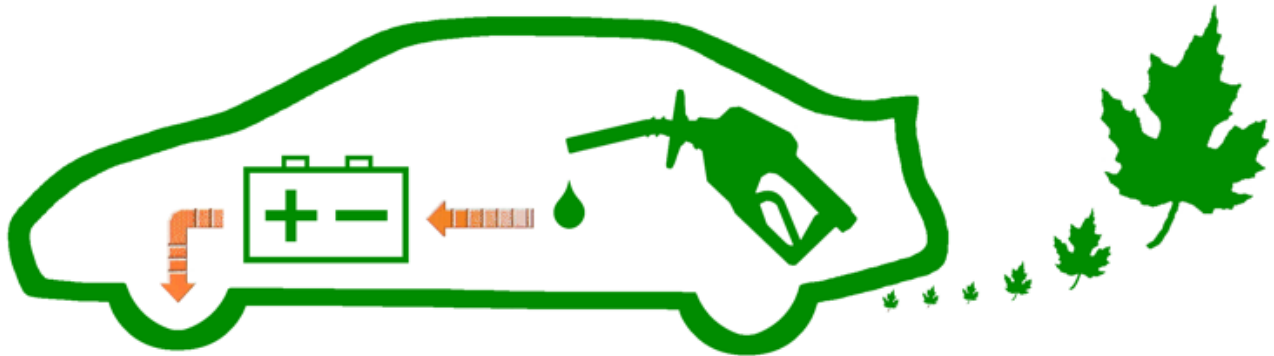


john1701a's Personal Log Book



I purchased a Classic Prius (hybrid-electric, fuel-efficient, super-ultra-low-emission vehicle) back on 9/9/2000 and drove it in Minnesota until I replaced it on 10/23/2003 with an Iconic Prius (which was even cleaner and more efficient). Then on 5/26/2009, I upgraded to a 2010 Prius (for amazing efficiency). Following that on 2/29/2012, I got my first plug-in model (pushing MPG significantly higher). The big upgrade happened 4/01/2017, when I replaced the PHV with a Prime, trading 11 miles of EV driving for 25. This book documents those personal thoughts & experiences.

From: **3-08-2012** to **5-17-2020**

- 3-08-2012** **Newbie Posts.** It's fascinating to see that newbies are appearing online just for the sake of a PHV purchase. Their forum participation is exclusive to plugging in. These are the consumers who were stirred by Prius, but not interested enough to commit. But now with the ability to boost MPG with a plug, things are different. They're interested now, some even engrossed. In fact, many of the first posts are to point out they are either awaiting delivery or just drive home with one. That most definitely qualifies as committing. Tapping into an entirely new audience is market penetration those supporting Prius for years have dreamed of. It's not just owners upgrading. This is true expansion. Each step forward leaves traditional vehicles further back. With the no-plug version so well proven, it's only a matter of time that real-world data from these new owners begins to solidify a future where having a battery-pack of some sort is the norm. One post after another, you can see it happening. I wonder how many parking spaces will show up as an enticement. After all, with a full recharge for Prius PHV only taking an hour and a half, that's perfect for a restaurant or coffeeshop visit. That works out as a draw for movie theaters and shopping malls too. This is getting very exciting!
- 3-09-2012** **Agendas.** It's very easy and quite realistic to expect someone who routinely contradicts to have an agenda. After all, not having any purpose would be rather odd. So with discussions of Volt growing on the big Prius forum, this question was expected: *"I get the impression that much of the negativity directed at the Volt is from an ideological agenda rather than anything that has to do with the actual vehicle."* I was among those who provided a response to that: That comes from such heavy focus on engineering and disregard for actual need. Had the technology been developed with choice available rather than the one-size-fits-all system we got, outcome would have been different. Sure, anyone can justify an individual purchase, but support for the masses is another matter entirely. Then there's the attitude. On the forums supporting Volt, it's not a matter of good old fashion competition & rivalry. Instead there's "vastly superior" declarations and endless excuses, avoiding consideration of consequences from weak sales. They don't acknowledge the history of Two-Mode or BAS either. To makes matters worse, there's the issue of disenchantment. You shouldn't just abandon those who's expectations were not met. Yet, that's exactly what happened. Look at the diversity we get from Toyota and the concepts they continue to reveal. It's a very situation quite unlike that from GM. Basically, there's no good way of addressing the problem without sounding negative. Setting new expectations would be wise next step.
- 3-09-2012** **Location Status.** We got word of where the driver was. He'll be spending the night near the Texas/Oklahoma border. That's roughly halfway, with the difficult part of the journey (crossing the Rocky Mountains) already complete. It probably means not arriving here until two days from now. The actual act of delivery may not take place until the following morning. That's no big deal. I have much to do at home still, including clean the garage to temporarily accommodate two Prius. Thankfully, the first true day of Spring weather is expected tomorrow... which just happens to be a Saturday. It does make passing the time a bit odd though, since there's one less hour this weekend. Daylight Savings is great timing! I'll have one more hour to play with the PHV after work. Getting dark right away is a pain. Anywho, I'm running out of stuff to think about. The wait is definitely a test of patience. Hopefully, I'll get an email update with location status tomorrow.

- 3-10-2012** **Decisions, part 1.** There are a lot of PHV newbies all wondering the same thing... why? So, the topic of Volt continues to pop up. Fortunately, there are a few dedicated discussion threads now rather than having to endlessly deal with distracting interjections. That's nice. I certainly want to move on. But there are some thought-provoking posts resulting from this. This particular one was especially impressive: *"I don't understand the engineering decisions of the Volt. GM claims it is an EREV and it is, but IMO it was a brute force design not an elegant design. Tack on a big battery to compact car is what it appears to me to be. They presented the idea of a series hybrid, but actually built a parallel/series hybrid with a larger battery."* That opening obviously caught my attention. The closing statement was just compelling: *"Why GM chose to build the Volt the way it did boggles me. They had the opportunity to build a car from the ground up and instead of choosing to build a truly interesting car, they designed a car with unnecessary compromises in utility and efficiency."* It's an interesting thing to consider. How do you get perspective from the past without looking back? Only blogs written then, as it was happening, can provide observations as they happen. Forum posts don't have continuity, though a few threads offer a brief chronology. It's up to those who lived it firsthand to share the stories...
- 3-10-2012** **Decisions, part 2.** This what I contributed to the discussion: Having followed the history of Volt from Two-Mode origins, it's easy to understand. Business desire was where the compromise came from. Engineers were impaired by what marketing had already started to promote. In other words, they backed themselves into a corner very early on. It was a commitment doomed by unrealistic expectations. Promises of outperforming the competition blinded decisions. Cost was allowed to increase without concern. The first evidence of that I can recall was the decision to abandon the custom-designed engine and just use one from a traditional vehicle instead. The claim was to keep price low, but the efficiency penalty made you wonder. It contributed to the enthusiast focus on acceleration & power. GM thrived on the resulting hype. Focus was lost. Things fell apart from there. Bringing up the topic of cold-temperature influence confirmed constructive discussion was no longer possible. Hope had taken control, long before the design had even been finalized. Later, when it was leaked that Volt wasn't actually a serial hybrid as promoted, it started to get ugly. Information about depleted efficiency was withheld, despite countless enthusiast requests. Then came the price announcement. That was the beginning of the end. Before rollout, there was disenchantment among supporters. So as owners began to report real-world data, it was already too late. The damage had been done and each attempt to repair only ended up making the situation worse. Now, we have the first PHV arrivals. What does that mean for Volt marketing? What about design? What about sales? This certainly is an interesting time in automotive history.

- 3-11-2012** **That Downplay.** The moment price was revealed for Volt, things began to change. That wasn't the kind of change enthusiasts were hoping for. With such an expensive MSRP, there wasn't much hope for high-volume sales. In fact, some of the enthusiasts themselves became disenchanted. There is an aspect of that with PHV too, but with a \$9,000 difference between that then in July 2010 and now there's little to argue. It was going to take longer than hoped for Volt but not for Prius. So, they began the downplay. To make matter worse, the reveal of EPA estimates in October 2010 confirmed that Volt's depleted efficiency wouldn't be any better than a traditional vehicle. That's not the case for PHV, it continues to deliver MPG just like a regular Prius after depletion. There's nothing to downplay. To make matters even worse yet, popularity of Prius from the new v and c models and continued growth of the regular model will benefit PHV. Sales of those no-plug Prius are positive reinforcement of the future. Sales of Cruze do just the opposite, they harm Volt by drawing appeal back to traditional vehicles. The new ECO model of Malibu will negatively impact Volt too. GM is providing it's own downplay, being it's own worst enemy. Come to the dealer to see Volt and end up buying something else. Come to the dealer to see a Prius and end up buying the plug-in model instead. This next year is indeed going to be very interesting.
- 3-11-2012** **Just 4 Hours.** It is rather surreal knowing in that amount of time, there will be a truck unloading my PHV. After years of waiting, it's on the verge of becoming a reality. I quite ready too. All those heated debates online prepared me well for this. They routinely asked on the big GM forum why I was there. This is it. I have always a clean, highly efficient vehicle for the masses. Toyota's approach is fantastic. They are starting with the smallest realistic battery-pack, just enough to significantly boost MPG without having a significant impact on price. It's easy to understand too. The engine simply runs less often than the regular model, and in some cases not at all. You don't need anything beyond an ordinary 120-volt outlet available either. Plug in when convenient. Still get great efficiency even when depleted. Not much longer to wait now.
- 3-11-2012** **In My Garage.** Quite literally 2 seconds after posting about my final 2010 Prius video, there was a knock on my door. It was a neighbor. He was excited to see my 2012 Prius PHV finally arrive... and like me, was amazed to see a massive 8-vehicle carrier rig backed down into the street. That was quite an impressive sight, even without two plug-in deliveries on top. It was getting dark fast. The sun had already went down on that cloudy evening and rain was just beginning to fall. That meant no photos and a flashlight for the inspection. Minutes later, I could hardly see anything. Talking about just in the nick of time! I barely got a glimpse of the Clearwater Blue color. The driver was paid, I signed the paper, and he was on his way. Another neighbor came out to see what I had just taken delivery of. It was all very exciting... despite seeing only 3-bars on the display. That meant no EV driving until morning. Oh well. That completes the purchase & delivery, next comes vehicle registration.

- 3-11-2012** **To The Mall, Display.** That final video with the 2010 Prius was again that same route. Only this time, the second camera was used to capture speedometer & eco-meter information from the vehicle itself rather than an aftermarket gauge. It provides a much better depiction of what most owners will observe... which is great, since there are likely few who really want to know about engine RPM and coolant temperature. Anywho, this was the description of that experience I provided: It was a challenging final capture with the 2010 Prius. The scenery camera kept failing. Turns out, it was an automatic overheat protection feature that kept shutting the camera off halfway through the drive. But since it was such a fantastic day out, the first true Spring weather we've had here, that was no big deal. The 64°F felt wonderful. Once I finally figured out the problem, a few minutes with the case off in front of a fan and cool battery did the trick. Too bad it doesn't have active cooling like the PHV does. Anywho, that meant the drive was quite representative of a normal Sunday. You get home from something, then immediately head back out for something else. In this case, it was a drive to the mall then a pleasant back route home. The 10.4 miles displayed resulted in an average of 60.5 MPG. The Prius really thrives on drives through the suburbs like that. Watch the indicator bars on the Eco-Meter and the instant MPG. There's a lot more at play while you drive than most people realize. Prius automatically seeks out efficiency opportunities. The readouts allow you to do the same. I just drive it, but still find it fascinating to watch the system operate. See: [Prius - To The Mall 3](#)
- 3-12-2012** **First Depletion.** I plugged it in last night, then headed out to the DMV first thing this morning. There's lots of new goodies to explore, not to mention the drive experience itself. I blew it though, accidentally firing up the engine by messing with the climate-control settings. Oh well. You quickly discover PHV isn't about EV purity anyway. It seeks out efficiency opportunities, taking advantage of the engine at times. Watching the HUD, it was interesting to see the difference between a full charge and the HV only I had last night. The electric power is indeed there. I enjoyed climbing the steep neighborhood hill from a dead stop at the bottom to sustaining 40 mph the way up, all with only electricity. When I finally finished running around town and headed out to work, the Prius was going 61 mph up the ramp in EV before the engine started up. So, then was a good time to switch over to HV mode. The morning's 13.3-mile charge had already depleted to 6.2 miles. To my surprise though, the value almost immediately started to climb from powering split. I drove 9 miles at 70 mph and another 3 to the river at crossing 55 mph, watching the EV value creep higher as I went. It was at 7.2 miles when I swapped back over to EV mode. Upon reaching my parking spot, there was 3.6 miles of EV still left with 22.7 total miles of travel and an average showing 78 MPG. That's pretty satisfying with a car not broken in yet on a cold & rainy day.

- 3-12-2012** **Changing Definitions.** The most common technique for dealing with a lost battle is to spin the circumstances of that outcome. For those last few Volt supporters who were fiercely fighting PHV, the approach was to change how "*hypermiling*" was defined. Their arguing degraded to the point where if you weren't passing everyone on the road, you were trying to improve MPG. What kind of nonsense is that? Driving along with the flow of traffic obeying the speed-limit is unacceptable, a blatant attempt to distort reality... according to them. Needless to say, no one had taken them seriously since then. The threads on the big GM forum and those Volt daily blogs have slowed to a trickle. Could it just be a coincidence that PHV just happens to be on the road now? Could it be that gas prices have been soaring lately. Or could the reason be all the media attention "*economy*" cars have been getting lately. Of course, even that definition is changing. Who knows all the factors involved. What I find humorously ironic is how easy it has become to improve MPG now. The PHV slips into EV mode surprisingly easy, shutting off the engine quicker than my 2010 did. The HUD in the Advanced model (Heads Up Display, which projects Eco-Meter information directly onto the windshield) provides an unheard of level of awareness & convenience. It's great! In other words and to put it shortly, things change. Some like it. Some don't.
- 3-13-2012** **Morning Commute.** I decided to take the "along the river" route to work today, which has a maximum speed of 55 mph. It was a cool spring morning (37°F) and the battery stated 13.0 miles of EV was available for the 17.3 mile trip. The defroster would be needed to clear the windshields, so I knew the engine would run from time to time. What I didn't know was that each time it fire up, it would add 1/2 mile to the EV. So, I actually ended up at my parking spot with 1.6 miles of EV left still from the engine running briefly 3 times. It was quite the journey. I didn't know what to expect. Discovering the "EV" emblem was actually an engine-off indicator was pretty sweet. Now everyone will know when 0 RPM is without needing an aftermarket gauge. The system does it all automatically too. The "just drive it" motto is very much something to continue promoting. Anywho, the average for my commute to work ended up being 156 MPG. I can't wait for it to get warmer. Efficiency will easily go higher without the need for cabin heat.
- 3-13-2012** **Afternoon Commute.** At lunch, a good friend and I drove a few blocks down the road to a park. There, I used up the remaining EV while showing off the PHV. When we returned, I plugged in for the first time at work. Leaving there fully recharged was an exciting prospect. Of course, circling down 7 flights of the ramp to exit would mean regenerating electricity from the brakes. Should I put the car in "B" mode to help prevent that? I didn't that time and did indeed gain a tenth of a mile, leaving with 13.1 miles of EV available. On the drive home, I took advantage of HV mode on the short 55 & 50 mph sections of the drive. Being able to toggle out of EV to preserve that electricity later sure was nice. It provided the opportunity for me to take a scenic detour through the suburbs. After all, the 64°F temperature was near the record high for Minnesota this time of year. Needless to say, that was a very enjoyable ride. Overall distance was 36.8 miles, with 0.4 miles of EV remaining upon reaching my driveway. 144 MPG was the resulting efficiency average.

- 3-13-2012** **Newbie Again.** Still having EV available at the end of my commute certainly reinforced the study of real-world data Toyota had collected with the early model. The system is remarkably adept, seeking out efficiency opportunities pundits never addressed, wrecking any prior analysis reports they had come up with. It's difficult to describe how dynamic the power-split system is, despite all the years of arguing with antagonists about the potential. But now finally seeing it in action, taking advantage of externally provided electricity, speaks for itself. The test-drive experience certainly will compel the curious to purchase. There's a whole new excitement to the commute now. I feel like a newbie again!
- 3-14-2012** **Everyday Driving.** Having to run an errand before or after work is quite normal. Today, it was before. So, when I drove up the highway entrance ramp, I switched to HV mode. That immediately stopped the battery depletion, saving EV capacity for me to use later. To my delight, the PHV was still remarkably efficient. So when the 70 mph segment ended 9 miles later, I was ready to switch back, but didn't. What the heck, I kept in HV on that last of 55 mph stretch before getting off. It was mostly EV then. The engine fired up twice for a hard acceleration. That resulted an EV capacity bump... something those arguing against PHV never considered. It's not the penalty they always made it out to be. The engine shuts back off remarkably fast afterward too. The result was arriving at work with 2.7 miles still available. The 22.4 miles of travel averaged 86 MPG. I took the extreme scenic route on the way home, driving through the park along the river rather than using the frontage road on the other side. That may be the final EV especially enjoyable. When I got home, the total distance came to 41.3 miles with an overall efficiency of 75 MPG.
- 3-14-2012** **Terrible Comparison.** An online article was published today. The title was: "*Is the Nissan Leaf or a Toyota Prius a better commuter car?*" Naturally, I assumed it was a comparison between plug-ins. However, no mention of electricity was made. For that matter, it was all quite vague. The only clue to which model of Prius was being compared was: "*Prius cost \$5.02 because it required 1.2 gallons of gas.*" The distance referred to was 64.5 miles. Why? That's horribly arbitrary. Since when is that a typical commute anyway? And why was \$4.19 per gallon selected for the price of a gallon of gas? It was supposedly a lifetime cost analysis, because all the five paragraphs provided was a bunch of numbers. No mention of the vehicle itself was made beyond this though: "*Leaf costs more to buy.*" The article was such a appalling example of journalism it did nothing but frustrate. Some people actually believe what they read without question, assuming the source thoroughly researched the topic and wrote about it without any specific intent. It was presented as an honest inquiry, awarding Prius as the better. To me, it looked like just a filler article written in haste without concern for content quality. That's terrible.

- 3-14-2012** **Charger Security.** How do you prevent someone from taking your 120-volt portable charger when plugged in at a public location (not a charging-station, since they already have locks)? It was the big question that recently emerged, which I had been patiently waiting to provide an answer for. I already had a solution, but no PHV yet. Today, I finally did, plus it was nice outside and I had the time available to take & edit photos. One suggestion had already been made, drilling a larger hole in the trigger-button of the handle. But the lock you could fit in there was tiny and all it did was prevent it from being squeezed. I wanted something that could allow you to secure the charger to the car in a robust way, something not easily overcome. The solution was a new type of lock. It's a cable without the traditional loop at the end. That allows you to quickly & easily pass it through the Prius's tire. Then to lock it to the charger, use a padlock. By running that cable and the charger's cord through the padlock, both would be locked together. It's eloquently simple and quite secure. That should alleviate any worry PHV may have. Here's photos of what I came up with... [photo album 173](#)
- 3-15-2012** **Today's Drive.** Like the day before, I switched over to HV for the highway portion... but only half of it this time. I had no idea just how efficient the system really was. The result of the 16.7 miles of morning commute was 111 MPG with 3.3 miles of EV still remaining. Darn! It could have been even more efficient had I switched back sooner. Oh well, so I did not plug in at work. The commute home was the long way, to the lake to walk the dog with Mom first. This was the day the water was revealed. Only a small bit of ice remaining... the perfect time to begin ownership of a new PHV. Anywho, When I finally did get back, the total miles driven was 58.0 miles. The overall MPG for the day was 71.
- 3-15-2012** **The Rhetoric.** Reading this from a Volt owner shows a glimmer of hope: *"I'm so tired of the "40 mpg highway" hype out there!"* With all the misplaced priorities and the desperation emerging, some sense of cooperation & understanding would eventually emerge. Unfortunately, that comes at a cost. The thought of compromise is quite a challenge for those previously having exclaimed *"vastly superior"* as their status. Thankfully, with enough time, change comes. Anywho, I responded with: Welcome to the club. Some of us have been saying GM is its own worst enemy ever since Cruze rollout out here. It's too bad many here only heard "Prius" regardless of what was said actually about "competition" concerns. Of course, what I focus on now is Prius. The result of my 36.8-mile commute yesterday, which included a recharge at work, was 144 MPG. Tell me when Volt can do the same thing for a MSRP of \$32,000. Whether or not Rolls Royce offers a plug-in [the topic of discussion] has nothing to do with the business-model GM depends upon for sustaining profit.

- 3-15-2012 *The Competition.*** From that same 40 MPG concern came this: *"Put the Volt and Cruze on different ends of the Dealership. Cruze is Volts biggest sales rival; trust me I bought a Cruze over a Volt."* Some are beginning to see that Prius isn't the only competitor to fear. Competition from within GM is nothing new; dismissing it as a problem is though. Hearing awareness about that is a good sign. My reply was: It's good to hear others also showing concern about Cruze. But sales strategy is complex. With Volt having so much higher of a MSRP, waiting an entire year to collect tax-credits is a tough sell. The tax-credit dependency won't work with growing popularity either, since there's only a limited quantity actually available. Cost must be seriously reduced quickly. Just think what the ECO models (aka eAssist) will do to Volt sales. Then of course, you've got people like me promoting affordable plug-ins. That's suppose to be seen as a push to get Volt cost reduced quickly, but most often all that's heard is "Prius". So, there's that distracting from the Cruze rivalry. Big problems rarely only have a single influence.
- 3-16-2012 *EV Default.*** There was an article recently published about PHV from a website which focuses on green cars. They tried their best to deal with the misconceptions caused by the EPA window-sticker information, then contributed their own by interjecting this: *"One final note: The Prius Plug-In Hybrid requires the driver to select EV mode to use battery power when the car starts up. If a driver doesn't do so, the car operates like a regular Prius right off the bat."* Needless to say, that incorrect information presented at the ending like that really stirred some feelings. EV does not have to be selected. I have no idea why they thought it wasn't. So, I posted this: That's not what happens. The default is EV mode. Everyday when I pull my new Prius PHV out of the garage, it's automatically in EV mode until I accelerate onto the 70 mph highway nearby. And when I have switched to HV mode to retain EV capacity for later, the range value actually climbs up a little as I drive... something most people never considered would happen, since they tend to forget how persistent the hybrid system is even while still delivering 50 MPG. Yesterday's commute and running around afterward came to 58 miles. With only a single charge the evening before, the result was 71 MPG. On the day when I only drove the commute and recharged at work too, the result of those 36.8 miles driven was 144 MPG.
- 3-16-2012 *Just Drive It, thoughts.*** The day was starting out great, Friday, of course. The temperature was 50°F degrees out. I was all ready to got too. I connected my ScanGauge to the PHV for the very first time, placed a video camera in front of it, then covered both with a box. That way, my driving wouldn't be influenced by what the gauge was actually telling me. Then I placed another video camera in the window, without any of my usual lighting extras or even cleaning the windshield. This was my *"Just Drive It"* footage. No mode changes. Nothing. I just jumped in the car pressed the power button and drove... while capturing it all on camera. The engine fired up around 50 mph, while acceleration up the ramp to merge onto the 70 mph highway. It stayed on until slowing down to 62 mph, when entering the 55 mph segment 9 miles later. The engine didn't start up again until I got stuck as the lone vehicle at a light with a large bunch of vehicles that caught up with me the moment it turned green. That was the perfect opportunity to show the rapid on & off of the system. To my surprise when I finally got to my parking spot, after driving a total of 16.7 miles, there was still 0.8 miles of EV remaining. That was quite impressive considering the speed of travel and the resulting average of 156 MPG. Needless to say, I'm excited about sharing video of this particular drive.

- 3-16-2012** **Driving Home.** The drive home was really with the video cameras was fun too. I made no effort to keep the engine from starting. Heck, I was just as curious as others about what would happen. So, when I got out onto the thruway, I accelerated hard. It started and ran for a bit. No big deal. Efficiency was still outstanding. Then when I got to the highway, in EV, the engine only fired up briefly. The climb up out of the river valley was at just a little over 55 mph... all in EV. The cruise to the 70 mph section was too. Then when the speed limit changed, I punched it... just as I was passing a 2012 Prius just merging on. At that same moment, I got a bluetooth call for the very first time in the PHV. That new interface & ringer sure got my attention, especially now zipping along the highway. So, I told my friend he the conversation was being picked up by the cameras audio recording and told him about other Prius. The driver was now racing to catch up to me, well aware of what I was driving. He pulled up along side, giving me a big thumbs up. That was quite amusing. The drive itself began with Entune sending me an email informing me the recharge was complete. Shortly after that, there was a text from ChargePoint telling me the charge had stopped. They were playing my song. Time to head out. 103 MPG was the efficiency for the commute home. 121 MPG was the overall efficiency for the entire trip, which was 34.0 miles total with 2 full charges.
- 3-16-2012** **Can't Win Them All.** I just reviewed today's video. The drive home gauge video is nothing but a menu screen. Oops! With so much to setup and so much excitement, I was bound to miss something. So, that footage isn't any good. The drive to work is great... and quite revealing about how well thought out the system is. Seeing sustained high MPG and low RPM at high speed says a lot. And of course, all that driving at 9999 MPG with 0 RPM does too. The flexibility of the system to deal with so much real-world variety give a lot of hope for significantly reducing emissions & consumption. Stay tuned. This is just the first of many. There will be lots more opportunities over time. I just wanted to get something out there right away for those anxiously waiting delivery and craving real-world data... just like 11.5 years! It sure is fun being able to pioneer a new frontier again. So, whatever I can share is a win regardless of when a setup or equipment problem occurs.

3-17-2012 **Did You Know?** I particularly enjoyed posting a comment to this particular forum message: *"I would go for the standard Prius at this point, it's a proven technology with a long history of reliability. When you've beaten it into the ground, the PHEV and EV's will be in their second or third generations and be far more practical!"* Most people don't know of the history. Did you? The 2012 PHV is third generation. Toyota started testing plug-in abilities back with the Iconic model, just a simple doubling of the pack to exploit the 100 km/h EV already built into the design. It was neither practical nor affordable, but it did indeed work. Then with the Gen-III model, Toyota switched from NiMH to Li-Ion. They now had both a larger electric motor and larger gas engine to take advantage of. And they did. It was clearly practical, but still pushed it for affordability. Now, there's the 2012. Cost is within grasp of the mainstream and the system is more refined. Having driven that PHV for almost a week now, I can easily see the revisions Toyota made over that previous model I drove in 2010. Besides the obvious physical size reduction, there's the way it is being used. The previous depleted the pack faster when traveling above the 100 km/h threshold. Overall, that was wasteful when you consider it would only take a few minutes to consume the entire capacity available. So, they refined the system. A quick look at Volt is all it takes to realize use of its engine usage approach is crude in comparison. I easily get 50 MPG after depletion from the PHV. Toyota did much more with much less. Yesterday's commute confirmed that, traveling 16.7 miles and still having 0.7 mile of EV remaining while delivering a 156 MPG average. The other day, I watched the EV range climb whenever the engine started up to provide heat. In short, there is a history already. Toyota's distribution of earlier plug-in models returned a great deal of valuable feedback most people are never aware of. They did the same thing back in 1999 with the Original model Prius here, making revisions before rolling out the Classic to this market. Most people had no idea there was already a previous generation test-driven in the United States by ordinary consumers.

3-17-2012 **EV replenish from HV.** The first time I saw EV range climb while driving, it was 37°F outside and heat/defrost was needed. Since the engine was now running, why not use some of that energy to generate electricity? That made sense. It's taking advantage of the power-split ability, allowing the engine to run in an optimal fashion. Power flow is divided & directed in the efficient portions to the needed components. Today as the EV range approached only 1 mile remaining, I switched over the HV mode. Naturally, the stoplight I was racing to changed sooner than expected. I was stuck there, but witnessing the warm-up cycle for the very first time with an aftermarket gauge. That was intriguing. Warm-up for PHV is different from the regular model. It wants to keep the engine off as long as possible. So, rather than shutting off as soon as the coolant temperature hits 103°F, it continues. PHV attempts to build up a heat reserve to allow it to shut off the engine as quickly as possible when still in HV mode. The result of that engine running, while I was still stationary for that horribly long stoplight, was EV replenish. The range went up. It started at 1.3 and increased to 1.7 miles. I then had to climb up a large hill and glide down the other side. By the time I got to my turn, engine & regen contribution had bumped EV range up to 2.2 miles. That was sweet!

3-18-2012 **Just Drive It, video.** This was my very first drive with the ScanGauge connected to the 2012 Prius PHV. I attached it to my filming rig with a camera, then covered them all with a box to block out all the external light. That meant I couldn't see any data until watching the video capture afterward. So, I was able to "*just drive it*" without any influence. The first thing I noticed afterward was the age and generic nature of that aftermarket gauge was inaccurate reporting of travel speed. Darn! It looks like the gauge is under-reporting by 3 MPH. Oh well, maybe there will be a new version available later for owners like me. That data isn't needed for my driving anyway, especially since I have a HUD (Heads Up Display). The next observation was engine RPM. It's accurate, but slow to refresh and reports when the engine motion has come to a halt... not when fuel is actually cut. Fortunately, the PHV model has an EV indicator, informing you exactly when that fuel consumption has ended rather than waiting for the fuel-less engine to stop spinning. MPG an unknown. Since I couldn't see the gauge while I was driving, I'll have to wait for future drives on the 70 mph highway for comparison. FWT (coolant temperature) is priceless in an fashion. You could clearly observe how I entered the highway with the system still cold, how long it took to warm up, and how long that warmth was retained once returning to EV driving. For me, I especially like seeing the low RPM and high MPG while traveling at high speeds. The values themselves are revisions to the system since the early model PHV. That one drained the battery-pack faster, not taking advantage of the engine as much as this one does. This results in an overall higher efficiency and provides more opportunity for EV later. Remember, while in HV mode, the EV range will rise due to the engine running and regen opportunities. Follow this link to watch the video: [Prius PHV - Just Drive It](#)

3-18-2012 **New Again.** There's a renewed vision of the past now. I'm looking forward to filming the drive I did several times throughout last year, those routes to the coffeeshop and back. Today was my first opportunity to try with a full battery-pack. I took the suburb route. Total distance is 15.6 miles. Since firing up the engine was inevitable with a capacity of 13.1 available, I did it intentionally. First time was by pushing the Power button for the first time ever. It was along a route with a speed limit of just 40 mph. That meant very little need for the engine. My interest was how much EV range would be added from the HV driving and at what temperature the engine would shut off at. Range was about 0.4 miles. It was hard to tell though, since some was consumed by a hill and accelerating from a stop. Plus, there was some gain from regen too. It was a similar situation on the way back. Coolant threshold (while EV is still available) appeared to be 132°F, though that was hard to tell with the value rising so quickly. On the return trip, it looked like the same temperature for the engine shutting off. 213 MPG was the final average from the entire drive.

- 3-19-2012** **Unbelievable.** 3 weeks later, I finally responded to this: "*The PHV gets 6 miles in EV mode and 11 miles in a blended mode of gas + electricity.*" The claim came from an outspoken troublemaker, the one from the big GM forum who mocks me in his signature. Ironically though, he doesn't actually understand that his intent to insult isn't interpreted that way by newbies. The text actually means the opposite. But anger clouds logic. I find it amusing, taking it all in stride instead. Anywho, that comment was his very first post on that daily blog for Volt. He wanted to capitalize on the opportunity to spread the misconception about "range" stemming from the window-sticker information. He knew PHV owners we easily exceeding 11 miles without the engine ever starting. He wanted make people believe that wasn't possible. I simply responded to his desperation with this: EPA estimates don't reflect real-world driving, nor are they intended to. They're just standardized testing results from a variety of measurement criteria provided as a means for comparison. 14 miles of continuous EV driving before the engine started up for the first time was what I experienced on my commute to work this morning in my PHV.
- 3-20-2012** **The Last Wait.** My purchase still isn't complete. To finalize, the process required more waiting. I needed proof from Toyota itself that the PHV delivered to California was immediately transported out of the state for registration in another state. That document was delivered to me this evening. One step closer. Now, I can go to my local department of motor vehicles to submit for title, pay my sales tax, transfer the vanity plate, and officially sell my 2010. It's been quite an adventure along the way. My salesperson was a dream come true. She handled everything wonderfully, from afar. I look forward to a trip out to the West Coast (something I've been dying to do for years) finally happening. The route will take me near the dealership, so I can thank her in person. That will be exciting! So much waiting... but totally worth it. Great memories. My first plug-in. To think about how many years I waited for this to happen. This last step in nothing in comparison. Soon, all will be done. Yeah!
- 3-20-2012** **Affirmations.** Even some of the loyal GM supporters are going tired of the mixed messages about Volt. Recently the CEO "*reaffirmed Volt's existence*" and that made big news. What does that even mean? Supposedly the far-right is claiming the far-left has failed miserably with their support for Volt and see it dying soon. Huh? Since when would any automaker kill a niche like that? Why not just remind people of priorities instead, keep the focus on business objectives? Oh! Not having any specific goals makes that difficult. But at least sarcasm helps us deal with the frustration. Needless to say, affirmations without any clarity are pointless... which explains the weary comments. That was to be expected though. With gas prices high and Earth Day approached, it's really difficult not routinely encountered efficiency technology in everyday discussions. I resonated this: It's nice knowing the game is changing anyway. This month the last of the 2011 will be cleared out and first of the PZEV models available. That's going result in a sales boom with nothing certain for the following month. CEO reaffirmations will have to be clarified at that point, especially with the Prius PHV adding a layer of market complexity for consumers. Simply saying Volt will continue doesn't actually tell us anything. What are the actual plans? How many? What cost? When?

- 3-20-2012** **All Of The Above.** We've seen how Volt turned into a politic pawn. That came about from hyping expectations. Not being realistic leads to trouble later. Sure enough, that's exactly what happened. Part of that was the portrayal of Volt as an EV. When the cold season arrived, engine running for initial warm-up became an everyday occurrence... regardless of how full the battery-pack was. That wrecked EV promoting. Then there's the direct-drive reality, when the engine contributes to thrust at times after the depletion. EV use of an engine for mechanical propulsion violates the definition of even being a SERIES hybrid. Then to make matters even worse, the MPG itself while depleted was well under expectations. Each successive disappointment has contributed to the backlash we're seeing now. President Obama has supported funding on all fronts, investing in "Energy Independence". That doesn't mean the absolute of never using oil anymore, despite all the spin saying that was his original intent. This is why Toyota's approach with PHV irritates some so much. It significantly reduces consumption of gas, rather than eliminating entirely. Remember all that original promotion of Volt's engine as an emergency device, something only ever used to prevent "*range anxiety*" exclusively? That was supposedly why MPG was no longer mentioned following the fallout of the horrible "*230 MPG*" advertisement campaign. Anywho, the point is to invest in solar, wind, hydro, nuclear, ethanol, biodiesel, and yes, more oil drilling. While at the same time, invest in technologies which reduce the consumption of those fuels. That's the all-of-the-above approach. That's quite difference from the one-size-fits-all we've seen with Volt so far. Think about how PHV is much more efficient than traditional vehicles even without plugging in.
- 3-21-2012** **Recharging Twice.** It's already becoming a blur about what I've done when. Thank goodness I'm scrambling to come up with a standardized way of easily documenting detail. Some days I get to recharge at work, others not. It depends upon if I want to and have time to walk over during my lunch. Session times allowed will be 4 hours, later when demand grows. So, I'm seeing how well that works when I have the luxury of doing it whenever now. Also, there's benefit of the "*cold soak*" wait. That's when you allow the battery-pack to rest before fully recharging it. That a good practice for longevity, but by no means necessary for the occasional replenish off right away. Setting the recharge timer (just pressing the clock button upon powering off the system) makes that easy, as well as letting you take advantage of off-peak electric rates. Anywho, I've been snapping photos randomly with my phone to note when certain events happened. It's quite remarkable seeing so many commutes above 100 MPG. Recharging twice in the same day makes that simple. You can literally "*just drive it*" to get that efficiency. Most owners likely won't have the opportunity to recharge a second time. But when charger prices finally drop, especially for the 240-volt type, that will change. Only taking 1.5 hours for a full recharge is really convenient. That's a visit to the coffeeshop, theater, mall, or restaurant.

- 3-22-2012** **Recharge Port Location.** That was a hot topic a few months ago. Then it died entirely. No one has said anything about it since. So, I revived the discussion with new information... that from someone with experience, rather than all of us just speculating. I'm curious what others will have to say about this: After having plugged in several times now using a public charging-station, the location of the port seems obvious. You want it as close to the corner of the vehicle as possible, as well as high as possible. First, in the back corner is more convenient. That makes it higher than what in front by the door would offer. So, you don't have to bend down as far. The corner also means the reach is less of a issue, since cord length and station position are often limited. Second, that makes it more visible. You really don't want anyone to ever bump into it. That back corner reduces that exposure, which you'll notice the first time you park really close to someone else. Third, plugging & unplugging can actually be done from behind, which could be handy for those of you who have tight garages. That wouldn't be possible from a front-side location.
- 3-22-2012** **That Was Fun!** My first drive-thru experience with the PHV was this morning. Tired & hungry, there was little interest in bringing attention to the technology. So, I didn't say anything at the window to pay. However, I had noticed how being close to the wall and under the awning channeled the oscillating dron of the pedestrian warning sound. Turns out, the guy taking my money did too... the moment I lifted my foot off the brake. All of a sudden, he's hanging out the window trying to determine what had just alerted his senses to my vehicle being different. He peered at me dumbfounded. I looked back and said, "Plug-In Prius; 100 Miles Per Gallon". His jaw dropped as I slowly pulled away. Think I made an impression?
- 3-23-2012** **Updates? When?** I posted a note on the homepage of my website 3 weeks ago, stating I had purchase a PHV. Nothing has been updated since then. Regular visitors have no idea of the struggle I've been having to finalize the purchase or even of my transport wait. It's a good thing I'm able to learn new things quickly and take photos every step of the way. So much of what I've experienced since then is documented... just not shared yet. Needless to say, I'm getting email now asking what's happening. One response of reassuring I thought I'd share. After all, it's rather fun keeping some of these thoughts & feeling to look back upon later too. These are exciting memories I'm living out right at this very moment. Anywho: There are lots of updates on the way. Totally new material takes time, and I've been quite busy tackling a variety all at once. It takes forever to use up the first tank of gas with the plug-in too. Learning about all the different situations having EV capacity available presents has been the most rewarding. These initial experiences make me feel like a newbie again. The opportunity be able to check the status of the recharging and interact with the car from your phone is empowering too. It reminds me of my first Prius, back when we first discovered how informative having a screen on the dashboard was. Long story short, there's stuff coming fairly soon. Hang in there.

3-23-2012 **Inflated Prices.** The backlash on rising gas prices sure is taking an interesting turn. The claim by pundits now is that it is intentional, that the prices are being artificially manipulated to encourage the purchase of efficiency vehicles. Of course, none of those making those claims will address oil subsidies. They just blame people who support hybrids & plug-ins responsible for the problem. Those who saw no reason to stop guzzling just a few years ago are not at fault, since their promotion of "*Drill. Baby. Drill.*" supposedly wasn't taken seriously. Could you imagine just using more gas? How would that help our children? Needless to say, some on the big GM forum aren't taking the situation seriously now. Instead, they are lashing out at the success of the new c model of Prius. I contributed to that nonsense, having been called out by several awaiting me to inevitably chime in, with this: Already having a top-selling clean & efficient choice is a good plan for when the oil subsidies are scaled back. GM's wait for the next generation approach is reason for concern. Two-Mode basically died in the meantime. The rebirth of BAS (now eAssist) isn't competitive. And now we wait for an unknown revised Voltec several years from now. Consumers are left wondering what affordable there is to buy... especially when Toyota is demonstrating that continued improvement from diversifying right away can be very effective.

3-23-2012 **Quiet Recall.** It's been a few days now. GM is replacing all 120-volt chargers delivered with Volt. We've known about the overheating issue since last Spring, reading a variety of reports from owners since then. But replacement was always upon request. We just figured there were some bad ones, not a big deal. Though, that is something a test-program like Toyota offered would have revealed... saving GM money and potential reputation harm. Instead, they just act as if nothing is wrong. The quote given from a spokesperson today was, the new ones: "*offer some more consistency in charging*". What the heck? That almost makes it sound like a free upgrade. See how each step along the way distorts the big picture? Few will recall details like this later. For someone not in the market for a new vehicle yet, that may not matter. But for those die-hard supporters who had hoped for game-changer sales are now facing the reality of early adopter, almost as if it was self-fulfilling prophecy. Of course, even that wouldn't seem to be an issue... until you come across a Prius PHV owner not facing any of that. Remember, PHV is already in its third generation. Toyota has had them on the road in the hand of ordinary people for years. So when the first consumer sales began, they already addressed stuff like what GM is doing now. This is why it was so easy to express the "*too little, too slowly*" concern. Those having studied the need understood the complexities, knowing delivery of something both robust & refined upon initial rollout was virtually impossible. Yet, the hype was allowed to persist anyway. In fact, the hype was actually encouraged. So, now with this recall, you wonder if remaining quiet is even possible.

- 3-24-2012** **Inventory & Sales.** I find the spin the die-hard Volt enthusiasts come up with fascinating. Today, it was this about PHV sales: *"You'd think for a car that supposedly has such a high demand there'd not be one available to buy. And yet..."* The topic was actually how Prius c is dramatically outselling Volt. But the inevitable plug-in comparisons came up, and naturally I was more than happy to contribute to the discussion: It has been a common practice for Toyota send a demo/rental model and require the dealer to hold onto it from 90 days. Following that, they are allowed to sell it. That has worked well for those not already in the pre-order queue still wanting to purchase right away. It's a win-win-win situation for all involved. So, seeing 48 PHV currently listed online as available makes sense. What also makes sense is seeing 4,531 Volt available still. That totally explains why GM paused production. The inventory supply is clearly piling up. 21,951 Prius c were sold in Japan last month, along with 35,875 of the regular model. What are your sales predictions for there and here this month?
- 3-24-2012** **Timer Setting.** It's surprisingly easy, but not clear in the owner's manual. I'll have to add information in the User-Guide for it. The timer is used for setting a recharge time, allowing the battery-pack to rest and for you to take advantage of off-peak electricity rates without any interaction later. You program in a START time and and END time once, then they retained for future use. So when you power off the vehicle, it's just a matter of choosing which you want. (I didn't realize the flexibility was available.) The choice is simply made by pressing the button once for START or twice for END. That's it. When you plug in, the system will automatically start based on what time preference you specified. And of course, if the safety system is enabled, you'll get an email informed you of when charging started & ended. There's also a notification email if recharging is interrupted. It's really handy. I take advantage of the timer setting every evening I plug in at home.
- 3-24-2012** **EV Capacity.** I don't use "range" anymore to describe the EV available. If the engine comes on at all, that really confuses matters. Far too many people assume when the engine starts, no more battery depletion is possible. Part of that stems from certain Volt supporters intentionally feeding that misconception. Desperation has made them to mislead... not a good sign, that's for sure. Anywho, I noticed today that the estimate displayed on the screen and what actually happened on the road was almost dead on. I'm not sure how Toyota accomplished such accuracy. But then again, who will notice? My daily driving takes me all over the place, distracting me from observing that kind of a pattern among the randomness of real-world needs. Today was running errands first thing in the morning... short-trips, but without any engine penalty whatsoever. The estimate said 12.8 miles was available. Just after passing the 12.7-mile mark, sure enough, that was indeed the distance. (Depletion was a an impressive transition too, so smooth I wouldn't have even noticed if it wasn't for the EV indicator shutting off.) Will others notice a pattern or even care? Saying around 13 is plenty good for me, especially since the capacity varies anyway. At the ramp the other day, I started with 13.1 miles but it had increased to 13.2 miles upon driving out of the lower gate. Yesterday, 12.9 was displayed. With a commute of 16.7 miles each way, what difference does it make? I bet stating status in terms of capacity... like half or full... will be what owners say. The EV number doesn't relate directly to the resulting MPG anyway.

- 3-24-2012** **Mall Recharging.** From my perspective, the Mall Of America is local. It's only a few minutes away from home. So, I think nothing of just stopping by... forgetting about all the tourists who also come to shop. Today was my first opportunity to pick up a DVD that I ordered there. It hadn't occurred to me that the rest of the world had all decided to stop by too. Holy crap! That was quite a surprise. But for a Saturday afternoon on a nice travel weekend, I should have known better. Oh well. Even though everyone else was scrambling to find a parking spot. I didn't have to. In fact, those "closed" signs indicating status of each level in the ramp meant nothing to me. It was my golden opportunity to exploit the plug. So, I did... driving right through to the EV charging spots, which were there to welcome me. I flashed my ChargePoint card, grabbed the plug, and promptly connected it to the PHV. It was pretty sweet!
- 3-24-2012** **First Tank.** I traveled 685 miles during 2 week of driving. In those 14 days, I recharged 21 times. The refill took 8.504 gallons, which was just 3 miles after the blinking began. That calculated to 80.6 MPG. The values on the Drive-Ratio screen stated 237 miles EV and 439 miles HV. The total for electricity usage was 60 kWh. It will get really interesting later, as the weather warms. Then, I'll be driving on longer weekend trips to go biking. HV is remarkably efficient. You wouldn't have thought there would be a modest improvement over the no-plug model. But that's what I've observed so far. It will bring my average down. I don't care though. Running around on short-trips is so much more efficient now. So, it all works out. That HV/EV toggle button is really nice too. Getting to choose when to deplete is quite empowering. The system is extremely well thought out. Needless to say, I really enjoying the discovery process.
- 3-25-2012** **This Chapter.** It's coming to an end. Only a handful of antagonists on the big GM forum remain (and all have grown silent on the Volt website). So, I decided to end this chapter in hybrid history (the days beyond initial PHV deliveries) with this summarization: It sure is nice having all those blogs documenting what was actually said and believed. Volt enthusiasts refused to state goals prior to rollout. They were always vague or ambiguous with expectations. But even then, rollout disenchantment was obvious. Discussion of the 50 MPG after depletion and "*nicely under \$30,000*" hope was fiercely avoided. Heck, even the "*40 mile*" range quickly changed upon learning about what happens under real-world conditions. Then came disappointing sales, along with a long string of excuses. Whatever. It didn't matter at that point because the answer to the "*Who is the market for Volt?*" question had already been answered. This generation was an early-adopter niche. The next would be for the mainstream, is what they claim now. The goals for PHV still stand... about 20 km (12.4 miles) of EV capacity, 50 MPG after depletion, and \$3-\$5k for the package option. We always knew the engine would run above 100 km/h (62.1 mph). We always knew using the power-split for hard-acceleration and cabin-heat was more efficient than drawing from the battery-pack only. We always knew a much larger capacity would significantly increase cost. To now claim that's not the case is just a waste of time. No sense arguing what is already confirmed by the blogs. You desperately want something to directly compete with and are quite disappointed Prius targets a different market. Oh well. It's not like you didn't know those consumers in the middle were the one responsible for high-volume business-sustaining purchases. We'll discuss more in a week when monthly sales results are released. Later.

- 3-26-2012** **Wow!** It never ceases to amaze me. The level of rhetoric coming from what was supposed to be a game-changer but ended up being a poor-seller vehicle. Since I left that discussion, the spin is that PHV simply cannot compete because Volt is generations ahead. That complete disregard for the "*too little, too slowly*" concern is remarkable. They just focus on battery-capacity and pretend price isn't an issue. To have that much of a disconnect with actual need isn't much of a surprise. Years ago, the trophy-mentality was already a problem. So now after rollout and a struggle to keep attention, they focus on those who were clear & concise all along... which is the part I find extraordinary. Even though I stated very specific goals and pointed out how well the early model Prius plug-in matched them, they just say I said something else. That detail is noted heavily in the blogs, forum posts, all those photos, and a few videos. How can they think attempting to say otherwise will work? Realistically, it doesn't matter. I've started working on the publishing new photos & video, confirming what I said all along. It's not even frustrating anymore. It's more a sense of dismay. They really don't see the big picture. I sure am glad those currently awaiting their PHV delivery do. This very much resembles generation advancements of Prius we've seen in the past. That's a very good sign.
- 3-27-2012** **Ever Wonder?** When competitors can no longer compete, what happens? Well, that's what we just witnessed. It's not pretty. The signs of an end drawing near are when they aren't the slightest bit constructive, when posts don't even make an attempt to stay on topic. You get lots of politics and a complete loss purpose. They'll never admit defeat either, they just disregard the present and focus entirely on a distant future. In other words, they accept 32 MPG highway advertisements as sensible and hope that Volt will magically overcome the shortcomings from its first generation. I'm truly amazed it got so bad. But it does make sense for those who did not study the market to misunderstand its reaction. After all, we saw nearly the very same thing happen with Two-Mode. In other words, the change they were hoping for ended up quite different from what actually occurred.

3-27-2012 **PHV Video.** First-time setup for Eco-Meter filming with the PHV was quite a challenge. I encountered a variety of new problems, like not knowing where the HUD (Heads Up Display) light-sensor was until after laying out all the new glare-mats. Getting the camera mount to stay stuck to the dashboard didn't go so well either. As a result, I forgot to dim the display itself to prevent over-exposure... which means extra edit work later to tone down the excessive glow. The new higher-quality screen with a faster refresh rate left me clueless about what to expect. Then there was the frustration of using up some of the battery-capacity while setting up... which means less available for the drive itself. There's wasn't much I could do to prevent that though. The weather wasn't exactly cooperating either. Sitting there in the car, I was getting bombed by the tree dropping new spring buds onto the windshield, leaving trails of pollen behind... which I didn't remember to wipe off afterward. When I finally started the drive, being hot & tired, I forgot that turning on the outside vent would result in a lower EV capacity value being displayed on the Eco-Meter. Ugh! It automatically assumes a loss from climate-control usage, revising the estimate shown to a lower value. So when I got to the halfway point, I turned it off (note the 0.7-mile increase). Fortunately, there was still plenty remaining to not have confused that information sharing. Despite the hills, traffic, and not starting with a "full" battery, the drive still resulted in 13.0 miles straight of EV travel. That was nice to capture on video. What was odd was the traffic incident at the intersection shortly following the engine start. Watch for the yellow sports car, then the reaction by the police car. Overall, it was an enjoyable experience. It was a casual Summer drive on a beautiful windy day through the suburb to the coffeeshop and back. With a top speed-limit of 45 mph, it's the slowest by most scenic route. Notice the bike-trail on the side; I ride that with the bicycle from time to time. Watching the Eco-Meter, you'll that most of the there's plenty of EV power available. You'll also see the capacity go up a times from hills and regenerative braking. When the engine finally starts near the end, you'll see MPG plummet. That's a strange sensation watch it drop from 999 MPG. You'd feel disappointed if it wasn't for the absolutely outstanding result for that 15.7-mile drive. 282 MPG is incredible! Here's a link for it: [Prius PHV - First Eco-Meter](#)

3-27-2012 **8 Bars.** It's really an interesting twist how the long-time owners of Prius go out of their way to assure newbies that seeing only 6 bars for battery-pack capacity is normal. Counting the 8 slots available, the newbies expect all 8 to be filled... like when you recharge your phone. Of course, they don't take into consideration that only the PHV actually has a plug available. It makes some new owners really concerned. Then naturally, they panic when all 8 are actually filled, not understanding the bleed-off behavior. Why would the system intentionally consume electricity even when the vehicle isn't moving? It doesn't cross their mind that such an approach is for battery longevity. They're so use to replacing their phone every 2 to 3 years, owning the same battery for over 10 years is a concept totally new to them. So, we just provide comfort saying it's ok. That begs the question of what uninformed PHV owners will think. Currently, all those newbies have studied plugging in well. During their long delivery wait, they research extensively. Someday, that won't happen. Someday, a consumer will be able to purchase a PHV immediately... right off the dealer's lot. Then what? 8 bars is a common sight for PHV. But so it seeing the EV capacity increase while driving. Will those plug-in owners have the same concern as those not having a plug? You'd think not. But predicting consumer responses is a very difficult matter.

- 3-27-2012 Political Pawn.** I still shake my head in dismay about how Volt enthusiasts self-inflict problems. They complain and complain about Volt having become a political pawn, yet continue to draw attention by declaring it as government success which is "*far superior technology*" to all else. They learned nothing about the smug attitude and simply don't care about sales. They just keep saying HSD is struggling to survive and totally obsolete at this point. Some even make up stuff, things that don't even make sense if you give it a little thought. The same old propaganda we saw in the past is back. Remember how the hindered sales of Two-Mode led to the same defiance? Back then, as it is now, discussions of a political nature are frowned upon in the big forums. Moderators try to close threads when the topics no longer address the technology or the vehicle itself. But when there's nothing actually left to say except things political in nature, they become hesitant... not wanting something else to get the attention instead. That's actually the sign of being obsolete... when nothing else remains. To think that it all began by focusing on bragging-rights rather than being realistic about expectations. They shot themselves in the foot way back then and are only realizing the consequences of that choice now.
- 3-27-2012 Just Drive It, revision.** Coming from an owner of two Prius already, reading this give reason for pause: "*OK- maybe I'm just naive; maybe I'm a compulsive worrier; but maybe I'm getting in over my head by buying a PiP. I keep reading posts by new PiP drivers about trying to stay in EV, or the car kicking on the gas in EV or the heater not working right and on and on. This is all starting to scare me...*" It's the web-effect, when experts get together to discuss rocket-science and newbies have no idea all you actually have to do to fly it is push the launch button. They just assume everyone else has that level of knowledge, not realizing there countless unheard guest readers observing the few of us extreme to which we analyze the system. They don't realize that's far from the norm, that you don't have to be an engineer to benefit & enjoy Prius. And now the PHV. So, I quickly jumped in with: This is quite fascinating to hear the same old worries from over a decade ago repeated again. You read online about the things of us with automotive & engineering background are observing & trying with our cars and become concerned. Remind yourself that we are the extreme, the few who research every little aspect of the system... quite unlike any ordinary person would do... hence that "*Just Drive It*" motto we came up with all those years ago. PHV is no different than the regular Prius when it comes to driving. You just remove the plug and go. That's it. You may toggle out of the default EV if you want, but that's not necessary. HV will automatically engage when needed, then automatically disengage afterward. It's great that Toyota enabled owners to take advantage of their high flexible design, but not the just slightest bit necessary. However, I think a revision to that motto is now worthwhile, something like: "*Just Plug, Then Drive*"

3-28-2012 **Hold Button.** There's one available on the PHV. Toyota labels it as "HV/EV". That ability to toggle on & off driving in EV mode is great. I've found it very handy driving my PHV. Why use up the EV capacity available right away, knowing you can better use it later and that you'll get 50 MPG cruising on the highway in the meantime? Those supporting Volt have been fiercely against it, claiming there's no benefit. They've worked really hard trying to prevent PHV supporters from drawing attention to that feature missing from Volt. Some Volt owners have even been down right rude & insulting at times, defending the exclusion... despite the fact that there's a "mountain" mode available, which totally contradicts their argument of simplicity. Anywho, it hasn't been pretty. The downplay attempts effectiveness have been mixed, mostly since PHV is still so new. Turns out, we won't have to wait as long as we thought for that to change. The European counterpart to Volt now being rolled out, call Ampera, is working against their effort to undermine... since it offers a "hold" button. Why that's not available here remains a mystery... and many would like an explanation. The last thing Volt supporters wanted was to draw attention to that difference. It's quickly becoming a topic of frustration for them.

3-28-2012 **Coolant Temperatures.** Knowing the temperature of the engine coolant is empowering information. In the Winter, it tells you when warmth is available from the heater. There's no point in turning the fan up to high if the coolant temperature isn't hot yet. The reverse is also true; there's no reason to turn down the fan if there's plenty of heat still available. The other need for heat is to cleanse emissions; too cold won't allow the chemical conversion to occur. The engine will shut off remain off as until until the temperature of the coolant drops below a particular threshold. Having an aftermarket gauge connected to the Prius offers an insight to how it operates. 145°F is the standard threshold. When coolant is at least that warm, the engine will shut off and remain that way until additional heat is needed for cabin warming or battery-pack draw exceeds the "green" level as indicated by the Eco-Meter in the Gen-III Prius. (Neither the Classic nor Iconic models of Prius provide draw information.) 114°F is the ECO threshold. This lower temperature tolerance is a feature introduced with the Gen-III Prius. It allows the heater to extract warmth from coolant much longer than the previous models, which results in the engine remaining off longer. 103°F is the ECO warm-up threshold for Gen-III when the heater is not used and the Prius is not in motion. This feature is nice if you have to wait for a stoplight after only driving a very short distance. 157°F is the EV threshold for the Gen-III Prius. EV mode (up to 24 mph) is available as long as battery capacity is at least 3 bars on the display and coolant temperature stays at least that hot. 130°F is the engine warm-up threshold for Prius PHV. While driving in EV mode (up to 62 mph), the automatic switch to HV mode will not end until coolant temperature warms up to this point. As soon as it does, if power demand is within the EV range, the engine will immediately shut off. Knowing about the 130°F threshold is quite empowering with PHV. If already close to that or above, you know that engine shutoff after using it for hard acceleration will happen surprisingly quick.

- 3-29-2012** **New Signature.** For the first time in a decade, I haven't provided any website updates for an entire month. PHV ownership has altered the parameters of what to report. Learning about the affect having a plug has on real-world driving situations takes time. So, the 3 weeks it took me to recognize some trends from my own observations shouldn't be much of a surprise. How does one simplify presentation enough to make a large volume of data to be collect easy to understand? Just following the new concept of tracking electricity consumption is a challenge. Adding to that the effect it has on MPG under a wide variety of circumstances is enough to make a person go bonkers when you realize engine warm-up and acceleration really mess up the equations. Just a quick glance at the new graph I composed makes that quite clear. That graph is quite vindicating too, easily confirming my claims about generalizations would lead to very inaccurate estimates. Anywho, I finally did come up with a new signature, one that thoroughly conveys my current driving statistics in a plain and easy to understand manner. That's important when you want to share vitals without overdoing. Here's how it debuted: "685 miles 8.504 gallons 60.0 kWh 80.6 MPG"
- 3-30-2012** **Accepting Change.** This week's online education was witnessing firsthand the fallout which comes from realization that market change has taken place. In other words, those stilling clinging onto "*most is best*" mindset struggled with the idea of balance, desperately trying to fight acceptance. Naturally, I was the scapegoat. But their reaction to the messenger meant the message had been received. March is turning out to be a significant month. Prius c is what started it, based on an initial sales report stating it had surpassed Volt's monthly trend in just 3 days. On the big GM forum, trouble was expected from that, especially when there is still such a strong effort there to portray PHV as an EV rather than just acknowledging it as a plug-in hybrid. That's because they focus solely on Volt offering the "*most*" MPG with no regard for cost. That's also why Prius c irritates them so much, which had a major priority of low cost. To make matters worse, their worry of PHV sales is becoming rather blatant. 1,915 were purchased in Japan in February, the first month of sales there. March is the first for here. Just half that makes Volt look bad. But then again, the last of the 2011 Volt were being cleared out with discounts this month and deliveries of the 2012 Volt eligible for HOV access began. So, Volt should have a temporary surge anyway. But that puts a heck of a lot of pressure on next month's expectations. Evidence of change will be difficult to deny then. Needless to say, I found their comments on the subject matter very informative... especially their arguments in favor of traditional vehicles.

3-31-2012 Smashing Prius. The lack of perspective is truly astonishing sometimes. Arguments on the big GM forum have become pointless. If it doesn't happen in the United States, it doesn't matter. With attitude like that, how does one have a constructive discussion about economics & business... especially when they insist the global market is taken into account. Such blatant contradictions amaze. I found this one posted today fantastic: *"Well, if you are looking at sales numbers, the Cruze smashes the Prius quite handily, as does Toyota's own Corolla."* It came from someone who obviously hasn't been looking at the forest, still only seeing the tree directly in front of him. Oh well. Sales results coming soon should change that. Here's what I posted in response: Looking at the big picture (economies of scale from high-volume production) the sales in Japan are reason to acknowledge a shift in priorities. Prius sales surpassed Corolla quite awhile ago, there. Here, they came within striking distance last month... hence all the attention the recent C model rollout has stirred... since March could be the first ever here to make people consider Corolla no longer being the default compact choice anymore. The potential to surpass its sales this year is very realistic. Take a good look at the specs for the regular Prius and the C model. What the others omitted was the fact that Cruze is in between the two... making for an uneven basis of comparison, which they cannot stand. That's same reason why attempts to force PHV into an EV perspective happen so frequently. They cannot claim Volt is vastly superior if it isn't even in the same category. And based on my first 3 weeks of driving a PHV, the real-world data clearly shows their guestimate of how it operates were quite incorrect. Long story short, next month brings about a fresh look from consumers... now that hype & hope are being replaced by actual sales.

3-31-2012 HeadCam Video. Filming 3 different subjects each with different illumination all at the same time presented quite a challenge. For the HUD (Heads Up Display) to be seen properly projected onto the windshield, the camera had to be located extremely close to the driver's eyes. For both the speedometer-cluster and HUD to look sharply focused, waiting for an overcast day to have soft & consistent lighting was essential. For there to be enough EV capacity available to demonstrate a hill-climbing trip, only a single test-drive to calibrate equipment would be possible. Confident I was well prepared, I strapped the GoPro HD video camera onto my head, then pressed record. On the two turns where you could see me in the mirror, I put up an Eco-Meter photo to conceal that. On the one turn where there's only a glimpse of the silly filming setup attached just above my eyes, I allowed that to be seen. It's good to have a sense humor. After all, the content itself is very exciting. Watch the video carefully. There's lots of detail to observe. Driving exclusively in EV like that is not in any way necessary to achieve outstanding MPG. In fact, when the engine does run, you'll find that switch to HV mode will actually replenish a little bit of EV capacity while at the same time deliver the usual 50 MPG you get from Prius even without a plug. I enjoyed filming this. Hope you like watching it, in addition to finding it informative: [Prius PHV - HeadCam](#)

- 4-01-2012 Presumed Purpose.** There are so many newbies now, it's hard to convey a clear intent. I'm still gather initial data and furiously taking photos to capture key moments. Of course, we're so early in the rollout process, it's rather remarkable how much interest there is already. In fact, there are some PHV owners joining the big Prius forum who have no experience with Prius prior to taking delivery. That's quite an endorsement for such a new product. But then again, Toyota planned so far ahead that virtually all but the battery-pack itself was already in place way back when the first 2010 was delivered back in the Spring of 2009. However, there are fundamental questions still being asked: "*I would presume the purpose of the PiP is to reduce the use of gasoline!*" I think it's great that the clean aspect of Prius stirs so little attention, people just take it for granted. Being green has become so easy, it's forgotten about... which is far better than the downplay from antagonists of the past. Anywho, my response to that presumption was: That's actually secondary, though still a high priority. The primary purpose has always been emission reduction. This has been what sets Prius apart from many of the other hybrids. It intentionally consumes gas for the sake of maximum cleansing. MPG while in EV mode with the automatic switch to HV for warm-up is still outstanding. There's also some EV replenish that occurs as a result of the engine running. So unless you drive nothing but short-trips with hard acceleration, the gas usage is somewhat of a wash anyway.
- 4-01-2012 First Road Trip.** The weather finally got nice enough out to take my first bike trip with the PHV. Knowing that Prius would deliver 50 MPG even without taking advantage of the plug-supplied electricity, I was really looking forward to the experience. I get relaxation time on the trail and behind the wheel. That's a great way to spend a weekend day. Of course, the car itself is still a bit stiff. It will take several thousand more miles for break-in to complete. Driving into an intense Spring wind wasn't exactly the best for efficiency either. To make matters worse, my trip home would be in the evening, after the wind had died down. Oh well. The entire trip was 115 miles. 90 of them were on the highway at 65 mph over rolling hills. Only 1 recharge opportunity was available, overnight at home before I left. The end result was 57 MPG. That's not too bad, especially coming from such a new Prius with an EV capacity of just 12 miles. I'm certainly pleased with that. It should creep up some by the peak of Summer, even with A/C use. Road trips like that are totally worth it, even when they cause my Lifetime MPG value to be lower than average.

- 4-01-2012** **Are What They Are.** It's really odd reading a goodbye. There's a mix of feeling. This one came from a long-time Prius owner who leased a Volt. He tried really hard to bridge the gap and keep discussions constructive. Volt owners constantly pushing the EV perspective upon PHV made that especially difficult. He said: "*I have enjoyed the vigorous debates here.*" But with opinions so entrenched, his respect & courteous contributions not making any difference took the joy away... hence just turning focus to the numbers themselves, saying they "*are what they are*" and leaving it at that. It's what I've said for a long time. But the smug still thrives in some places. Regardless of how hard you work to set realistic expectations, some just plain aren't receptive to being practical. All that "*vastly superior*" taunting certainly confirms that. The real-world data will finally change that attitude, we hope. But not even acknowledging the difference in consumers being targeted makes anything else basically futile. Fortunately, the debates themselves should end as the next generation of design is revealed. We all knew this first generation of Volt faced a painful rollout. Some just take longer than others to accept things like that. I personally appreciated his help. It's not often you get someone so will to expend so much time attempting to keep the peace while we waited for those numbers to become available. I wish him well.
- 4-02-2012** **New Misconceptions.** The source hasn't been newbies or published articles or even comments from those articles. It has been Volt enthusiasts. I saw that coming, hence so much focus on them. This was the good example posted on today on the big Prius forum, from Volt owner: "*Prius PHV drivers will want go slow and hyper-mile it to to get to 15 avoiding ice.*" First, notice how incredibly vague that is. What does "slow" actually mean? For that matter, what does "*hyper-mile*" imply? And since when is trying to squeeze out 15 miles of EV driving before the engine starts up even a priority? It's a plug-in Prius. You get a significant MPG boost regardless of how you drive it. It's quite frustrating how they continue to force an EV perspective, rather than just acknowledging the efficiency increase. I tried to refrain from showing any emotion and just post something constructive: Once the engine goes through the warm-up cycle, using it again becomes trivial... because it shuts off so rapidly afterward and replenish a little EV whiles it running. In other words, those of us driving PHV on a regular basis have quickly discovered some of the pre-rollout assumptions didn't reflect the actual design. You'd be surprised how well Toyota studied everyday driving behavior. That early rollout program really paid off. They certainly did their homework to yield high returns for those consumers who simply get behind the wheel and drive. And for those who do want to game the system, PHV offers lots of opportunity using the Eco-Meter and HV/EV button.

- 4-02-2012** **Real-World Data.** It's now available. Maybe it surprises you that it took so long to provide some. But then again, perhaps not. I collected & analyzed, sorting out important from trivial. And I wondered what would be practical to document on a daily, monthly, and tank basis. The first thing that hit me was filling the tank on the last day of the month would no longer be realistic. It takes much longer to use up the gas when there's a plug. Numeric truncation was another concern that popped out at me. The display only shows the whole number. So, short duration reporting could be misleading. What's also misleading is the difference between kWh of electricity the PHV consumes verses how much is actually drawn from the outlet. Some electricity is naturally lost as part of the conversion & storage process. All this needed to be taken into consideration... before even thinking about how to represent it online. The ideal is on-going graphs. With the 2.5 years of daily-driving data I collected from the 2010, that was already well established. However, I didn't have a convention yet for mapping that to the wild fluctuation of MPG yet. Basically, you drive less, the value is higher. But how does one associate that with the lower value shown for distance? And what about plugging in multiple times per day? Accounting for so many factors, not to mention seasonal influence, too awhile. There's was lots to consider. I think I did a fairly decent job of documenting the essentials. Take a look for yourself... [PHV tank data](#) & [PHV daily data](#)
- 4-03-2012** **Smashed By Prius.** Remember this quote from a few days ago: "*Well, if you are looking at sales numbers, the Cruze smashes the Prius quite handily, as does Toyota's own Corolla.*" I couldn't believe such a disconnect with the actual market was made. But then again, we hear about claims not based on reality routinely from politicians. I was so excited to post this March sales numbers, starting my post in response to that quote (again) with: "*Not true anymore.*" and ended with: "*Change happens.*" These were the official tallies... 21,607 Cruze; 28,289 Corolla; 28,711 Prius. The breakdown for Prius was: 891 Prius PHV; 4,875 Prius C; 4,937 Prius V; 18,008 Prius. Even Camry-Hybrid had a great month with 5,400. It was a crushing blow for those who boasted that hybrids were still far from being mainstream. What can they say now? Getting smashed by Prius isn't what they expected. Traditional vehicles were supposed to remain the norm until Volt becomes well established. Finding out the "*too little, too slowly*" concern was a warning that should have been taken seriously is a very problem. What happens now that it's too late?
- 4-03-2012** **10-Foot Pole.** Whoa! Sales results were posted today... and no one on the GM forum wanted to address them. That thread which had been extremely popular just prior to that abruptly went silent. Even using a 10-foot pole (something off topic) was avoided. Nothing. They wanted to stay as distant as possible. My post with totals and the model breakdown was too much to bare. Their expectations weren't met... and mine were. That's a recipe for retaliation. But since I was posting nothing but brief responses, they didn't actually have anything to retaliate with. It's really difficult to spin clear & concise statements. I knew it and they knew it. That made me curious. Each month has brought about new excuses. What would come this time? It was said over and over again to be patient, wait until the second year for that 60,000 annual level to be reached. In fact, some got quite angry when 2 years back when I question how they believed such a sales rate would be possible. They felt insulted. I simply noted their unrealistic claim for reference later... which is now. The priority of price should have been higher. They didn't take that seriously. Now, it's a big problem and the proof is overwhelming. This next month's tally will be very interesting.

- 4-03-2012** **Repeating Questions.** The attempts to discredit are becoming so transparent. Geez! They ask same old question you've been asked countless times already. Then they accuse you of ignoring them when you don't respond. I think they believe the casual reader won't notice the pattern; however, drawing attention to me defeats that. Forum regulars stand out. So making me into a regular on the big GM forum by always targeting me for attack is counter-productive. Yet, they do it anyway. They even call me out when a new thread is started that they know I'll be interested in but haven't posted anything yet. I find it quite educational. After all, my purpose is to confirm market progress and find out what they fear. It's somewhat bizarre how they so unknowingly expose themselves like that. You'd think they'd realize it eventually. But years later, it's still the same thing with each new high efficiency vehicle. When their own vehicle expectations are not met, attack the competition. There's an aspect of disbelief with so many failures caused by not setting realistic goals. Learning from previous mistakes should be a given. But that still hasn't happened. Stop bragging. Just focus on what can actually be delivered rather than always wanting to over-achieve. Long story short, watch for repeating questions. That's a sign.
- 4-04-2012** **Charging Stations.** You have to wonder where some resistance truly comes from. Some origins can be traced to assumptions. Some emerge as the result of misconceptions intentionally being spread. But the resistance itself is a choice of each individual. No one forces them to have a particular attitude. That's their own purgative. The one which always irritated me (and still does) was brand loyalty. Some people actually believe there's no way cooperation among plug-in supporters is actually possible outside of a particular offering. Spanning across the automaker divide is impossible in their minds. The response is thoughtless contradiction, rather than actually considering a mutual gain. So when it comes to charging-station availability, that's just outright dismissed as being capable of contributing anything to the acceptance of plug-in vehicles. It's actually the same old close-mindedness we dealt with in the past with no-plug hybrids. On the big Prius forum, where they try really hard to be constructive, I pointed out a senseless remark (from an individual with a passionate despise for PHV) recently been posted on that daily blog for Volt: "*Public chargers will do nothing, notta, zippo, for plug-in sales.*" Then added: I simply reminded myself his "*vastly superior*" claims fall on many deaf ears now. Seeing charging-stations become available here will indeed be an influence. Focus is shifting to the market in general too, rather than hope & hype of the past. This previous month's sales of Volt included 2011 clearance models and HOV-eligible 2012 models with both federal & state credits. So, it doesn't provide any basis to measure trend. What April, May and June reveals will be telling... especially now that PHV deliveries are in progress. There really isn't an early adopter phase either, since there is already a widely accepted charging standard and PHV is actually on its third generation. There isn't much for misconceptions either. The challenge now is basically setting realistic expectations for ordinary consumers.

- 4-05-2012 First Photos.** My 2012 PHV got dropped off after sunset, so the first photos were at night. Since it included new LED lights which no one had posted any images of yet, I was happy to oblige. It was exciting to see something intended to be unique. After all, that's what the luxury cars have been doing for a little over a year now. Why not a signature look from PHV as well? There were also new lights for the back of the Prius. It was a great opportunity share something entirely new. I didn't hesitate either. Being totally dark outside, it wasn't exactly the way those DRLs would be seen though... the big ones on the bottom, that is. The fancy "Zorro" type slash on top would be seen anytime any light was turned on. Anywho, I managed the darkness by parking near a street light. And in the parking garage the following day, my curiosity compelled me to use the camera to see what those DRL lights looked like under moderate lighting when you could actually see the car. So, I took a photo that way too. It was especially memorable. You can see exactly what I saw, here on this webpage... [photo album 172](#)
- 4-05-2012 Display Photos.** The PHV model provides some new information and new screens. With the video I captured, there were photos to be taken too. It was real-world data, finally. No more wondering or speculating, complete with detail. That's what we've been waiting for... for a very long time. There's lots to share now. That feels great... especially since some of it will help keep the misconceptions from getting out of hand. There's also the reality of those few who intentionally mislead. It all makes the benefit & urgency clear. It's rewarding too. After all, my brief data-collection opportunity 1.5 years ago only represented a few days of travel with an early model. This is the first of many, in an on-going effort to collect & document as much as I can. It's a good way to study the design, starting with those displays you'll see while driving... [photo album 172](#) [photo album 173](#)
- 4-05-2012 More Photos.** My commute on a pleasant Spring day, complete with a recharge at work was documented with my camera. More photos right away is good. It's exciting to have such a stream of real-world readily available. Later on, I'll appreciate for my own reference too. Winter changes everything. This upcoming snow season will be my first with a plug. That means making discoveries firsthand, sharing them with others having those new experiences, and reminding myself how much it will transform after that snow finally melts away. With a Prius, that cold to warm routine each year is quite refreshing. I've looked forward to it for over a decade. Now, it will be even more so, based upon these very photos I just took... [photo album 173](#)
- 4-05-2012 That Other PHV.** Two were delivered to Minnesota. Mine was officially the first. That other PHV was delivered the following morning. The owner drives quite differently too. His trips are shorter, but more frequent. His recharging opportunities are more abundant too. As a result, he just filled up for the first time today. I've already burnt through 2 tanks and am working on my third. His statistics were much more exciting than mine too. 1,097 miles in EV. 516 miles in HV. Whoa! That's quite remarkable. 229 kWh of electricity and 8.75 gallons of gas to travel a total of 1,613 miles. He even had 4 miles of EV capacity remaining at the refill. Doing the math, the result is 192 MPG. That's the type of potential we've all been hoping to see someone take advantage of. With all his city driving, the benefit is quite obvious. It really makes me wonder how others will interpret his real-world data, especially when it's in such contrast to mine. Of course, even mine is impressive. But with such variance, it takes that "*your mileage will vary*" disclaimer to a whole new level.

4-06-2012 **100,000 Sold.** This was asked about the sales record GM just set: "*Where's the problem here? GM are selling more cars that are economical.*" I climbed up on the soapbox: It's the same old "do the minimum" problem we saw prior to the bankruptcy. In fact, the auto task-force raised a "too little, too slowly" concern about the bankruptcy recovery plans. And sure enough, that's the problem being faced now. All that highway-only advertising paints a disappointing picture of what to expect. They're proud of selling 100,000 cars that offer "*30 mpg or Better*". But when you look up the MPG for city, you quickly realize real-world efficiency is going to be must lower than that highway value. Look that the 2013 Malibu eAssist. No level of "percentage improvement" spin can hide the reality that it only gets 29 MPG combined. They've lowered expectations and hoped no one would notice. Remember how 40 MPG use to be the goal? Now it's only 30. Why should people settle for that, especially when you've got Toyota & Ford making that their minimum, on hybrid platforms with will support plug augmentation? Hyundai & Honda are working hard to offer that too. Here we go again with the GM trouble. Read posts about Volt from supporters. There are some who post comments that aren't the slightest bit constructive with little resistance from their colleagues. That's a bad sign. It's the same thing we saw years ago.

4-06-2012 **Done The Math.** What do you say to someone who insults with malice? There are some who are themselves smug, but see it as though they the one being civil. It's an odd situation without a good solution, despite how often we encounter it. After a few comments from others about that emotional expression, I felt the need to chime in too... especially since the originating topic was one Prius owners have grown quite familiar with over the past decade... mathematical equations trying to disprove the value of the hybrid. Of course, this time, we were insulted by not having done the math. Supposedly, that would beyond any doubt prove Prius was not worth it. Ugh! Oh well, this was my discourse: Remind yourself that many of the "break even" analysis of the past treated everyone except hybrids owners as idiots. Hybrid owners took the time to consider the world around them. Everyone else was believing what they read without question. It was mind-boggling that they'd use prices like \$1.69 as the projected price of a gallon of gas in 2010. Even those those later analysis with revisions to \$2.50 were so far off the mark, there was no reason to take them seriously. Did they honestly think the United States would have cheap gas when the rest of the world was already paying so much more? Do they still think that? Prius makes the math easy now... and it still has nothing to do with being seen. Years ago, Prius was the only midsize hatchback available... making it an extremely practical vehicle. That's difficult to deny now that the other automakers offer a midsize hatchback too. There's a balance of priorities. Be weary of any analysis that focuses exclusively on a single trait. Consider the big picture, other factors like emissions rating, vehicle size, purchase price are important too. And remember, efficiency estimates generalize, which means the "your mileage may vary" reminder shouldn't be dismissed as these analysis reports often do.

4-06-2012 **Hypermiling.** Those few remaining Volt troublemakers went on and on trying to discredit me. You know, if you don't like the message, shot the messenger. My strategy was to respond with just 2 or 3 sentences, remaining on topic. It was an implied acknowledgement of having seen their claims, but not actually taking the bait. One recent series of attempts was to cast me as a hypermiler. Of course, anyone who knows me is well aware of how I promote the "*Just Drive It*" motto. So, they cautiously avoided actually providing any definition of what hypermiling actually meant. They'd just imply I was doing something extreme while driving to squeeze out much greater efficiency than an ordinary Prius driver would get. It was shallow & desperate. But when sales fall well below expectations, that response was easy to predict and it was pointless express any emotion. So, I just posted goals again. Interestingly though, the actual definition of hypermiling doesn't make sense with a PHV model Prius. The HV/EV toggle button allows you can take advantage of the system with the greatest of ease. Little effort is needed too, since you quickly become familiar with the results of your routine driving. For example, when I leave work I drive about 1.5 miles through the city in EV. Then I switch to HV, allowing the engine to casually warm up for the next mile of driving. Doing that means no EV capacity drain, as would happen from a rapid mode switch at the moment you accelerate to merge. In fact, the opposite happens. You watch capacity creep up a little bit. That replenish is a nice benefit from FULL hybrids most people didn't realize the plug-in model would see a gain from too. But by using that button, you'll get labeled as a hypermiler... especially since the constructive Volt owners are now speaking out in disappointment from not having the same ability. The troublemakers thrive on bragging rights. So, you can imagine the resentment they feel about this.

4-06-2012 **12.1 Miles.** Some rechargeable batteries perform above specifications initially. That was indeed the case with my PHV. It hadn't occurred to me until I started to witness that. Then it was too late to take lots of photos. In fact, I never did at the highest. That was 13.1 miles. I actually saw 13.3 miles ever so briefly once, as I exited out of the bottom exit from the ramp from having recharged at the top. From my house, I was able to drive 14.0 miles with only EV taking the "Along The River" route, which only has a maximum speed of 55 mph... then ends with a step & curvy climb up at the 13.7 mark. So, I may have actually been able to go a little bit further. But all that's in the past now. 12.1 miles is what the "full" level has settled at, which is definitely above the 11-mile rating from the EPA. That takes me all the way to the on-ramp for the highway to cross the river... which just happens to be all downhill and I never even have to leave the merge lane, since I exit immediately after crossing. That means the engine is only lightly used then, allowing it to warm up quite efficiently. In other words, it was an rewarding morning commute today. I traveled 17.2 miles, which resulted in an average of 226 MPG. That certainly exceeds the 50 MPG from my previous Prius.

- 4-07-2012** **Oops!** The ability to preserve EV capacity for later use has proven quite valuable. So much so, it has become a source of irritation for Volt owners. Why didn't they get that ability here in the United States? It's provided with the European model. I push the HV/EV toggle button whenever I know there's going to be a long span of highway cruising followed by suburb driving afterward. Why would I want to consume the entire capacity on the highway? It depletes quickly when traveling at high speeds in any plug-in vehicle. Since PHV offers 50 MPG while cruising, it's an easy decision to switch over. The fact that EV capacity will usually replenish some during that HV mode travel makes it a no-brainer. However, there can be a penalty. In my case recently, I misjudged on 4 separate occasions... ending up with EV capacity still available upon reaching my destination, where I intended to recharge. Oops! Oh well. I plugged in anyway. This is why I included a decimal-point on my spreadsheet. I had anticipated partials. After all, why not take advantage of the opportunity? Even if it isn't complete, it's still an efficiency boost... which is the point. I'm sure I'll look back at this experiences quite fondly near the year's end, when temperatures plummet. Then, I'll be taking advantage of the engine for heat too. True, you'll still get super-boosted MPG even with the engine running. But again, why consume that EV capacity when you know it could better be used later during your drive?
- 4-07-2012** **Public Charging.** It's intriguing what the plug-in discussions stir. This isn't academic anymore. It's real. People are actually driving plug-in vehicles now. The future has arrived. So naturally, the perspective is somewhat different. Real money will be spent soon. We know what the circumstances are, but still struggle with recommendations about what could be most effective. Today, it was this comment: "*I think charge time might hurt big volume public charging.*" I interjected a dose of perspective which hopefully would stir even more discussion: Whether or not large-volume parking can adequately support public charging becomes an issue, it's not the same situation for smaller businesses... who are always looking for an advantage over the big guys. Coffeeshops are a great example. Restaurants are another. Owners of small lots leasing store space seek out ways to attract business too. Think about how some already offer parking discounts for patronage in areas with high competition. Working recharge appeal into the infrastructure of small businesses, which are seeking out new opportunities anyway, isn't too far of a stretch. Future patronage could include taking the plug into account. In fact, it could even alter the paradigm of location. And what about park & ride usage? Old school thinking just plain doesn't work anymore. New approaches will need to be tried. Some will catch on. Others will flounder. I find it very exciting to participate in the shift.
- 4-07-2012** **Old & New Memories.** I had a variety to share. It felt great being able to stir some old memories while making new ones at the same time. The first of which was my drive yesterday. I was delighted to see the 28 miles of EV on the drive-ratio screen. That's quite a return for just 2 recharges. Next was the capture of what excited me back in October. I was quite surprised to see the ramp at which I park for work installing 82 kWh solar-array. Then there was the bittersweet reminder of a horribly cold sunset I spent out on a desolate country road. It was the perfect setting for the very last photo I took of my 2010 Prius before getting the PHV. That was only a month ago. But it already seems like a distant memory. Lastly, I wanted to include something extremely new, to make that particular webpage complete. It's what you can see on the display while the PHV is recharging. All those photos can be found here... [photo album 174](#)

- 4-08-2012** **More Memories.** There's a photo of what you can see on the display while the PHV is recharging. I also captured the screens right before filling the PHV gas tank for the very first time. I took a photo to capture status at the end of the month too. Then with more highway driving, tank refilling a second time came sooner. So, I documented that as well. It difficult to actually know what's worthwhile still. No pattern has emerged yet. You drive a lot further with the same amount of gas from being able to augment with electricity quite often. All that certainly makes these initial days of owning a plug-in hybrid quite memorable. It's nice taking photos now that I'll be able to look back at years later. See what I mean... [photo album 174](#)
- 4-08-2012** **Slow Progress.** There was an op-ed article written for and posted exclusively on the big GM forum today. I was intrigued. It directly addressed the problems Volt has been struggling with. People seemed to be receptive to the comments made too. Perhaps seeing sales grow has changed attitude from always being on the offensive to being willing to listen first. It had become really bad. Volt was vastly superior, period. Now, some see a rethink is needed. It's progress, though painfully slow. My contribution to that open-minded thread was: I agree with that sentiment focus. Setting expectations different right from the start would have resulted in a very different outcome. The constant comparisons to Prius never made any sense, since supposedly the goal of Volt wasn't the same. Yet, there was a never-ending theme of matching purpose. Making Volt a premiere vehicle would have been a wise move. Treat it like a high-desired niche vehicle rather than something intended for mainstream penetration immediately upon rollout. Prius did not follow the traditional route for introduction of new technologies, it differed from history. It debuted with a sticker-price of just \$19,995. That directly aimed it at middle-market rather than targeting the high-end. Then when it was upgraded in late 2003, there were a variety of new high-end feature offered that weren't even available on Lexus vehicles. Prius carved out it's own packaging niche instead of totally recalibrating for the mainstream... which obviously proved a successful move, based on sales and the reaction from competitors. So what will happen with Volt now to broaden its reach? It's a whole lot easier to offer more than to scale down. Or should becoming affordable not even be a priority for Volt? What if the technology was expanded in low-cost form to a model of Cruze instead? Keep Volt for enthusiasts and create a new offering for high-volume sales.
- 4-08-2012** **Prius c Sighting.** There was immediate recognition, despite the distance. The deep orange color (called "Habanero") in the high-contrast lighting from the setting sun is likely what caught my attention. I looked vigilantly as it approached. Seeing that the car resembled a Prius and had a seemingly larger than usual blue Toyota emblem in the middle, its identity was easy to confirm. So, I made an effort to get a good look at it from behind as that smaller Prius passed by. It was sweet! I wondered what my first Prius c sighting would be like and when it would be. That was nice, on my drive home from spending time with the family celebrating Easter. It sure will be exciting to see them on a regular basis. Prius v is already becoming like that. I see them routinely already.

- 4-08-2012** **Brief History.** That thread about the op-ed has become strangely constructive. That captured my interest. The history of Prius came up several times. I provided the following, trying to address a number of the topics they had stirred up with respect to wanting to know more: Prius wasn't available on dealer's lots until May 2002. For the 1.5 years prior to that, it was direct-order quoted-limited long-wait sales only. So, actual demand was pretty much impossible to gauge. Of course, gas was only a third of the price it is now anyway. Only a tax-deduction available until 2006. That worked out to be \$300 to \$400 for the typical buyer. Sticker-Price was in the low 20's. Profit came from creating Echo afterward, a non-hybrid sibling. The engine was retuned for horsepower instead of emissions & efficiency and the power-split-device replaced with a traditional transmission. That was cheaper to produce, could easily be sold in high-volume, and would help fund advancements with Prius. The plan worked out well too. Sometime in the summer of 2003 several economies-of-scale kicked in to return a profit for Prius itself. Late in 2003, the Iconic model was rolled out and greeted with strong sales immediately, pushing it into the mainstream (60,000 annual) right away. By the time the first tax-credit was offered in January 2006, the reputation of Prius was well established. The purpose of that subsidy was to achieve deep market penetration quickly and stimulate the competition to begin offering their own high-efficiency technology. Toyota's approach was to increase efficiency along the way, keeping it priced for middle-market each step of the way. GM's approach is quite different, shooting for an ideal capacity immediately upon initial rollout, hoping the premium price will drop quickly. Needless to say, it will be fascinating to watch how the market responds over the next few years. Plugging in is new to everyone. Priorities vary. Wants influence purchase decisions. Choices are limited.
- 4-09-2012** **HV using EV capacity, observation.** This weekend was my first opportunity to find out what actually happens over an extended distance over a variety of roads. 60 miles of driving with only a single charge, the first 9 of which were at 70 mph. That meant using the HV/EV toggle button to preserve EV capacity for use later. After that initial highway drive, it slowed to 55 mph, then 50, then a very long stretch at 30. That's when my curiosity peaked. Would the system automatically take full advantage of the EV capacity available, even though I was still in HV mode? Turns out, it does... which is a wise design approach, since STEALTH mode is the most efficient use of overall resources. In other words, you can drive and drive and drive in the Eco-Meter's green zone with a seemingly endless supply of electricity, quite unlike the usual distance limitation of the regular model Prius.
- 4-09-2012** **HV using EV capacity, simple.** The request was made for a simple explanation, wanting to know why indentifying various states of operation even matter. After all, that is counter to the idea of ordinary vehicle ownership... since most people don't have a clue how an engine or transmission actually work. It is difficult enough trying to understand HV and EV when you look closely at the Eco-Meter and notice a variety of different indicators are presented. Now, we're pointing out what they mean when other efficiency-influencing factors like charge-level, power-demand, and outside temperature are included. So, I kept it brief with: When the engine is off, it depletes regardless of mode. When the engine is running and warmed up, capacity is retained & replenished. The term "*STEALTH*" came about to indicate when the engine is off, even though you aren't actually driving in EV mode, since the speed & power thresholds are different.

- 4-09-2012** **HV using EV capacity, awareness.** An excellent question came about from me posting my observation: "*What is the advantage of what you found in your test verses just leaving it in EV?*" Getting to point to aspects of the design, then answer what people ask about it, is quite rewarding. It's gives a good feeling to have a strong understanding of the system... which why I try to share that knowledge with others: You quickly develop a heightened awareness of when extra power is needed and prefer to have the engine warmed prior to that, especially when driving well beyond the EV capacity available. Leaving work, if I drive through the park, there's a very steep climb out of the river valley. But before it, there's a long stretch that's totally flat and only 30 mph. Firing up the engine then very efficiently warms it up. In other words, rather than losing EV from a rapid engine start, you actually end up gaining a little EV. Always keep the overall outcome in mind. Immediate power demand with a cold engine will result in EV capacity being used to compensate, since emission reduction is a primary goal of Prius. With an engine already warmed up, the request for power ends up resulting in a clean & efficient high RPM to both provide thrust and recharge at the same time. Gotta love that.
- 4-10-2012** **HV using EV capacity, documentation.** Inevitably, another one of the well informed had to step in with an explanation of why I would post such information. It concluded with: "*These posts are the documentation of that understanding.*" That brings back memories from over a decade, back when I was the newbie. Things sure have changed over that time. Here's what I had to say about the situation: That's it. Having driven 3 different generations of Prius over the past 11.5 years allows me to provide examples situations that could otherwise go overlooked for many, to appreciate the well thought out design. You could take advantage, of course. But that's true with any vehicle. The fact that Prius differs in subtle ways from other hybrids is extremely difficult to understand without knowing details like this. You'll also find the knowledge quite comforting later, like when Winter arrives. So rather than getting worried about the engine running for cabin heat, you'll feel assured that it's using that gas in the most efficient way possible. That means go ahead and play with the HV/EV button. You'll confirm that most of the time the system will make the best decision about how to use the resources available. So, you can try that at home. But the conclusion for many will in the end be what's been said all along: Just Drive It.

- 4-10-2012** **Repeat Buyers.** There was an article recently published. Same dance. Different song. It was basically a new twist on the old theme that hybrid premium is difficult to justify. I commented with: How is this different from the misleading propaganda we've dealt with in the past? The most obvious repeat is timing. In this case, the article didn't recognize the fact that Prius choices were just beginning to expand. Prius v wasn't available until fourth quarter and neither Prius c or Prius PHV were available until 2012. The next problem is all the Highway MPG advertising, which gives people the impression overall efficiency will be similar. In reality though, Combined MPG is much lower and City under that. Word about that deception only now beginning to stir. Then there's the lack of understanding about plug-in vehicles. It confuses consumers in a market which, unfortunately, includes some people who intentionally spread vague & outdated information with the hope of incorrect conclusions being drawn. Lastly, what if there really is a drop in interest for repeat purchases? There's nothing actually indicating that would be permanent, especially when next generation hybrids are rolled out. After all, look at how quickly people abandoned big SUVs as soon as gas hit \$4. Remember, with the overall quantity of hybrids being purchased now, each new one on the road changes what's considered the norm... regardless of who.
- 4-11-2012** **Another Infobit.** Here's another infobit to add to the awareness & understanding. PHV prefers not to leave EV capacity at full. So when I left home this morning, the switch to HV depleted a little bit anyway. To be specific, the "happy state" seems to be around 82%. Capacity was reduced from 12.1 to 9.9 miles while driving at 70 mph in HV mode. In other words, it has a battery longevity strategy similar to the regular model Prius. That's a good approach. Regen would be wasted if there was no where to store that electricity. The consumption of a small amount of electricity helps with emission reduction too, by allowing the engine to warm up more gracefully rather than a hard switch over. You still have an ample amount of electricity remaining anyway. And of course, normal hybrid system operation results in some recharging. That works out to a win-win situation, although that certainly isn't the impression newbies will get when they first witness the behavior.

- 4-11-2012** **Big Climb.** Today's commute was just a single charge. I got to my parking spot with 7.0 miles remaining. Upon the "big climb" on yet another route home, I had switched to HV and was down to 5.8 miles remaining. At the top, it had risen to 6.0 miles. And since this particular drive brings me higher than needed, there was rolling regen opportunity on the way down. 6.2 miles was the EV capacity by the time the ground had leveled out. Then after some suburb driving in EV, it was back to HV for some 55 mph cruising. Capacity was down to 3.8 miles. Stoplight a few miles down the road. Capacity shot up to 4.2 miles from braking regen. Another stoplight a mile down the road required brakes again. It grew to 4.4 miles. The light turned green, I drove a bit, then it was finally HV depleting EV capacity on a long 30 mph stretch. I thought that would be the end of the story. I'd leave the store I had just driven to in EV, using up the last of the capacity. Turns out, the most exciting hadn't happened yet... Right before I used up those final electrons, I pushed the HV/EV button one last time. It didn't make any difference. That 0.1 value vanished and I was back to ordinary hybrid driving... or so I thought. EV capacity returned and increased as I drove. Huh? I certainly wasn't expecting 0.8 miles by the time I had reached my driveway. Having pushed that button at the last moment had quite an effect. My 2010 most definitely wouldn't have generated electricity like that. 75 MPG overall from 36.0 miles of driving, with EV still remaining. That's fantastic from a 4.4 kWh battery-pack without recharging. Now I'm more curious than ever how the system will perform in the winter. The interplay between battery, engine, and motors is proving to be extremely well thought out.
- 4-11-2012** **Buffer Mode.** My conclusion is there's actually another operational state, as I've noted with this: Buffer mode is turning out to be quite an unexpected bonus. I drove another 15.5 miles through the suburbs with a variety of power demands. Nothing caused the system to let go of that final 0.1 mile of EV capacity. 3 times I watched it go from almost gone to 0.9 miles. The second half of my evening drive yielded an average of 59 MPG. That's pretty darn good without any electricity from plugging in. The amount of generated electricity being passed back & forth between engine, motor, battery, and road is impressive. Following an inevitable depletion, I had anticipated the same behavior my 2010 would have delivered. Turns out, PHV has been configured to take advantage of the bigger & better battery. It operates in a way we hadn't considered. Of course, weren't sure Toyota would even provide a HV/EV toggle option. Turns out they they did and it's surprisingly easy to take advantage of.

- 4-12-2012** **11 Mile Range.** When bragging rights dominate discussions, it should be obvious that a deeper look should be taken. Typically, there's some type of tradeoff involved. With the case of battery-capacity, that should be obvious... even among the division growing between Volt supporters. There's some who couldn't care less what the cost is. With others, they're deeply concerned about the high price and the approaching tax-credit expiration. What will become of that divide? Who knows. History tells us it likely won't be compromise that makes everyone happy. After all, you cannot have a halo vehicle that's also common. Those are fundamental opposites. Either it sells in high-volume or it doesn't. Prius is targeting at the masses. It clearly could have offered a larger engine, motor, or battery, but didn't. It could have been offered in a less practical shape too, but didn't. There's a balance of priorities which is able to draw sales, despite being portrayed as a negative by the competition. That's why I especially liked this quote posted today: *"Every time the PiP is criticized for its "11 mile range", my response is so what? A regular Prius has a 1 mile EV range, and look at what it can do, the success it is."* That sums up the situation well.
- 4-12-2012** **Argument Points.** Remember them? Most people won't. Newbies won't even realize certain things were even an issue. Antagonists will though. But there's not much they can do once an exploited misconception has been debunked. The first one that comes to mind for me is the monotonous "cold engine" claim. There were some Volt enthusiasts wanting to undermine PHV who went on and on about how once EV capacity was depleted, the switch over to HV would cause the engine to run at a very high RPM. That's bad when an engine is cold. Emissions cannot be cleansed thoroughly until heat is available. Turns out though, they were quite wrong. PHV always has some reserve electricity stored for warming up. The transition from EV to HV uses it, allowing the engine to run at a lower RPM at first. Knowing that now, the claim is now just a memory. A recent argument point was EV capacity, claiming only 6 miles was available. That originated from the EPA estimate, not real-world driving. They ignored 11-mile overall capacity, focusing solely on the first time the engine started up on that particular measurement. Complete disregard for how the test's purpose was a dead giveaway they weren't being constructive. But it took real-world data to get them to stop. They did immediately upon hearing some owners driving 14 miles before the engine started. Blended efficiency is one more strong argument point that suddenly vanished. No matter how many times I provided evidence of a MPG boost, they just kept dismissing it as an extreme example. But then when all of the new PHV owners began reporting the same thing, the false claim instantly stopped. The experiences reported from ordinary people driving their new plug-in Prius have made a huge difference, bringing many arguments of the past to an end. That's great!

- 4-13-2012 High-Volume Profitable Sales.** That daily blog for Volt is down to just random news events now, many of which aren't even about Volt anymore. The well known posters are almost all long since gone. But for the few who remain, they pounced today. The topic was just a repeat post of real-world Volt data compared to generalized estimates on how the PHV may operate, an opportunity some still holding on to the past year for. But knowing that the market & purpose are so different, what would that accomplish? My guess is it was just an attempt to retain the spotlight. So, I contributed my real-world data in response to a post pointing out their rehashing of assumptions. Within about an hour, there were already 7 negative votes from my spreadsheet with 2 graphs and this single comment: "*Real-World data tells a very different story.*" Predictably, there was one individual who personally attacked. I find that incredibly telling, not that it really makes a difference. Those few enthusiasts likely aren't representative of most owners anyway. For that matter, we know ordinary mainstream consumers aren't concerned with the details anyway. We know the purpose is to significantly improvement emissions & consumption. There isn't actually a goal to eliminate. Their bragging rights of most EV or most MPG don't address the reality of high-volume profitable sales. It's real-world data that makes a difference. There's a practical balance of purchase priorities you just can't overlook.
- 4-13-2012 Not The Same.** There has been a common theme on both the daily blog and the big GM forum. You mention Prius and they feel threatened. In fact, the fear has become so ingrained into their thought process, some have even come to calling it the "P" word. It's the continued false belief that you are somehow trying to prove it is the best. Pretty much no matter what you say, they think you mean something else. That's probably why so few remain, leaving only die-hard participants. The others got tired of the nonsense and simply moved on... especially due to the intentional provoking. All that bait routinely dropped with the hope of having the opportunity to argue "*vastly superior*" claims, gets old & repetitive. For the most part, I don't bother anymore. Just sticking to real-world data has been working well... extremely well, as a matter of fact. One of the outspoken troublemakers suddenly came to the realization that my providing of operational results from the PHV model actually proved that Volt is not the same. It's what I've been saying for years. But they were so scared of not market reaction they couldn't see the obvious. The moment he pointed that out to the others, all those negative votes vanished. Duh! Their trophy-mentality clouded judgment to the point that they ended up arguing against themselves. That analogy of a panicking animal desperate to escape a predator really fit. Thank goodness they finally see the situation. Unfortunately, there's still the reality of not meeting sales expectation, but we can celebrate this small victory.

- 4-13-2012** **Not Ready.** The early adopter mindset seems to be spilling over from enthusiast to automaker. This opinion pops up from time to time, more often now: "*IMHO, for now GM wants the Volt to remain a low-volume full-price specialty car.*" That's not the case for Toyota. This first year, rollout of the PHV model will be to 3 different markets at the same time... Japan, Europe, and the United States in limited areas. Next year, it will be all of the United States. In the meantime, the infrastructure for public charging-stations and aftermarket charge upgrades at home are being established. Ford will be joining in the end of the year too, with their one plug-in model based on a hybrid that won't even be rolled out until about June. A faster pace is what we need. Watching traditional vehicles compete for high-efficiency sales is a big problem. The opportunity to capture the mainstream shouldn't be allowed to slip away. Remember the "*too little, too slowly*" concern? It's playing out right now. Not being ready makes acceptance even more of a challenge. It's a moving target and getting use to paying higher gas prices is an unfortunate reality. As they say, strike while the iron is hot.
- 4-13-2012** **Electric Bill.** The previous billing period was for 33 days. It ended exactly 1 week prior to my first plugging in. This month's bill spanned 30 days, of which 3 weeks worth included PHV ownership. That meant at least 21 times. Doing the math, taking into account 3.1 kWh per recharge, it was reasonable to expect about 65 added to my regular household consumption. Instead, it was 30 less. Huh? Apparently, I'm not well aware of all the appliance draws at home. My guess is the natural-gas furnace was responsible for that. Long data collection may reveal some type of pattern. But then again, at 10.5 cents per kWh, it's not much of an expense. So for 30 nightly recharges, we're only talking about \$10 worth of electricity anyway. Looking that the gas consumption it offsets, using very crude estimations and guessing on gas price, I'm spending somewhere around \$35 less per month on gas. That's nice considering how much I drive. For those who don't drive 20,000 miles annually, they'll spend much less. The benefit is obvious no matter what your driving is.
- 4-14-2012** **EV mode EV, question.** The big question came up, what actually counts as EV miles? The tally on the Drive-Ratio screen isn't clear. Are miles driven while the "EV" symbol is illuminated in HV mode included? Should they be? Since EV mode is the default and you must push the button to switch to HV driving, that explicit choice is a decision not to use EV. So, it does tend to make sense to not identify any engine-off driving then as EV. After all, the HV mode is basically just regular Prius operation but with a Li-Ion battery rather than NiMH. Wanting to distinguish travel which take full advantage utilizes the system to the fullest is quite informative... and it does support future efforts. After all, the previous model of Prius had an EV button that didn't offer as much. Now, with this first plug-in, EV is improved upon. We are already aware of that CITY button not included in the initial rollout here. It offers the ability to push the electric ability even further, something markets with much higher traffic-density and low-emission restriction zones can take advantage of right away. Our current need here is different, especially due to the penetration barrier caused by consumer education and anti-plug propaganda... for that matter, the anti-hybrid push. So, I set out to answer the question.

- 4-14-2012** **EV mode EV, answer.** I figured a biking trip up to northern Minnesota would do the trick. It turned out to be 188 miles of driving, all in HV mode... none of which were counted as EV, despite driven several miles with the "EV" indicator illuminated. I even went out of my way and drove about 1.5 extra at the end of the trip without the engine ever starting. It made no difference. Being in HV mode means no official EV. Of course, you still get outstanding efficiency. But without the type of tracking having been established from this first PHV, how would advancements of the next be measured? With MPG varying dramatically from owner to owner, that really is the only simple system available for noting improved design. Looking at the big picture help, especially when in context of the approach having been taken over the past 12 years. It makes sense. That's why my initial gut reaction was what it ended up to actually be. I hypothesized the counting could include some HV operation. But that's too much of a short-term interpretation. The system will continue to evolve over time. As cost warrants, components will improve. The catch is affordability... something others still have a difficult time accepting. Just think what the EV range stated now will look like a decade from now, in the common car we encounter every day. There will naturally be niche vehicles offering far more, but that's not the purpose of Prius. By the way, the result of that 188-mile drive with the bikes on back was 46 MPG.
- 4-15-2012** **2013 Volt.** Things just took a very strange turn. Events like this are why blogging enthralls some people. You can document & read reactions to the unexpected, as they happen... and this one certainly qualifies. GM just released details on the 2013 model of Volt. What the heck? It's only April. How can announcing changes so far in advance be helpful? Won't that harm current sales? First thing I noticed was the removal of bluetooth for phone. Support for it didn't come until recently. It still had some quirks to be worked out too, quite unlike what Toyota has offered with Prius since 2003. Bluetooth also took money away from their OnStar pay service, since that was what owners had used for calls prior to being able to connect with their own phone via Bluetooth. Next thing I noticed was the introduction of the hold button for this market. Volt will be getting it after all. That put particular owners are in a difficult position. They had argued fiercely that having a feature which behaved like the PHV model Prius was useless. Yet, GM offers it in Europe now and will next year be offering it here too. Now they'll sound hypocritical and be missing a feature on their own Volt. Funny how things work out. Then of course, the big concern has been price. Will that heavy hyped drop finally happen? The answer appears to be no. Many of the features added actually rather nice, making it extremely difficult for anyone to argue that Volt isn't embracing the status of halo... becoming a well established niche rather than striving to be a mainstream vehicle. GM did make it look even more like a traditional sedan. That supposedly is a draw. The bottom part of the liftgate will be the same color as the vehicle, rather than the standout black it has now. Oh well, this makes the 2012 sales even more of a tale to tell later.

4-16-2012 The Aftermath. Situations can change quickly. That's certainly the case with the HOLD mode for Volt. Owners finding out about it are already sounding off, saying they hope the upgrade will be offered retroactively. We've even had real-world examples stated how that would be helpful. It's drowning out the rhetoric of the past. Those arguments from antagonists fiercely trying to keep Volt from being shown to have shortcomings are becoming an embarrassment. I hadn't expected humility to be an ally. That's nice. Suddenly, I have others on my side... who would wonder why in the world anyone could claim that the suggestion to offer that button here was really just an effort to promote Prius. They honestly thought that ability could somehow undermine. When they fear diversity, that's a sign something is wrong. Now it's out in the open. Obviously, I feel vindicated too. How could Volt not change? With the sales struggle, simply waiting for the market to change instead wasn't wise. Of course, there are still some who are dead set against the idea of change. But their voice is getting drown out by newbies repeating what I said last year. That means I don't have to say much anymore. The newbie desire to embrace sensible solutions overcomes the senseless arguments of the past. It still amazes me that it had got so bad, threads on the big GM forum were simply closed rather than actually addressing the problem. Fewer barriers now takes us another step closer to actually getting something affordable.

4-16-2012 Owners Prius Photos. On the big Prius forum, there was a long-running thread where owners would post photos of their Prius. It was very exciting to see them. Such variety exists, which people wouldn't be exposed to any other way. Routine addition of new photos to see was great. No one had started one for PHV yet. I stumbled across a fantastic opportunity to do exactly that, my escape up north. Along that 188-mile drive, I stopped at a public-landing along a river. This was the same location I took photos at over a decade ago with my Classic Prius. It was the ideal setting for the very first scenic photo of the PHV. Spring had arrived. It was a beautiful afternoon, 72°F and sunny. I had 2 bikes on the back, making the purpose of my long trip obvious. Unfortunately, the weather didn't go as planned. It rained all the following day. Heavy downfalls with blustery wind didn't make for good biking conditions, so we waited. It got colder. Overnight, the rain turned to snow. I woke up to discover my destination had transformed into a winter wonderland. Even though that was far from what I had hoped, it was a golden opportunity. 28°F with 3 inches of fresh snow blanketing everything was a dream come true for photo taking. So, I went nuts with the camera and started a new thread to share what I saw.

- 4-16-2012** **Below Freezing Temperatures.** When saying "below freezing", I mean a few degrees under 32°F. To think that even the meaning of that was twisted in those Volt battles of the past. But when desperate, certain individuals were willing to try just about anything to retain attention. It's too bad things got so ugly. But then again, my first experience with the PHV model Prius at a below freezing temperature was quite uneventful... not what antagonists were hoping for. I drove 4 miles in EV mode. Frequent stops always made photo sessions a bit annoying, since engine would have to run so frequently with the regular Prius. But with the PHV, having far more electricity available and a faster electric-only speed, the travel from location to location was quite pleasant. Being that cold made it even better. Some claimed that wouldn't be possible. I proved it clearly is, even when the Prius sits out in the cold all night. Knowing that will make the inevitable Winter conditions, which Prius already did better than traditional vehicles, even more pleasant to deal with. But looking outside right now and seeing all that snow still, I'm looking forward to Spring... which was here just a few days ago. Now, it's gone!
- 4-17-2012** **Brutal Opposition.** Looking back, it got pretty nasty. Volt owners were deeply angered by the idea of a HOLD mode. Anywho who brought up the topic was looked upon as suspicious, somehow having ill intent. I was amazed by that. Opposition to the idea of not totally depleting the battery-pack prior to starting the engine was brutal. It would make Volt more of a hybrid than an electric vehicle. The enthusiasts didn't like that at all... which is why they fought against it so much. Hybrid equals Prius, in their mind. Being associated with Prius was bad... since Volt to them was more a matter of bragging-rights rather than supporting a vehicle for the masses. After all, if Volt were to become as common as Prius, there wouldn't be anything to stand out anymore. It's a self-defeating situation... which has already defeated them. Newbies are sounding off. It's as if fighting last year never happened. Wow! Of course, that means a widened appeal and less focus on EV. In the past when a high-opposed situation suddenly took an abrupt turn, those who had been stirring the trouble vanish. It should be interesting to see what happens with this. I'm looking forward to constructive discussion. That propaganda of the past was unbelievable.
- 4-18-2012** **Attitude Transformation.** It certainly is odd watching the divide grow. The few remain antagonists continue to belittle & mislead about Prius. One such attempt yesterday was trying to state the recent update for Prius v was the very same problem as a recall for the Iconic model. He literally just made that up. No SSC number to verify his claim. No detail of any kind. Just a bogus statement about Toyota having repeated issues from not being properly fixed. This is the same individual who owns a Volt and uses "*pathetic*" when describing Prius, so he's basically a troublemaker who simply doesn't care. Thank goodness most are nothing like him. In fact, there are more and more Volt owners & enthusiasts who don't see a problem with offering a second more affordable model. They don't see a shift of priorities from capacity & power to being affordable for the masses. Old beliefs die hard. Remember the acceleration wars of the past? I sure am glad that nonsense is over. Having the attitude of former foes transform is the most telling. It hits you as strange to hear them agree now rather than argue. In other words, consumer needs are finally being addressed... even if the acknowledgement is only with an implicit reference to sales. Direct isn't necessary anyway. We are witnessing a change.

- 4-19-2012** **Smallest Capacity.** Doing more with less has been a high priority for PHV design. Not being affordable means not selling many. That's basic economics, a concept which continues to elude some. It's much, much easier to increase capacity than it is to reduce. Finding the smallest size that would be still be practical was a very big deal. As the price of battery-capacity drops, it will make the plug-in model more and more appealing. After all, you don't have to sacrifice any MPG after depletion. It's still an outstanding hybrid even without plugging in. Electricity supplied from an outlet enhances operation. Being rolled out mid-cycle is a reality always overlooked. No thought is given to implementation constraints... which is why the 2012 PHV is believed to be first generation. The prior two designs are almost never mentioned in articles and are summarily dismissed when brought up in comments afterward. Think about what the next generation of Prius will offer. Knowing that this PHV currently offers enough room under the false floor for an addition kWh, it makes you wonder what will happen next. A drop in battery cost could result in more capacity being offered, keeping the price the same. Or if it turns out that the current capacity is well accepted, it's physical size could shrink to offer even more hidden storage. That's thinking ahead. Toyota allowed themselves some flexibility to respond to market demand.
- 4-20-2012** **Never Happy.** It is somewhat tragic to step back and analyze the situation. You can't please all the people all the time. Yet, that's the standard to which some are held. I get that all the time. Every time it reminds me that some holding positions of power, especially elected officials, have to deal with that pressure constantly. No matter what they say, someone won't like it. Of course, then there are a few who are never happy. What they decided to endorse didn't meet expectations. You become the scapegoat, someone to blame for their misfortune because you chose wisely. My way of gauging success is when the count of those who oppose are a very small percentage. In the computer world, the goal is to deliver 90 percent of what was requested... since that final 10 percent is often extremely expensive to address initially... and more often than not, priorities shift upon using that first version anyway. I've seen that outcome repeat itself countless times over the decades. So, why would an attempt like Volt be any different? Reaching middle-market makes the need for adjustment especially important. After all, once the enthusiasts make their purchase, who's left? Mainstream sales down come from making them happy, not what an enthusiast wants.
- 4-20-2012** **Great Road Trip.** It was a nagging question with an uncertain answer. My first road trip left me wondering. The impression was efficiency would be equal to or slightly better than a regular Prius. But with the PHV not broken in yet and the freezing-point so near, patience was required. Over 2,000 miles on the odometer and warmer, it was now time to find out. 176 miles driven, using 9 miles of EV capacity, maximum speed of 60 mph, the temperature was 50°F. With the greatest of ease, the result was 62 MPG. Gotta like that. I sure am looking forward an ordinary Summer experience. Spring has given me a taste of what's to come. It certainly was a enjoyable destination. We went to the headwaters of the mighty Mississippi River, where it's nothing but a tiny stream flowing out of a lake. That's exciting to walk across. The incredibly efficient travel to get there made it even better, a great road trip.

- 4-21-2012** **Ugly Conditions.** Well, my PHV certainly is broken in now. Today's road trip was a demanding 194 miles. There was a steady and sometimes heavy rain the entire time. The temperature was 43°F, requiring both defrost & heat to continuously run. Two bikes were strapped into a rack on back, creating quite a bit of drag cutting through the air & water. There was no opportunity to plug in. The interior was stuffed with cargo (including a 3-wheel recumbent). That made for very ugly spring travel conditions. I wasn't exactly thrilled by the thought of what the outcome would be. Although this drive is really going to bring down lifetime average, it does provide real-world data in far from an ideal situation. Fortunately, even when Prius is challenged, it still shines. The result display was 39 MPG. What else could accomplish the same feat, especially without plugging in?
- 4-22-2012** **Horribly Vague.** There have been abundant examples of pointless comments over the years, so it's a big source of frustration to see that continue. This was the one posted today: *"People were predicting the Cruze's outright failure and boy have they been surprised. I predict modest uptake for the first year or so (as long as the diesel engine comes with good MPG, a slight price increase, etc.)"* Notice how there's no detail whatsoever. It's so horribly vague, the failure judgment is totally subjective. Nothing to actually measure was provided. Without anything quantitative, how can a proper conclusion be drawn? What sales count would qualify as successful? What is a good MPG to expect? What does *"slight"* mean with respect to price? This all comes back to stating goals. If they don't, you can basically say anything you want afterward. Leaving such an opportunity to spin outcome is senseless. Yet, that's what keeps happening anyway. When will they learn?
- 4-22-2012** **Being Trolled.** Someone started an editorial type thread on the big GM forum, attempting to address the topic of mainstream buyers rather than the usual *"zealot"* crowd (those who support a brand without ever questioning executive decisions). After all, there's good reason to take a better look at the market when vehicles like the Fiat 500 outselling Volt by a surprisingly wide margin (3,712 verses 2,289). The same defenders came to action. It didn't take long for the original-poster to be labeled as a troublemaker and for the compliant to be posted about being trolled. That's the typical response when they don't like the topic. It's Earth Day, so I felt obliged to join in the discussion: Just stick to facts then. What are consumer needs? If GM also delivers something else, that's great! Having choice is a definite plus. How long will it be until an affordable model of Volt is available? Many sources, including Lutz himself, have stated \$30,000 as the target price. If 2015 is the anticipated rollout, how will such a drop of cost be achieved? Remember, the \$7,500 tax-credit would have expired by then. Don't forget the competition either. And I don't mean that from Toyota or Ford. I mean from GM itself. The push of diesel & eAssist will make selling Volt even more of a challenge.

- 4-22-2012** **Oil Reality.** No matter what the spin is about waiting for technology costs to drop, the reality is that oil is expensive now and we are heavily dependent upon it. That "*too little, too slowly*" concern clearly wasn't taken seriously. Rather than building platforms to expand upon, there are haphazard shots at delivering a high-efficiency solution. Volt is obviously the poster-child for "*over promise, under deliver*". Changing that would be great. There isn't the luxury of time. Offering larger motors & batteries is nice, but definitely not required. That's a want, not a need. Ford is preparing to deliver a sensible new hybrid, one which will also offer the option of a plug. Hopefully, that will stir the market enough to focus attention on actual priorities rather than continuing with the propaganda. It's so annoying to watch time pass by without actually accomplishing anything. Traditional sales are a stimulant too, a clue that progress is more of a struggle than the hype would lead you to believe. Thankfully, the reality of \$103.88 per barrel pricing for oil this week is counter-balanced by a solution establishing realistic expectations. The PHV model Prius delivers the MPG boost it was intended to at a price within reach of middle-market today, not years from now.
- 4-23-2012** **14.1 Miles.** It had been quite awhile since my last opportunity to take the long way to work. It a more casual drive, the most efficient too. The slower road speeds allow me to enjoy every last electron of plug-supplied electricity. 14.1 is the longest distance I've seen... and I did again today too. Unfortunately, that end is midway up a very steep climb. So, there's no way to find out how much further I could actually go. Of course, other parts of the drive are far from flat too. But running out just before reaching a plateau is somewhat of a bummer. Then there's more climbing later. Following that is a very, very long decent... hence the best MPG on that particular route. However, what I find intriguing is that the maximum amount of EV travel isn't always the most efficient. That didn't come into play today though. My intent was to see how much I could squeeze out, especially when among morning commute traffic. Using the engine for heavy acceleration demands is actually better. But explaining how that's possible is quite a challenge. So, I'm starting with a footnote about capacity potential instead. Later, I'll get into when it's best to take advantage of that HV/EV button.
- 4-24-2012** **Chrysler Plug-In.** The automaker has begun delivering plug-in hybrids for data collection. Ultimately, there will be 25 Town & Country minivans and 160 Ram pickups. The cost is split between the automaker itself and DOE (Department of Energy) for a cost of \$26 million for the minivans and \$97 million for the pickups. There wasn't any detail whatsoever in the press-release. It was just a generic "look at we are doing" type article for Earth Day. Supposedly, the technology being used is Two-Mode still. But nothing about motors or battery was mentioned. Heck, there wasn't anything said about MPG either. No date. No price. No expectations of any sort. Oh well, at least you can't accuse them of hype.

- 4-24-2012** **55 @ 110.** Today's driving around came to a total of 55 miles. I started with a full charge at home, then recharged entirely at work. The result after the commute both ways and side trip to walk the dog was 110 MPG. That's great! I wish all days could be like that. Some are actually better, but more aren't that good. My expectation of averaging around 75 is still quite realistic... at least enough to make the MPG boost obvious. My influence of long highway trips and the depths Winter here in Minnesota make overall efficiency uncertain. But you get the idea. The fact that adding 2.8 kWh of capacity plus a plug (along with the switch to lithium) could results in such an improvement is the point... especially when so much importance was put on cost. There was a clear priority of configuring the design in a way to reach a very wide market. Real-World data like today's clearly confirms that choice was a wise one.
- 4-24-2012** **Vague & Ambiguous.** It's hard to believe the same old nonsense continues. This wasn't much of a surprise though. GM launched a new Volt promotional website... which included a "*Total gallons of fuel saved*" value. No detail was provided though. A footnote buried within a link at the bottom of the homepage only made reference to "*Official MPG for US passenger cars*". Upon digging for the actual value from other internet sources, we found out the official value was just 27.5 MPG. It was a great example of how standards have been lowered. Why wouldn't they just compare Volt to itself, stating how much the battery usage offsets engine usage? After all, that's what PHV does. Of course, Volt comes up way short of the 50 MPG delivered by PHV after depletion. Naturally, electricity consumption was disregarded entirely too. Even the charging-station reports available online provide kWh information. Why doesn't GM? Isn't the point to give a clear representation of what the plug-supplied electricity accomplishes? Their data is cherry picked, presenting only what advertises well rather than supplying enough for consumers to draw their own conclusions. Arrgh!
- 4-25-2012** **Short Replies.** The attempts to stir debate have dwindled to almost nothing. The Volt supporters enjoyed heated exchanges with PHV supporters. But back when real-world data wasn't available, it was a very different situation. They could still mislead without much consequence. They'd just pretend the topic lacked evidence and was only speculation. Now, it's fact. They've run out of excuses for struggling sales too. It's a waste of time responding anymore. The debates had actually be constructive last year, since they exposed argument points. But now that those are well known and there's plenty of information available to eliminate doubt, what purpose would rehashing serve? It's over. So, I don't bother. To one provoke, I posted this: "*No concern for middle-market buyers or business-sustaining sales.*" And to another, it was just this short reply: "*Time is not a luxury.*"

- 4-25-2012** **Range Estimates.** These are my most recent recharges, in the order as they occurred: 11.6, 11.7, 11.8, 11.9, 12.0, 12.1 Clearly, the system is estimating based on previous drives... since I went from only recharging 3 times over the course of driving 600 miles to recharging very frequently, twice per day. Leaving for work in the morning means using the entire capacity and a very small amount of gas. Then after lunch, I plug in so I can drive home using the entire capacity again. That won't be the norm, since I travel elsewhere in the evening and weekends. But for the sake of collecting real-world data now and enjoying the departure of Winter, why not? It revealed the range estimate drop I had been seeing wasn't actually from the battery itself. In fact, today and yesterday I was able to drive 14.1 miles in EV before the engine started. That's well above the estimates which had been displayed on the screen.
- 4-26-2012** **MPG Marketing.** Now that hybrid choices are diversifying, what effective method of marketing is there? The PHV owners have happily discovered that the "*only gets 11 miles of EV range*" argument holds little to no merit. All you have to do is quote your recent MPG to screw up their attempt to undermine. In fact, that's so remarkably effective, it could be a big reason why antagonist activity has almost completely vanished. I'm thrilled how quickly that rhetoric has ended. It certainly didn't dragged on as some had feared. As soon as the real-world data from Prius owners who were now plugging in was posted, that brought a profound wake-up call. As if overnight, the shift had taken place. Discussions of PHV intermingling with posts from those who didn't have a plug were welcomed. There was no divide, quite unlike that of Volt. Each Prius owner proudly shares there MPG experiences, knowing others get different results. That coexistence is priceless. Just let consumers spread the word by sharing experiences among their peers, who can relate directly to the circumstances. Getting 80 or 90 MPG from a PHV is easy to understand. Efficiency is enhanced from a plug. That MPG boost is simple to convey. It makes the marketing effortless.
- 4-26-2012** **Hybrid Vendetta.** You never really know what someone's purpose truly is. But with a quote like this, it's easy to guess: "*After 1.5 years and 13K miles, I've had it with the 2010 Prius. What a pile of junk, I'll never buy another Toyota again, ever. I've bought a new 2012 Ford Mustang, 305HP V6 with 31.5MPG customized with Ford Racing components from the factory.*" With 305 horsepower and a MPG clearly not real-world (the combined estimate is only 23 and city is 19), you know the person wouldn't be satisfied from anything type of middle-market. In fact, there are probably a hundred different vehicles that could fall into the same category. We'll never find out if that was even a real owner. But then again, someone looking to stir trouble typically isn't that blatant. Of course, there's always that mid-life-crisis situation to consider. I find it amusing how such a non-constructive thread could even be started. What would the poster hope to achieve? Perhaps there was a vendetta against hybrids manifesting itself. After all, it's very difficult not to encounter a Prius on a routine drive anymore. They're everywhere now!

- 4-27-2012** **Repeating Mistakes.** Believe it or not, the hype is beginning again. It's exactly like Two-Mode. With sales struggling and excuses exhausted, focus shifted over to something else. In that past, it was Volt. In this case, it's the Cadillac ELR. This is the successor to Volt; however, it's a more expensive model. Talking about going in the wrong direction! It's amazing such senseless decisions are being made. Counter-Balance with a less expensive choice would be fine. That's not what we are seeing happen though. But with Volt getting almost nothing for attention during Earth Day news and upcoming uncertainty about demand, the market was beginning to look at other offerings... like PHV. Like last time, silence comes. There aren't any heated arguments anymore. There aren't even new discussion threads started. The topic simply dies. This is a repeat of mistakes we saw before... nothing learned. Rather than addressing what the market actually needs, focus continues to be on want.
- 4-28-2012** **PHV Operation.** It's exciting to read questions specifically about the plug-in model from new owners. The heightened awareness & curiosity is a win for everyone interested in Prius. Today, one wanted to know what happens if you wait until the last minute to start the engine when it's still cold, like as you are accelerating up a ramp onto a highway. This was my response: No matter what you do, the engine will always warm gracefully. The system is very well thought out, always taking emissions & longevity into account. Watching a ScanGauge, it's easy to confirm that. I see the engine running at a lower than usual RPM while the coolant temperature is still low. Watching the EV capacity, you'll see it drop initially... dipping well into the HV capacity if EV is already depleted entirely to ensure the engine isn't worked too hard. So regardless of speed, power, or temperature, when the engine warms, it is protected from wear... much like it has been for startup itself for over a demand. The battery-pack is taken advantage, rather than putting stress on the engine.
- 4-28-2012** **Cost Savings.** I like when this question gets asked: "*Am I missing something from the PIP?*" He had only listed the two extremes, use of EV exclusively & entirely and driving very long distances. Listing nothing else was a bit odd. But then again, that is sometimes a good way to start a discussion thread. I chimed in with: Yes, those points were an oversimplification. As already mentioned there's a major benefit to short-trips, something commonly overlooked. Focus on the resulting MPG instead, which was also mentioned. For me, my current tank is just a little over 300 miles with an average of 114 MPG. Lastly, how do you put a cost on reduced emissions? My electricity comes from natural-gas and solar, which is clearly better than coal. Using even less gas (oil) is a benefit too... for both emissions & dependency. What's the value of that? Let's not forget about your contribution to a better future as well. Each generation of plug-in will get better. The children will appreciate that.

- 4-28-2012** **Panic Reports.** Paying close attention can make a big difference. It allows you to identify patterns. That can be really helpful. In this case, it provided me with a response others hadn't expected. I noticed something that hadn't even crossed their minds. There were numerous reports recently published, all based upon a survey. The topic was repeat purchases by hybrid owners. I was suspicious. The results seemed too good of a source of new argument material for antagonists. Though vague, the content itself didn't seem too bad. Then I thought about the timing. Publishing that just before Earth Day makes you wonder. Then I stepped back to consider the big picture. Ah ha! It reminded me of the panic 3 years ago... when there was a panic about the imminent next generation Prius rollout. The competition came up with a bunch of reports that made Prius look bad... with the hope consumers wouldn't realize the choice was about to change. The same thing is happening now... quickly reporting information before the word spread about new Prius models becoming available. The survey was legitimate when taken, those hoping to undermine simply won't mention it being outdated already. People will just assume the newer models were included. We've seen that type of misleading before. It's an unfortunate reality we have to deal with it. Fortunately, some of us are aware of the circumstances.
- 4-28-2012** **Brainless Observations.** Since the very beginning back in 2000, there has always been a dead giveaway to confirm that the reviewer has no clue how the system actually works. When you come across one, don't let it bother you. Until recently, it was always the fastest speed you could travel with the engine off. They'd notice acceleration from a stop, then never do any further observation. So, you'd get a quote stating the maximum is around 12 MPH. There was no effort to find out if it was different for other circumstances. They simply didn't bother. In fact, you'd sometimes wonder if they even drove the car at all. Now, the claim with 6 miles of EV for the PHV is just as brainless. That's why most of the writers are only called reporters, not journalists. There's lots of disappointment on the way if you're expecting well researched reviews. Those that convey accurate & thorough information will be extremely rare. Cherish them.
- 4-28-2012** **Recharge Measurements.** Accessing my charging account online, I got this report of kWh values: 2.989, 3.129, 3.125, 2.986, 3.032, 3.109, 3.110, 3.201, 3.117, 2.947, 3.067, 3.136, 3.126, 3.088, 3.022, 3.021, 3.081, 3.117. That makes 3.1 kWh per recharge a reasonable standard value to use. (I believe that one with 3.201 was from my remote A/C test, where electricity used to cool the vehicle interior comes directly from the plug rather than the battery-pack.) Having a sampling of that size readily available sure was handy today. Some were beginning to assume other values based upon just a personal observation or two using inexpensive aftermarket devices. Values measured from commercial-grade charging-stations specifically designed to capture that detail is much more likely to give reliable & consistent results. Needless to say, I too wanted to know with a high level of certainty. Then all I have to do is count recharges and multiple that standard 3.1 to get the total kWh value.

- 4-29-2012 Sales Results.** This particular month is an important one for sales. We'll find out what the results are in two days. Expectations for PHV are for roughly the same as last month, since pre-order delivery is still taking place. You can imagine the quantity getting media spin regardless of what it is. Less would supposedly mean weak demand, even though you can't buy them directly yet. More would supposedly mean weak growth, not meeting whatever expectations antagonists arbitrarily come up with. No change would supposedly indicate a pattern of something bad. You know how it is, there's no way to actually "win" when quarrelling with those who thrive on hype. In other words, April will provide the slow progress forward we have anticipated. May will bring about the beginning of dealer sales, but only in 15 states. Being able to purchase without pre-order will be a big deal, regardless of where. That will be very interesting... especially as PHV owners continue to share real-world data. In the meantime, there's Volt. What the heck are the expectations for that? Sales of 3,750 per month was the revised goal, dropping the 60,000 hope in this market to 45,000. But last month's record sales of 2,289 fell way short. That's not even 1 per dealer. There are 2,600 in the United States who offer Volt. So, you can imagine the internal competition from Cruze & Malibu being far more of an influence than PHV... with price the major factor. It's too bad the priority of affordability wasn't taken seriously. How will mainstream volume be achieved otherwise? Traditional vehicles will continue striving for sales, making it difficult for hybrids (with and without plugs) to gain marketshare.
- 4-30-2012 Daily & Monthly.** I like to collect real-world data. Having lots of it available helps to prevent the intentional misleading we have to routinely deal with and it conveys realistic expectations for those considering a purchase. With that, you get a variety of reports from me. Here's the one from today: Ugh! 70 miles today, from a variety of driving. 2 recharges, I thought would be well used. But no. I ended up pulling into the garage with a warm engine and 0.1 mile of EV left. Unused electricity. That's terrible! Oh well. 78 MPG is hardly anything to complain about. For this month, which includes my snowy & rainy 636-mile trip up north, the total distance traveled was 1,828 miles. By tracking plug-in activity and using 3.1 kWh as the per-recharge quantity, 128 kWh of electricity were consumed. Based upon the values shown on the display each evening, 27.5 gallons of gas were consumed. That calculates to an overall average for the month of 66.5 MPG. I can't wait to find out what next month will bring.
- 5-01-2012 Production Here.** That was the big rumor today. It was pretty much a given though, hardly a surprise. The industry fallout in 2008 clobbered the plans to begin production here with the third generation Prius and it's not money well spent setting up mid-cycle. Planning for the fourth instead is a sensible move. That likely means late 2015 for the 2016 model-year. Where isn't even speculated. The location that was under construction, then halted abruptly when cash became scarce, resumed with new plans for Corolla instead. And that is indeed what's produced in the Mississippi plant now. Kentucky is where Camry is built, including the hybrid model. But there's no guarantee it will even be in that area of the country. Whatever the case, it was a good sign hearing about this again. The recovery from the fallout is becoming apparent now... and efficiency is much more of a priority. Looking back, it makes sense that the highly profitable SUV market would have to collapse... since the automakers certainly didn't want to miss out on that lucrative opportunity. But now that guzzling is no longer acceptable, production of responsible choices is getting lots of attention.

- 5-01-2012 Sales Silence.** It was downright creepy today. The GM supporters didn't want to say anything about Volt sales for April. The previous month's record included clearance 2011 models. Disregarding that one-time gain was a setup for disappointment. No discounted prices for new inventory wasn't a reality they wanted to face. And of course, the inevitable happened. Sales were indeed lower as a result. The problem is, they were way too low to spin. With excuses exhausted, maybe the time to be constructive is near. There's hope. Anywho, only 1,462 Volts were purchased. That's significantly lower than the Buick LaCrosse eAssist, of which 4,311 were purchased. The new model of Chevy Malibu with eAssist also did well, with 3,324 purchased. Competition from within continues to be a serious problem... especially when you consider Chevy Cruze had a total of 18,205 for the month. GM is it's own enemy... quite unlike Toyota. Again, Corolla was beat by the Prius family. Not by much. But with numbers 24,804 and 25,168 for April, neither is actually in jeopardy. Sales of 36,820 Camry made it quite worthy of attention too. For the plug-in portion of Prius sales, there's no way of gauging PHV demand yet... since pre-order deliveries are still in progress. But you know the 1,654 new owners in April made for more than enough reason to affirm the reason for silence.
- 5-02-2012 That New Button, tried it.** Whoa! I had no idea the difference would be that obvious. Yesterday, I took the "along the river" route to work. It's 17.2 miles long with a top speed of 55 mph on some roads that are quite scenic. The purpose of that particular drive was to go as far as I possibly could as far as I could using only EV accelerating as fast as possible. That extra push from the battery resulted in a drop of maximum range from 14.1 to 13.0 miles. But that electricity sacrifice prevents you from holding up any traffic. You accelerate at the same speed as everyone else. When reaching the depletion point, the engine started. It's not the ideal, since using the hybrid system can be more efficient overall than electricity-only driving... especially with a battery-pack that's 4.4 kWh. The result was 250 MPG. Today, I took advantage of the HV/EV button. Taking the same route, I fired up the engine when the first need for acceleration came up. I briskly accelerated, knowing the engine running optimally will end up recharging the battery-pack a little bit as a result. After all, that's the point of a FULL hybrid. The system focuses on overall efficiency, not that of the moment. Once warmed up, I pressed the button again to shut the engine off. It was now available for a quick on & off later. That came when a steep hill climb was needed. Then things got interesting. MPG will unexpectedly high, close to 250 and there was plenty of EV available. Later when I arrived at my parking spot, there was 1.3 miles still remaining. And to my delight, on the display it said 310 MPG. The HV/EV button allowed me to use less electricity and less gas. My expectations weren't to see so much of an improvement. That was amazing!
- 5-02-2012 That New Button, advice.** It's to fire up the engine to take advantage of the hybrid system when you are driving beyond the EV capacity available. Once the coolant warms to 130°F, the engine on & off is surprisingly quick and you gain a little bit of EV in the process. Today, I pushed the button to start the engine, then drove the warm-up distance while in HV mode. Tomorrow, I'll push the button, but only stay in HV mode for a few seconds. Switching back to EV mode right away will draw from the battery more, which is ok for me since I ended up at my destination with unused EV today. That should result in higher MPG. Keep distance & speed in mind. Like any efficiency driving, planning ahead is key. But when on your daily commute, the routine should make observations easy. The system will automatically squeeze out great efficiency anyway. But it couldn't hurt to start up the engine sooner if you know the EV would be better used later.

- 5-03-2012** **That New Button, quick switch.** As planned, I used the button today to fire up the engine, but then switched back to EV mode a few seconds later. That left the Prius in "enhanced HV mode" until the engine was warmed up (130°F), then it automatically because electric-only driving. It was a "*just drive it*" experience, making no effort whatsoever to keep the engine from starting back up, even when climbing up the long steep hill. Turns out, that wasn't necessary. There was no need for that much power. In fact, I was a bit bummed when I finally reached the river crossing. Merging onto the highway, I dropped the pedal to the floor to start the engine. Turns out though, traffic was only traveling at 52 mph and it was downhill. So, that was likely wasted gas. Upon reaching my parking spot, there was 0.2 miles of EV capacity left... and to my delight the efficiency was higher. The result today was 320 MPG. That's only a difference of 0.0017 gallons of gas (from the 310 MPG yesterday), well inside the margin-of-error for measurement. So, far more sampling would be needed to really nail down the improvement. But that's rather pointless, since even getting just the 250 MPG from never using the button is great anyway.
- 5-03-2012** **No Resistance.** There hasn't been any aspect of backlash. Nothing has become of falling way short of the revised sales expectation for Volt. Scaled back from the much hyped 60,000 for the second year, it was recently changed to 45,000. That meant 3,750 per month. But rather than acknowledge that April's count of 1,462 didn't come anywhere close, the response was: "*Volt has third-best sales month yet.*" How is that constructive? Odds are quite good the reason for silence from the once very vocal antagonists is that the new plug-in model Prius is doing much better than they had anticipated. Remember, these are the same individuals who absolutely insisted that engineering alone was all GM needed to succeed. Their blatant disregard for business & consumer need supposedly just a twisted perspective ploy by those hoping to kill Volt. That refusal to deal with economic realities was an endless source of astonishment. Those pointing out the necessity for high-volume profitable sales quickly weren't trying to make production come to an end; they were trying to prevent it from becoming a niche. Getting stuck at that status is extremely difficult to overcome later. Yet, despite major examples of the past (like Two-Mode), they followed that same path anyway. What a waste. So much potential lost. I guess that explains why there's no resistance now. How could you respond without sounding hypocritical? Needless to say, on the thread in the big GM forum linking to a sales article highlighting the recent Prius sales, no one responded to the original post or my addition to it which followed later in the day: Here's the individual US sales counts for April: 15,661 = regular; 4,006 = c; 3,847 = v; 1,654 = PHV. Note that sales of the regular model were not lower as a result of other choices being offered. In fact, quite the opposite happened of that prediction. For the PHV model, all sold are still pre-order deliveries and only in the initial 15 states. So it's there isn't any way of gauging actual demand. In March 911 were delivered. On February 28 & 29, the only days in that first month, 21 were delivered.

- 5-04-2012** **Best Tank?** I wonder how thing will change as Summer approaches. The real-world data I just collected may be unlike what I see going forward. This is uncharted territory now. It's very exciting. None of us know how things will ultimately play out. So, celebrating small victories is ok. That's what I'm doing now. Technically, this is my best tank anyway. Will it remain that way? Here's the detail and my thoughts at the moment: 96 MPG measured at the pump last night. 7.314 gallons of E10, from traveling a total of 701 miles. 78.1 kWh measured at the plug (25.2 recharges @ 3.1 kWh each). I suspect that will be my best tank for a very long time. Biking season has begun, so lots of long-distance highway cruising is in store. Carrying 2 kayaks on the roof will obviously impact efficiency too. Of course, the biggest news is that I will have to begin sharing the plugs at work. Eeek! It was nice having that entire area all to myself. Not being able to plug in anytime I want will obviously influence results. But then again, that area was designed to support additional charging-stations later. It sure would be exciting to see the demand for more emerge right away.
- 5-04-2012** **A/C Use Data.** To stimulate new PHV discussion, I tried something completely different. Nothing had been mentioned about A/C usage yet. It's not warm enough yet. So, data has been non-existent. Unexpectedly, it got "hot" here... that means low 80's in Minnesota in the Spring. I had my Prius facing the sun parked in the open lot. That was enough to make the interior a bit uncomfortable. It was the excuse I needed to give the new feature a try. I took advantage of the remote A/C, via smart-phone, but I bet the via FOB works the very same way. Watching the real-time data the ChargePoint app offers, I saw exactly what happened when clicking the "*Turn On Climate*" button within the Entune app... after the battery-pack had been fully recharged. It showed the rate at which power was being drawn through the 240-volt plug connection to run the A/C, which confirmed the battery-pack wasn't being used. More importantly, it showed how much energy was used. For a 10-minute remote run cycle, 0.25 kWh were consumed. That's worthwhile data. It was fun to collect too.

5-04-2012 **Final Proclamations.** The last of the Volt comments are being made. The audience has left. Very little is posted about it on the big GM forum anymore. It's just like Two-Mode, following that same history of being far too expensive to appeal to the mainstream and struggling with sales as a result. Those few who remain loyal seek out something to blame. PHV is an obvious target. Today, there was this: *"It's just amazing, for \$3k more PIP buyers could have had a Volt with lots more range and much better mileage (before it switches to the hybrid mode)."* Curiosity got me more than being compelled to respond. Feedback of any type is hard to get now. I wondered if anything constructive was even possible. So, I tried: Keep in mind that tax-liability isn't high enough for some to collect that entire \$7,500 credit for Volt. The range/mileage assumption very much falls into the YMMV category too. Think about how different weekend travel can be from weekday commutes. Looking forward, it's easy to see how Toyota configured their first offering for the "affordable plug-in" market. That most definitely isn't the approach GM took with Volt. Trying to squeeze out very high efficiency from a battery-pack only around 5 kWh simply wasn't a priority. Instead, the was focus on EV driving... which is clearly more expensive and heavily dependent upon tax-credit money. My most recent tank measured 96 MPG at the pump & plug (7.314 gallons of E10 and 78.1 kWh of electricity for 701 miles of travel). Since automakers require a high-volume profitable vehicle to sustain business, something for middle-market is required. What are those consumers actually looking for? There's nothing wrong with continuing to offer Volt's current configuration as a niche. But recent sales certainly don't support the argument of it being a primary product. Something else is needed to attract those would otherwise purchase a Cruze or Malibu. Notice how sales of Prius are now eclipsing that of Corolla here? That overtake happened years ago in Japan. Fuel efficiency has become an important purchase factor; however, sticker-price is still paramount.

5-04-2012 **PHV vs PIP.** There are a variety of terms that can be used to identify the most efficient model of Prius. Some are descriptive simply by recognition of the acronym. Some are abbreviations of somewhat arbitrary references. The ideal would be EVHV, but that hasn't emerged in discussions. Perhaps it's because *"Electric Vehicle"* combined with *"Hybrid Vehicle"* is self-explanatory. What has is limited to particular audiences. On the big Prius forum, like like "PiP" as shorthand for the *"Plug in Prius"*. I don't care for that, due to its scope only applying to a single vehicle. In Japan, the emblem on the vehicle itself is "PHV". It represents the same as PHEV, but don't have the redundancy of plug & electricity describing the same thing. To stimulate discussion, with the hope of stirring ideas I can use in documentation later, I started a new thread with the following: PHV means *"Plug-In Hybrid Vehicle"*. It's the universal standard established to identify all plug-in hybrids. It will become quite useful over time, as other automakers offer their own models. That's a much better way to distinguish the difference between the plug-in and the regular model than an abbreviation unique to each hybrid. In other words, I haven't been and have no intentions to support PIP. Past experience has made it overwhelming clear that newbies have no idea what the heck you are referring too, since the same convention was used to differentiate traditional models from hybrids and it was quite ineffective. Keep your audience in mind. PIP means *"Picture In Picture"* for anyone familiar with television. PIP also already refers to the measurement of fuel on the Prius gas gauge. PHV is distinct, yet can be used across the industry. Any hybrid that offers a plug as a package-option needs some type of simple identifier. PHV will work well for that.

- 5-04-2012** **\$98 Per Barrel.** The price of oil dropped below \$100. It's been a very long time since that was the case. Expectations of gas prices dropping are realistic now. In fact, the influencing factors of higher prices are gone. It looks like peak has already passed, that the Summer struggle won't actually happen now. It's bittersweet for those counting on expensive gas to help sell vehicles new traditional vehicles with an efficiency emphasis. Prius is also green (low smog-emissions) and still remarkably practical, being a hatchback and now a wagon. The plug-in model of Prius doesn't depend heavily upon either monetary enticements or the absolute of no gas. Keeping gas below the \$4 per gallon mark is a major priority for many, in multiple industries. This is where vehicle design balance is so important. It must be able to deal with changes in the market. Remember how people started buying guzzlers again, right after the scare of \$4 gas had passed? Having something already a common sight on the road when efficiency favor swings the other way is really important. That means achieving mainstream sales now. Delay is missed opportunity.
- 5-05-2012** **Plug-In Newbies.** Hearing from new PHV owners is very exciting. They're emerging everywhere. On the big Prius forum, the first clue is by looking at their post total. New members only have a very small count. Watching their messages, you find out pretty quick whether or not their previous vehicle was a Prius. For a large majority of them, it wasn't. They found past Prius interesting, but not enough to purchase until the option of a plug was offered. Being able to effortlessly achieve over 60 MPG is quite a draw. Knowing that not driving far or recharging at work will result in even higher MPG makes it more compelling. I'm delighted with the efficiency I've seen so far with mine. So what if the engine runs at times. That's the point of being a hybrid. You get greatly improved design over traditional vehicles without a major price premium. Keeping the battery-pack so small was a brilliant decision. Newbies obviously figured that out too. Their comments on the forum and in automotive blogs make their acceptance & understanding quite clear. It's very uplifting to see proof of market expansion like that.
- 5-06-2012** **Downplay, the end.** Confirmation of having arrived at the end of "rollout" is easy to see when all the excuses have vanished. What a relief. Phew! Many of us were hoping the unmet sales expectations of Volt wouldn't interfere with the introduction of PHV. The plug-in model Prius was intended to establish itself within the first year, so nationwide rollout the second year would be a natural step... quite unlike the struggle we've seen with Volt. Downplay of expectations, though hypocritical of enthusiasts, was the answer. They had to decide to change stance though. Anything from Prius supporters would just be dismissed as spin. And of course, they'd never admit to such a paradigm shift. Sales were to meet the mainstream level (5,000 per month) beginning the second year. Now, they're saying we must be patient and wait for the next generation design instead. All the current owners are only "early adopters" rather than middle-market consumers as originally planned. Whatever. Labels don't mean much anyway. It's all about sales... which is why they were totally silent about April results until I finally chimed in.

- 5-06-2012** **Downplay, validated.** Disregarding business need became the theme awhile ago. Whether it will ever be acknowledged or not, the "*too little, too slowly*" concern has been validated. That's why the plug-in Prius won't be liked regardless of what's posted. A quick look at the specs makes you wonder why the heck a 60 kW traction-motor was used, since many of the other hybrids use only 10 & 15 kW. Such a big difference should have made it obvious that being able to take advantage of a larger battery-pack later was already built into the design. But instead, there's just spin claiming the plug was an after-thought. None of the excuses or downplay will cover up the reality that consumers have shifted priorities, making efficiency an important purchase factor. That means each automaker must somehow fulfill that demand; otherwise, the opportunity is lost to traditional vehicles... as we are now witnessing.
- 5-06-2012** **Downplay, pattern.** The final sign is how quickly the rhetoric ends. That previous entry was my last post on that thread. They ran out of argument material so quickly, there wasn't anything remaining to say. I just provided a summary of the situation and moved on. Their focus on bragging-rights falls on deaf ears now. Very few participate in that nonsense anymore. The MPG boasting is as weak as 0-60 acceleration was a decade ago. It faded away as need was exceeded. Want is difficult to appeal to in this new economy where gas is expensive and financial risk has harmed the well being of so many. Priorities have become more balanced. Purchases are occurring now, not waiting for a next generation years from now. They know it too. This is how an enthusiast becomes an antagonist. They realize goals were met by a competitor and not by their preferred automaker, so they do everything they can to undermine the competitor's progress. Watching this same pattern of behavior play out again is fascinating.
- 5-07-2012** **Downplay, greenwashing.** As anticipated, their efforts totally fell apart. There's nothing left to argue about. There was an attempt to spin the "*6 mile EV*" measure as absolute, but no one wanted to contribute to such blatant greenwashing. Why participate when obvious misleading takes place? It served no purpose. Selling vehicles to middle-market is very different. The response has left them dumb-founded. The final line drawn by a flurry of insults about Toyota and Prius buyers wasn't worth it. That was sad to witness. So as had been done years ago, it is best to simply wait. Each month of meeting sales expectations reinforces statements already made. No need to repeat them. The reverse is true too. Each month of missing sales expectations confirms what was said about want verses need. No amount excuses can change that. The best they can do now is downplay.
- 5-07-2012** **Downplay, traditional.** For over 5 years, I've been reminding Volt enthusiasts that traditional vehicles are the enemy. Yet, all they heard was Prius. That complete disregard for such apparent facts was very frustrating. Why would a new vehicle fight a well-established one if the goals were the same? Unfortunately, they really did believe Volt was going to leap-frog Prius immediately upon rollout. It was going to be a slaughter. The leader of high-efficiency sales would be dethroned. Volt was destined for rapid mainstream acceptance. The invasion would begin November 2010. But when that time actually came, the signs of trouble were already too big to ignore... hence the start of the downplay. Price was a major problem. It wasn't compared to Prius price either. It was that of traditional vehicles. Cruze was only half the price and available immediately on that same Chevy dealer's lot, with many colors & packages to choose from. How could they not have seen that competition, despite the endless stream of warnings?

- 5-08-2012** **Downplay, promotion.** It's advertised as being an EV. It's promotional information focuses on MPG. Talking about downplay! It's quite frustrating to not get kWh data. With electricity being the primary, you can just leave out that detail. All we get is "*gas saved*" references. The usage of gas in a vehicle that also uses electricity makes it a hybrid. Yet, there is fierce retaliation toward anyone who points that out. Neither GM nor the Volt enthusiasts take the situation seriously. The hope is consumers will embrace it just as they did Prius. Trouble is, they don't understand the history of how that happened. That's why references are often vague. It's also why some quite angered when you point out examples from the past. They just hoped for the best and allowed hype to flourish. Clearly, that wasn't the correct approach. They missed the effort supporters put forth to gather feedback and make sure those making decisions acknowledged the need. Promotion alone is far from enough.
- 5-08-2012** **Self-Drive.** The vehicle Google has been testing for years, equipped with sophisticated hardware & software to enable the vehicle to drive itself, has officially been granted permission to be used on public streets. This is the first time ever any state, in this case Nevada, has approved such a request. And you guessed it, the vehicles (there are 3 of them) are Prius. The license for this identifies them as "*autonomous*". The plates are red and have an infinity symbol on them. It's fascinating to watch the video. Driving without a driver raises many questions & concerns. But like what has come from other innovations, you really don't know the outcome until it's tried. How will the technology be used and how it will be implemented starts with real-world data collection? We've seen that already from Prius. The earlier models provided a wealth of insight, revealing how efficiency could best be delivered... some times in support of what had been originally suggested and other times proving the attempt or hypothesis insufficient. I look forward to hearing more about what develops. There's definitely near-term opportunity for things like safety improvements to come from this... not to mention the ultimate goal of letting the vehicle drive you to your destination entirely on it's own... especially if it's a Prius!
- 5-08-2012** **RAV4 EV.** The price was announced today, an MSRP of \$49,800. That was about what had been expected for this newest EV, since it is expected to be rated with a 100-mile range and features 6-hour recharging. With lots of cargo space, offering plenty of features, and being surprisingly quick, it will be fascinating to see how consumer perceive it. There's a very small market and that niche isn't expected to reach out beyond the initial CARB market. But it does support the movement toward electrification as a whole. The much smaller battery-pack in PHV becomes even easier to embrace when you see what implementation with greater capacity can offer. After all, the design of hybrids like Prius is to provide a best-of-both-worlds approach. That means seeing what EVs can deliver is quite supportive. In fact, that's what diversification is about. Most people will seek out the balance... not everyone though, which is why having a choice is so important. This RAV4 is for them, late this Summer.

- 5-09-2012** **KISS HV/EV.** Finding the most simplistic use of the HV/EV button has been the focus. Today was the "along the river" route again. This time, I pressed the button a few seconds before turning onto the 50 mph thruway, then pressing it again as soon as my merge was complete. It was 50°F outside. So, it took a stoplight and about a mile of travel for the coolant to reach 130°F. When it did, the engine automatically shut off. The engine wasn't needed again for 18 minutes. By then, the coolant had cooled to 82°F, I was about 1 mile from work, and there was only 0.1 remaining of EV. Warm-up brought the EV up to 0.3 mile, just enough to reach my parking spot with only electricity. And I did. The resulting overall efficiency (using 3.1 kWh of electricity plus a little bit of gas) for 17.2 miles of driving was 271 MPG. Simple with great results. Gotta like that.
- 5-09-2012** **Newbie Questions.** I enjoy when they share their thoughts, especially when a question emerges about PHV. You never know where ideas come from or how attached they are to a particular theory. But there's no to get feedback without contributing yourself. So, I jumped at the chance after reading this: *"If the car is in full EV mode and then gets on a freeway, the car's ICE will wear prematurely. I'm sure Toyota engineers took some precaution by increasing EV boost but basic driving rule is don't get on a freeway with a cold engine."* That reminded me of the questions way back when about the engine restarting so frequently. To think how much of a concern that was back then and how much of a non-issue it is now. The same thing will happen with the plug-in hybrids too, given some time and some sharing of observations. This was mine: Those attempting to mislead about PHV and undermine its progress have been spreading that belief, since it builds from a reasonable assumption. Don't fall for the greenwashing! That absolutely is not the case. When you accelerate hard with a cold engine, the battery-pack is called heavily upon regardless of charge-level. I did that specific verify just yesterday. The engine RPM only got up to 1532, despite a demanding acceleration up hill onto a 70 mph highway. That is a truly remarkable RPM, way lower than anything you'd ever expect for such a situation. The engineers designed a system that already takes cold starts into consideration and protected against engine stress. There is nothing to worry about. Just drive it.
- 5-10-2012** **Still Climbing.** The estimated EV distance shown after a full recharge started at 13.1 miles for. It ended up going down to 11.2 miles from my trip up north with lots of highway driving and little opportunity to plug. It's been climbing since then, now back up to 12.8 from being able to recharge at work and not having taken any lengthy trip lately. Others are seeing the same type of behavior, the computer utilizing their recent driving results to calculate EV potential. None of us know for certain what the circumstances truly are, like if there's any battery pre-conditioning or break-in also included. But patterns can be identified from lots of owner observation. So, that's what we've been doing with an online poll & discussion. I suspect mine will be returning soon to that original 13.1 miles. Going above could happen too. Others have seen that. Of course, it really doesn't matter. That value is only an estimate anyway. I've driven beyond that without the engine starting several times now. But it's always nice to know how the system works, since newbies always ask lots of questions when something unexpected happens.

- 5-11-2012** **Oops!** I unintentionally blew past the high-end on the measurement scale. Being a Friday morning, commute traffic was rather thin and I was able hit a few of the lights green which I normally have to stop for. And since acceleration from a stop consumes far more electricity than just maintaining a steady cruise, I was looking at the potential for an unusually good result. I certainly wasn't expecting this though: 563 MPG. That's a "huge" improvement over the 271 MPG from the very same drive the other day, using the button just once to start the engine then quickly switch back to EV mode. Realistically, that's only a difference of about 0.03 gallons of gas, but it's still exciting to see. The supply of electricity is consistent, since it is used entirely. It's the same amount each recharge: 3.1 kWh. What varies wildly are the traffic conditions, which consequently influences the amount of gas required to supplement the journey. This is why large sampling is needed to accurately determine the true efficiency. That means several months of real-world data collection is needed just to get a general idea. To really be thorough, you need to document each season several times. Fortunately, I have. So, that's a great basis of comparison... much better than relying upon an oops to serve as an example. Though, it certainly is fun to experience results like that!
- 5-12-2012** **Looking Back, moving on.** We've reached the point where hype & perception of the past doesn't matter much anymore. People just claim you misunderstood or were poorly informed, especially those who didn't participate in that history. It's always different when you look back. That's why the blogs are so valuable. They tell a very different story. Volt was intended to leapfrog Prius in every way, including sales. Remember all the hope for 60,000 the second year and as much as double that the third? Those setting expectations now certainly don't. In fact, they embrace the "early adopter" mindset as the obvious, completely dismissing any possibility of downplay having occurred. That's why arguing is pointless. Their disconnect from the past makes it a moot matter. It is what it is now. After all, who would admit falling so short of so many goals anyway. Focus on the future instead. Stay focused & productive rather than dwell. That's why I'm noting what actually happened. It makes moving on much easier.
- 5-12-2012** **Looking Back, sales.** With a comment like this, how would you respond: "*Volt sales are much higher than you and those --- news guys were whining about. It's a first generation car.*" We all know that "first" is a weak identifier. Many aspects of EV1 and Two-Mode are readily identifiable. Heck, even some of the same engineers & managers were part of Volt development. But none of that has anything to do with sales expectations we had been told. The count is much lower. So, I posted: Not even close. Much has been forgotten and changed. All along, Volt was promoted as a vehicle for the masses. Sales were to become mainstream the second year, not the second generation. The hope abruptly shifted upon learning what the price would be. Then it really got ugly when the EPA revealed their estimates. There's a drastic difference between early-2012 and early-2010. You have to choose a point-of-reference for expectations claims.

- 5-12-2012 Looking Back, when.** The time has come to leave this behind. It was confirmed. Saying more doesn't accomplish anything. Focus should switch to asking what comes next. Push for details, preventing hype to build again. Don't let them take vague comments and make wild assumptions with them. It certainly don't tolerate any more "*vastly superior*" claims. That obviously didn't pan out either. I stated it this way: The concern was "*too little, too slowly*". Watching Cruze & Malibu become strong sellers without Volt, as consumers embraced fuel efficiency, wasn't part of the plan. That was a change which came about after rollout. Having to wait several more years for something that still may not be competitive and settle for vehicles with combined estimates in the low to mid 30's for MPG in the meantime validates the concern. Profit is now being made from vehicles that don't actually meet intentions.
- 5-12-2012 Looking Back, replacement.** It has always been about replacing traditional vehicle production with high-efficiency choices. Remember Toyota's goal of 1,000,000 annually by the end of 2012? Unfortunately, impact of surprise scandal & disaster seriously hindered the effort. Despite that, there were **252,528** Prius were sold in Japan and **136,463** in the United States last year. And with the popularity of the new models, achieving two-thirds of the original goal worldwide by the original deadline is still realistic. Those are actual numbers, not some vague hope. We still have no clue what to expect from Volt. To make matters worse, we see GM investing in eAssist & diesel along with a push for more small car sales. What kind of future is that?
- 5-12-2012 Looking Back, survival.** We've heard countless reports of people supposedly trying to kill Volt, but none of them appeared to like green vehicles anyway. I want to know who in support of plug-ins actually said Volt wouldn't survive... because it's often implied they were the ones. People like me were saying the current configuration of Volt is far too expensive to reach middle-market. Even with cost reductions, it would still be far from competitive with GM's own offerings. How long must we continue to wait and for what specifically? We never saw Volt going away. It was always a matter of having to realign to actually met the mainstream needs. The niche appeal would force the offering of a model with a balance similar to other high-volume vehicles. It's how many, not if.
- 5-12-2012 Looking Back, foes.** It's fantastic that so many have totally vanished. They made unfounded assertions about either PHV or Volt. Then upon being proven quite incorrect, their posts abruptly stopped. Looking back through my documenting of what they actually said, it makes me wonder if they were blindly hoping, poorly information, or just flat out lying. That last one comes with denial, since presenting data to disprove the incorrect claim continued right up until rollout fell on deaf ears. They sliver of doubt gave them the opportunity to believe it was just speculation rather than fact or could possibly be different with the final production model. Now that those plug-in vehicles are now on the road, it's all over. That's why 2012 is such a pivotal year. No more hype. The wild optimism has been replaced with a healthy dose of reality. And for those foes, the barrier they put up to impede progress is gone.

- 5-12-2012 Looking Back, goals.** A big part of the problem has been the reality that Prius PHV did indeed achieve the goals Toyota was determined to deliver. Seeing such a huge MPG boost from such a small battery-pack provides the basis for some serious market penetration, quickly. There's no good way for those supporting other plug-in vehicles to address that. How do you deal with a situation which draws so much attention and has so much risk? Of course, that is why the request for goals was made countless times prior to rollout. Each was responded to with efforts to avoid detail. None wanted to state anything definitive with respect to cost or need. It was always the appeal to want and hype about immediate strong demand. Looking back, that was unwise. Looking forward, we wonder what comes next. What are the goals now?
- 5-12-2012 Looking Back, confusion.** The unfortunate reality of having allowed the hype to get out of hand is showing its ugly face now. Just imagine how different things could have been if expectations were better managed prior to rollout. To make matters worse, those who warned about that all along are now belittled for even just suggesting that such a thing ever happened. It makes constructive discussion difficult, for Volt anyway. Choices like upgrading from a regular Prius to a plug-in are still a challenge though. I like to point out that the kWh of electricity are used regardless of speed or distance. Your travel will improve from the plug. How much varies quite a bit depending upon circumstance. But there is a still less gas being consumed. As time goes on, the choice will become easier... especially once the tax-credits expire. Reports of real-world MPG help a lot too. For now though, good luck with the decision.
- 5-12-2012 Looking Back, forgetting.** There was that never ending "*Why are you here?*" question. The antagonists would continually ask your purpose, even though you posted it on a regular basis. They wouldn't even claim to forget it either. You were always grilled as if it was the first time. That was a dead giveaway they couldn't care less what you posted. They knew, but simply didn't like your answer. Cooperation among plug-in supporters was unacceptable. Superiority was all they've ever known. Having a common enemy was regarded as suspicious. So, it's been terribly unconstructive. It's finally changing. To what is quite uncertain though. All that's clear is those enthusiasts of the past were rude & insulting, sometime downright hostile. They want to forget all that. It's why those who remember are now treated so harshly. Referring back to the old posts is a genuine fear. They made statements which are now rather embarrassing and assumptions that are quite incorrect. Can I forget that? Sure. But it requires some type of effort on their part to be constructive now. Let's not forget how much can be learned from looking back.

- 5-12-2012 Looking Back, sparring.** The biggest takeaway from the past was the experience from all the online debates. It was a full-scale shakeout well in advance of when that information would actually be needed. I found out the perceived weaknesses of PHV that people would argue long before and had plenty of time to come up with concise rebuttals. Being concise is important, since there are so many assumptions & misconceptions at play. Remember, this is in response to what people believe, not necessarily anything supported by fact. So, posts containing real-world data are simply dismissed as some type of misleading. I looked upon those opportunities as sparring. You learn moves of the opponent. They throw countless red-herrings at you, hoping you'll waste time & effort following them. From that, I've learned to stay focused. Remaining on the point makes a huge difference. They provided lots of practice for that. I feel well prepare... and those enthusiasts spreading hype ended up contributing to their own struggle.
- 5-13-2012 Weekend Hatchback.** I certainly am using my PHV as if it was a regular Prius. Both this and last weekend were major Spring cleaning efforts at Mom's, years of things stored away in the sheds to finally sort through. That resulted in stuffing the cargo area with junk to get rid of. I certainly did. Some of it was pretty old & nasty too. But with a large & heavy tarp, you can easily protect the vehicle interior rather well. So, I loaded up the Prius... despite the moist, muddy, and rusted items. That was quite effective, but looked terrible to have that much garbage inside of such a high-tech vehicle... especially when you consider it is very likely still the only advanced model in Minnesota. But the utility aspect is a selling point, and I was definitely taking advantage of it. Owning such a practical vehicle that's also extremely clean & efficient is marvelous!
- 5-14-2012 Surprise!** This morning's (Monday) commute provided an unexpected surprise. Traffic was heavier than that last Friday (the Oops! from 3 days ago) and I did end up having to stop for some of those lights I had been able to sneak through. Despite the extra acceleration draws, the efficiency was still remarkable... strangely, it was nearly identical: 562 MPG. There was an extra surprise too. I ran out of EV about 150 feet from my parking spot. But when it switched over to HV mode, the engine remained off since draw from the battery-pack was below the usual threshold. I wondered if warm-up was triggered by draw or simply running out of EV. Now, I know.
- 5-14-2012 Late Groceries.** I finally had the opportunity to try what I had been talking about ever since I drove an early model plug-in Prius, way back in August 2010. After the usual work day, I came home and ate dinner. Then after doing a few chores, there was time to play. With a few hours of light remaining and it warm enough for a Summer activity, I could go biking. But before escaping, I plugged in. Later when I got home, it was time to run an errand. I needed groceries. Wasting precious daylight was out of the question. Now the sun had set and the Prius fully recharged. It was a delight driving to the store and back... using only electricity. With a maximum speed of 45 mph here in the suburbs, I had a variety of locations to choose from too. That no-gas-required really changes your outlook on chores. Late grocery shopping hardly felt like an effort. Usually you have to convince yourself to go out to do tasks like that. Now, it's an excuse to drive... especially short distances, which had been a MPG killer... but not anymore.

- 5-15-2012** **Shrinking Thread.** It's interesting to interact with Prius owner who is now leasing a Volt. That perspective is rare, especially when Volt hadn't been closely watched until rollout. Not having that history, things look different. Not following the discussions closely either, adds even more to the perspective. So, I wanted to know more from him before the shrinking threads no longer stirred. The rhetoric is clearly coming to an end. But this deserved a final poke: *"Restating vague and undefined terms won't do much good. If you have defined them more explicitly I apologize. A link would be sufficient..."* Just 2 days earlier in this very thread, I provided specifics. Keep in mind that 2 years ago, the Volt enthusiasts were standing absolutely firm on Volt selling 60,000 here in this market the second year, demanding we must all wait then until before drawing any conclusion. Now, those specific individuals deny that ever happened. So, I apologize for being brash sometimes when asked to repeat what I have already posted literally a hundred times. It's difficult to interpret intent. Long story short, Toyota has been quite specific over the years, setting very clear goals for market penetration. Having that level of detail from them set the expectation of the same from other automakers... especially any who are depending heavily on tax credits. The first goal I remember from Toyota was the 300,000 total. It seemed so far off, knowing it would take years for that many too be purchased. Has that ever changed. As for profitability, a design must be configured to make a profit. Whether it does initially or not is a separate matter, since a buffer (like tax credits) can be used to help initial rollout... which begs the question of when that should expire. Volt depends upon an expensive system. Motor, Engine, and Transmission alone are very costly. Just look at the struggle Two-Mode has had with that. Then there's the battery. Using 16 kWh is a killer. At currently just under \$700 per kWh (excluding support components), it dooms the vehicles to sticker-shock. What does having a showcase vehicle, but selling mostly Cruze accomplish? When will favor shift? Notice how Corolla has been dethroned as #2 in Toyota's line up, replaced by Prius.
- 5-16-2012** **Gauge Confusion.** The aftermarket gauge I have works fantastic for conveying coolant temperature information. Knowing that reveals a lot about how the system works. It's quite educational. But when it comes to MPG information, my experience with it today didn't go so well: The merge onto the highway this morning was with the usual 1500 RPM maximum, dramatically increasing MPG from the usual 30 to 90 by taking full advantage of the plug-supplied electricity. Upon settling down to a steady cruise at 70 mph with an engine RPM at only idle speed, still drawing heavily from the plug-in battery-pack, I noticed the instant MPG on the gauge. 21.7 MPG! Huh? The instant MPG on the Prius speedometer was spiked at 100 and so were the minute-summaries on the Consumption screen. The gauge MPG value kept jumping from a low in the 20's to the 80's & 90's. It clearly didn't understand what was happening. I wonder if anyone else seeing older devices struggling to properly report data from new technology. There are bluetooth connectors now, which interface with smartphones. That would provide the ability to easily upgrade software. But for now, it still pretty early for plug-in hybrids. Aftermarket device confusion will likely take awhile to remedy.

- 5-17-2012 C-Max Detail.** As expected, this new hybrid from Ford is a close match to Prius v but has components a little larger. Of course, the only actual specification we got was the engine would be 2.0 liters. The battery for both the hybrid and the plug-model are just said to offer more capacity, no detail. The press-release just generically said it will have a faster maximum electric-only speed for the hybrid. But since rollout won't begin now until this Fall rather than next month as anticipated, there's plenty more time to unveil small bits of information to build interest. Price of the base model was revealed. It will be \$25,995. That's about \$500 less than v's base but obviously quite a bit more than the regular Prius and the c model. It likely means the plug-in base will be more too. Odds are it will be a popular vehicle, since it's traditional-counterpart available in Europe is. Here in the United States, it will only be available as a hybrid. With the price of gas going down and people growing use to paying more to fill the tank, it would have been nice seeing C-Max on the road sooner. Oh well.
- 5-17-2012 Turning Tides.** Things change. Those who had incorrect assumptions in the past are faced with how to respond now. Many simply go silent, mostly to avoid being labeled as hypocritical or needing to apologize. Some also fear retaliation through spin, knowing how easy it was for them to twist facts. A few rare individuals actually follow their principles and concede. They begin ignoring the technology which they had previously endorsed and pay more attention to what you have to say instead. That's when you know the tide had turned. Blinded by brand loyalty themselves, they had just assumed you were doing the same thing... never actually looking into the detail you had provided all along. I've witnessed that phenomenon in the past, dating all the way back to the original Civic hybrid. Throughout the years, others came and went. But for Volt, it is especially noteworthy... since no other high-efficiency had been so hyped. Ironically, they played right into the "*over promise, under deliver*" self-fulfilling prophecy... despite being warned of how that happened in the past. Thank goodness the direction has changed. The flow is going in the other way now. Resistance before may not be anymore. In fact, those who had opposed may even become supportive. These are interesting times.
- 5-17-2012 Estimated EV.** That start at 13.1 miles when I first got my PHV two months ago quickly shrunk. It was based upon the assumption of lots of EV driving. Instead, my driving has been heavy on the HV... especially as a result of that trip up north. It dropped down to 11.2 miles. Of course, that's just a range estimate. The computer uses prior real-world data to approximate potential. The value has no actual bearing on outcome. I've hit 14 miles of EV a number of times, despite seeing lower numbers on the computer upon starting the vehicle after recharging. Plugging in at both home & work has helped bring it up. The estimate EV climbed to 12.8 last week. This week, I watched it return back to 13.1 miles. Yesterday morning, it hit 13.2 for the first time ever. Yesterday afternoon, it was 13.3 miles. Today, both recharges were 13.3 too. Knowing that others get values in the 14's and 15's, I'm quite curious what mine will end up at. Summer driving trips should have a heavy influence... downward. Winter will be even worse. It doesn't matter much. Efficiency is absolutely outstanding. At this moment, my current tank at 675 miles is showing an incredible 107 MPG.

5-18-2012 **GM Stock.** It's extraordinarily difficult to have constructive discussion when it comes to the financial outlook for GM. That's why Volt comments were often taken as confrontations, believed to be undermining efforts. The situation became polarized. With no opportunity for analysis, you were doomed to the "Anti-GM" label regardless of what you posted. Only cheerleading was acceptable. My approach has always been the grading method, identifying progress and by pointing out potential. There's no outright failure. Of course, when it came to Volt, the homework assigned wasn't what was actually turned into the teacher. So, enthusiasts were always angered by not giving it an "A" based solely upon engineering accomplishment. It didn't matter to supporters that the business aspect hadn't been addressed as instructed. Whatever. That could go on and on; however, there's no need anymore. Reality has come crashing down. Last week, the United States Treasury issued a report on their 26-percent stake in GM. The \$49.5 Billion spent on reviving the automaker back to profitability, unfortunately, continues to be a struggle to recover. The short-term profits have been fine. But for actual monetary payback of the 500 million shares still owned by the government, it's a big problem. At the time of the report, stock was trading for \$22.54 per share. That's well below the \$33 each they were purchased at. Today, the stock closed at an all-time low of \$21.18 per share. The hope for a net gain, to help cover taxpayer expenses, isn't going to happen. GM has expressed frustration from delay of selling that stock. They don't like such a large outstanding liability, which contributes heavily to the "Government Motors" references. The Treasury department doesn't want to accept such a massive loss. Those who argued there's plenty of time, that the "early adopter" stage of Volt isn't too slow, are growing quiet. Consequences of not having addressed the business aspect are making themselves quite apparent.

5-19-2012 **Next-Gen Worry.** The talk of next-generation design for Volt has evaporated. It had been a strong reason stated often for patience. But that delay only made sense if you assumed the competition wouldn't be improving their designs within the same time period. Turns out, Ford is in the process of doing that now and Toyota will be roughly when Volt gets an upgrade. Knowing battery-tech and engine-efficiency will both be improving for them, any argument for Volt becomes moot. The moving target is obvious. Enthusiasts see this and have noticeably backed off as a result. They are worried that GM will always be struggling to get ahead, that leap-frog hope depends heavily upon a dramatic cost-reduction. Without that, they will have to settle for "*direct competition*" rather than being "*vastly superior*" as long hoped. To them, the word compromise means "*failure*". For the rest of us, it means "*balance*". That's why they worry. Trading off power & capacity for affordability is unacceptable, in their minds. Of course, so is having a vehicle which doesn't stand out. Being an ordinary family car doesn't draw attention. That type of success is actually a conflict of interest... something else to worry about. In the meantime, there are PHV owners like myself who are thoroughly enjoying the plug-in boost.

- 5-19-2012** **Goodbye \$100.** It looks like seeing that for the price of a barrel of oil is gone. Pressures have finally subsided... allowing the closing price for the week to drop all the way to \$91.48, making it the lowest we've seen for a very long time. That means the concern of \$4 is gone too. Fortunately, that doesn't seem to be having a negative on the interest in fuel efficiency. It appears as though higher MPG is a priority now among most consumers. To what extent is the question. This is a great opportunity to establish PHV in the meantime. The expectations for plug-in hybrids are all over the place. Being able to supply lots of real-world data prior to the next inevitable climb of gas prices should be quite helpful. What are the assumptions now? With all the hype from Volt over, it's time to find out if there was any collateral damage and deal with it quickly. Would any of that even have influenced consideration of a plug-in Prius? What about Ford's upcoming plug-in hybrid? Less expensive gas may actually benefit EV rollout as well. Establishing networks of charging-stations and lowering of battery cost requires lots of time. PHV supports rapid acceptance without dependency upon it. Tax credit expiration isn't a problem like it is for Volt. That pressure still very much exists. In fact, it will probably struggle more with the price of gas lower. These are definitely interesting times.
- 5-20-2012** **Discovering C.** This series of quotes was from a delighted new owner: *"I had always wanted a Prius, but never thought I could afford one... I sat in a car labeled Prius... I thought it was the traditional Prius... I had no idea there was a new model out... Then I saw the sticker price and I was sold!"* His thrill was clearly expressed in his introduction and follow up posts. It was fantastic hearing from someone who discovered Toyota's newest hybrid, quite unexpectedly. It was a natural choice for him. No pressure. No doubt. Of course, now behind the wheel of one, he added this: *"I can also see why the whole mpg thing becomes an obsession - the car kind of makes you want to do better."* That was great to read. I articulated my feelings with: Hearing that you didn't know a new Prius was available is very exciting. It means there's untapped demand, a juggernaut waiting for more showroom discoveries.
- 5-20-2012** **Gallons Saved.** I was quite intrigued when this newest advertising campaign from GM featuring Volt was launched. It's been 3 days. Comments online about the *"2,130,000 Gallons of Gas Saved"* have been mixed. The most obvious talking point came from what they were comparing to. That wasn't stated. Being vague allows you to assume it's in comparison to the high MPG choices that don't offer a plug. But in reality, it looks like they are still using the 27.5 MPG average for the United States. Naturally, there wasn't anything stated about how much electricity was actually consumed in its place either. Knowing there are over 1 million Prius on the roads here, that's rather frustrating to see such lack of detail proliferate. It certainly is nice to see gas dependency getting attention. But that's leading to an increase in downsizing purchases of traditional vehicles, not a strong demand for Volt. What will the situation be like 2 years from now? Next year? In the Fall, when Ford's plug-in becomes available? As the biggest guzzlers disappear, what draw is there to purchase a much more expensive vehicle like Volt when you can just get a Cruze, or Sonic, or Malibu ECO instead?

- 5-20-2012** **100 Miles Less.** It will be fascinating to get averages from PHV owners, especially since travel distance can vary so much. In that recent press release from GM, it stated: *"Typically Volt owners drive an average of 900 miles between fill ups at the gas station."* That's 100 miles less from the press release 1 year ago. Remember all that publicity that provided? Did it make a difference? What are consumers really looking for? What is there purchase criteria? How much is the right amount? I'll easily get 750 miles from my current tank. That's well above industry average. Will people really want more? After all, it doesn't actually matter, since that isn't a factor of efficiency. And how will the other automakers respond? Will the ability to plug in be at the forefront of promotion? If so, how often will the owners typically be plugging in? Numbers like this don't have any sort of reference yet. There's no plug standard. Heck, there isn't even a no-plug standard. In fact, there isn't a traditional standard either. So basically, in this new age of efficiency focus rather than power or speed, change is extremely difficult to interpret. Each number raises new questions.
- 5-21-2012** **Sloppy Reporting.** Reading an article with this opening line will make you immediately check when it was written: *"Up until just recently, hybrid models were not moving off dealer lots and most buyers didn't really understand the new technology. But as gas prices have risen to \$4 per gallon, sales of hybrids have skyrocketed."* Bizarrely, the date was yesterday and its focus was Prius PHV. Huh? Since when is hybrid technology new? Did he actually mean plugging in? But gas was first \$4 per gallon 4 years ago, so what does recently refer to? Then things got even more confusing with: *"But the small hatchback is really designed for city driving and that is where it feels most at home. It is great for zipping in and out of traffic and is easy to park because of its size."* Did the writer get mixed up, confusing the c model with the plug-in model? None of the specifications, including price, were wrong. In fact, even c was mentioned. Then it stated: *"The biggest drawback is the Prius plug-in Hybrid has a limited electric range of 15 miles before the battery is depleted."* That gave the impression in might be a covert promotion for Volt. But then this was included: *"The similar plug-in Chevy Volt can travel 25-30 miles on a single charge."* What the heck? That's a sad excuse for journalism, especially from an automotive publication. At best, it's sloppy reporting.

5-22-2012 **Hypermiling.** It's always intriguing to hear the different perspectives on this. The origins can be traced back to that "*Up To The Chore*" saga. That heated debate was intense and lasted an amazing year and a half. The person who coined the term came up with it in response to something I had posted. He was doing a variety of things to squeeze MPG from a Corolla, claiming there was no benefit to the hybrid technology. Of course, he later discovered P&G (pulse and glide) could take Prius to a whole new level of efficiency... but that had some negatives, leading to conflicts of what was considered acceptable and the variations causing confusion... which years later, brings us to the uncertainty now. I posted this, providing some history: The term "hypermile" has been around for a decade. It originated from traditional vehicle comparisons to the earliest hybrids. Then the hybrid drivers began doing their own modified version of how to squeeze out higher MPG. Over the years, the recommendations of what to do changed. Then the next generation designs introduced new twists on it, making the meaning quite unclear. Now, we have plug-in hybrids. For Volt, there's the suggestions of shifting to L and taking advantage of MM. Next year, there will be a HOLD button introduced. For Prius PHV, there is an HV/EV button. Plus, there's the obvious benefit recharging at work provides. In other words, what does "normal" driving mean? Think about how informative the real-time efficiency screens are to the driver. Responding to the data being presented could be considered hypermiling; however, those screens are a standard part of the vehicle. It's normal to have them. Ignoring them would not be normal behavior. It would be like disregarding what a tachometer tells a manual transmission driver.

5-22-2012 **4 Million Sold.** It was way back in December 1997 that sales of the Original Prius began. Then in August 2000, the upgrade was rolled out. It was the Classic Model and we here in the United States got it first. Mine was delivered a few weeks later. Crown & Estima were then introduced. The race was on. There wasn't much competition though. Most of the attention came from anti-hybrid efforts. Thankfully, Toyota pushed on. New hybrids continued to be introduced and the system itself was enhanced. I upgraded at the first opportunity, becoming a pioneer again in October 2003 with a new Iconic model. In a flurry of success, lot of real-world data provided great endorsement for the technology. The ownership count grew. I remember 500,000 sales being reached. Then 1 million. The third-generation design, as it is now referred to, was introduced. I joined in, upgrading again. It was fun being part of that. There were lots of owners. Hitting 2 million sales for Prius and 3 million for Toyota hybrids overall came quick. It was the kind of growth needed, finally realistic. Mainstream status could no longer be questioned. Today, it was announced that the 4 million overall mark had been reached. Yeah! It's so nice knowing progress continues. Several new models of Prius, including a plug-in are now contributing to the market penetration. Hopefully, all that will serve as inspiration to the other automakers. We hear about their efforts. There are plans being made. But at the same time, traditional vehicles march forward.

- 5-23-2012 PHV Data.** We're into uncharted territory now. There's an ample supply of material to make a mind wonder. So many variations to ponder leads to a welcome loss of perspective. A commute back & forth to work along with a stop along the way, even with just a single recharge, will result in MPG above 80. That's what had been predicted. Now, it's a reality. Those who don't have to drive as far or like me who can recharge at work will see efficiency even higher. I'm absolutely delighted. Summer biking trips are soon about to result in lots of HV driving. Far more of those miles than EV will cause my average to drop. But that low will still be well in excess of what a regular Prius delivers anyway, which in itself is impressive. It's an enjoyable experience. Winter will even bring a thrill, which I'll document every aspect of. Having plug-supplied electricity available improves efficiency regardless of the situation. Witnessing results firsthand is rewarding. This is what I posted online for yesterday's gas purchase, contributing to the collection of statistics owners have been sharing: Still one pip showing, but it was close enough to need a refill. **DISPLAYED:** 848 miles total, 454 miles EV, 393 miles HV, 111 MPG, 92 kWh. **CALCULATED:** 104.9 MPG, 103.2 kWh. **MEASURED:** 33.3 recharges, 8.077 gallons. That was a very exciting tank; though, waiting 2.5 weeks for the real-world data was an exercise in patience. It takes a long time to drive far enough to need to visit the gas station.
- 5-24-2012 Finale & Epilogue.** The thing which has caught my interest recently is Volt supporters also seeking closure. A grand finale is their approach on the situation... wishing Volt good fortune and seeing no reason to for any other action beyond patience. The PHV supporters are pursuing closure too, but how is quite different. They provide an epilogue... finally putting to rest the unfulfilled hype for late 2010. It would be nice to move on, even if the reasons for doing so vary. The comparisons of Volt to Prius aren't attracting attention anymore anyway. Increasingly apparent is the view of GM's own production, that the issue is within the automaker itself. Toyota is really only the distraction. That's becoming easier and easier to see. There isn't an effort to kill GM or Volt. It's really a push to not waste more opportunity. Too much has been lost already. That meritless hope of the past should have been a warning about trouble to come. No more excuses either. Set a clear & concise goal, then stand by them.
- 5-25-2012 Lost Opportunity.** Repetition is the sign. Today, it was: "*Spin! Spin! Spin!*" We've seen that over and over again. It's quite refreshing for GM supporters to grow tired of the same thing. Moving on requires that step of recognition. They don't want to see anymore opportunity lost either. I added: That's a good assessment. It's the same old meritless statements. Prior to rollout, it was: Hype! Hype! Hype! We all know middle-market vehicles have different priorities than what Volt initially delivered. The catch is, it's still promoted as if it the current configuration was designed for the middle. It's that misrepresentation which rubbed people the wrong way, especially the disregard for market need. That has been changing. Calling this stage "early adopter" is an acknowledgement that mainstream will be achieved by the next generation instead. Understanding the system by clarifying vague claims of the past with real-world detail is how progress will come about.

- 5-26-2012** **Actual Issue.** Stepping back to look at the actual issue, it's the mixed messages coming from both Volt owners and GM itself. Sometimes Volt is an EV. Sometimes it is a hybrid. That's the inconsistency... which is very frustrating for some of us. PHV is always a hybrid. There's no issue with the engine running briefly. It's not promoted as an EV. The plug provides a significant MPG boost. True, sometimes it doesn't use any gas at all. But even when depleted, MPG is still above what traditional vehicles deliver. Emissions are cleaner too. The purpose is deep market penetration and high-volume sales quickly. Within the next few years, when the next generation of Prius is rolled out, the PHV will naturally just be part of it. That package option offering a plug will be a regular offering. It's such a natural next step, it's easy to embrace. For Volt, we're still scratching our head trying to figure out purpose. The issue of not knowing is a big deal... often overlooked by the petty squabbling common when plug-in owners attempt to have constructive discussion. Ask yourself what the problem actually is when you encounter a heat exchange of posts. It may not be what is getting the attention.
- 5-26-2012** **Bottom Line.** It's interesting to read the perspectives of others. They vary dramatically depending upon when they began observing the automotive industry and how much business background they have. The enthusiast typically is quite new and focuses solely on engineering. So, you know how pointless those discussions are. They turn into meritless debates rather quickly. What stands a chance at being constructive is what I'm trying to spend more time on now. I liked & appreciated reading this today: "*Bottom line - GM didn't do their homework on the Volt as compared to the PIP, or regular Prius on the design concept, approach, and execution of their hybrid.*" My response to that was: Actually, they did. However, results of those studies didn't fit well with what they wanted to deliver. It's the SAAB story... ironically, GM not taking the very advice they gave them. They knew it was a bad idea disregarding sound business strategy and went with their gut instead. After all, a powerful electric motor does indeed deliver a pleasant driving experience. But then again, so does a gas engine with lots of horsepower. Cost comes back to haunt and middle-market vehicles aren't exciting to executives & enthusiasts.
- 5-26-2012** **Still?** I remember dealing with this same thing: "*Had my Prius for a week and I lost count each time someone asks me or makes a comment about "needing" to plug in my car each night to recharge the battery.*" That became really annoying back in 2000... 2001... 2002. It subsided, then almost went away entirely. But now that Prius is penetrating deep into new markets. It's back! My guess at the best response would be to simply reply that you didn't get the plug-in model... and not provide anything else. Make them ponder that on their own for awhile. At some point, curiosity will get the best of them and they'll ask for more information. You can trick them into intrigue, perhaps even open up the door to opportunity for showing them your Prius. Then they'll be hooked.

- 5-27-2012 Gas Prices.** One political party wants to improve efficiency technology. The other wants to lower gas prices. Which makes more sense for our children? Which is more likely to get that politician re-elected? It's so frustrating to the price of gas taking precedence over the consumption of it. People carelessly guzzled for years. They mocked hybrids. The technology was misunderstood. Greenwashing flourished. Are things better now? The technology continues to advance. Support of it is quite limited. The heavy dependence on tax-credits is a warning sign that a struggle is about to come. Much needs to be done before that opportunity to collect expires. And worse, what if the automatic budget-cuts next year impact that funding? The price of gas being lower doesn't help advance progress. It sets up false expectations, leading people to believe there's plenty of time still. How much longer can we really afford? For that matter, how much longer do you want to continue driving a vehicle that depends upon low gas prices?
- 5-27-2012 100 MPG, part 1.** What is compelling? The auto industry clearly lowered standards. They had emphasized the importance of reaching 40 MPG for many years, then abruptly backed off when gas hit \$4 per gallon. All of a sudden, 30 MPG became the focus. Sadly, it was what came next that was worse. They switched from advertising city/highway/combined estimates to highway-only. Not having anything efficient to actually sell and the revision of the EPA measurement system obviously put them in that position. But what does that mean now? At what point does the reality of diminishing returns influence consumer purchase decisions? The efficiency value which comes up far more often than any other is 100 MPG. How many miles you can travel on a single charge before dropping below that mark would be a new way of promoting. It could be quite effective too, since the EV estimate is inherently misleading for a plug-in hybrid like Prius. Real-World data is far more of a draw than rating measures. Prius has overwhelmingly proven that. Knowing you'll go around XX miles before dipping below 100 MPG, regardless of how you drive, would be a powerful bit of information owners have yet to share. Most of the time, I plug in with the MPG still well above 100. So, I really don't know. My very limited data hints that it's somewhere around the 20-mile mark. Anyone care to guess where that average threshold will be for PHV?
- 5-27-2012 100 MPG, part 2.** That idea of paying close attention to what distance achieving 100 MPG is effortless came from a "discussion" with a Volt owner. He was trying to be helpful, but the responses were so vague, it became frustrating. His effort led to suggesting some arbitrary numbers. So, I'll give credit for that. Unlike other confrontations, that one exhibited some merit. Trouble was how to apply random observations to something effective for promoting plug-in hybrids. It's far too easy to tell people numbers they cannot relate too. After just 2 months of driving a PHV, it's easy to see the EV range estimate is quite misleading. People have no idea what to expect following depletion. They hear "*then it runs just like a regular Prius*" but don't understand what that means in terms of MPG. So rather than continue to focus on the two distinct modes and continue to neglect blending, why not convey a measure which highlights it? But rather than a fixed distance, we'll use a fix MPG instead. I'll note whenever my MPG drops below 100 following the depletion of a single recharge. Eventually, a pattern will emerge... without any need to refer to EV. It will be a measure for people to consider when they know they will drive beyond the battery-capacity available... something no one has actually addressed with anything beyond just random observations. Watch my spreadsheet. And of course, be patient... since my MPG is often well above 100 and I often recharge at work.

- 5-27-2012** **100 MPG, part 3.** This morning's errand running was only 18.4 miles of driving, which meant MPG only dropped to 142. I was back home for lunch. There wasn't any need to use the Prius until late in the evening. So, I set the timer and plugged in. That drive was just 11 miles. Capturing data-points for when 100 MPG is hit will likely continue to be quite a challenge. Despite my annual average of 20,000 miles, plugging in is too convenient for me to let the opportunity slip by. That particular situation doesn't happen often for me. The thought now is to see if there's some type of normalization available from the daily information I document. With so much larger of a sampling, the trends would be easier to see. Remember, we're not looking for any specific value. We're hoping to identify patterns based on each of the driving scenarios we encounter, especially the routines not well understood... like Winter commuting. For just 2 months of driving a PHV so far, I'm pleased with the way data-collection has been proceeding. Real-World reports are very worthwhile, quite a help when conveying expectations to those unfamiliar with efficiency influences.
- 5-28-2012** **Rewriting History.** Just hours after Toyota presented their vision for the future, some GM supporters began to spread a different interpretation of what was actually said. So all these years later, trying to convince a Volt owner they were intentionally mislead would be an exercise in futility. It's really unfortunate when greenwashing is effective. Toyota stated it wasn't possible to deliver a plug-in vehicle for the masses that was affordable. Those hoping to rewrite history simply left off the "affordable" part. Now after all that time, we have Volt owners celebrating with comments like this: "*While Toyota said for years that plug-in would not work, GM proved them wrong and now its Toyota's turn to have to catch up.*" That cost problem is the very reason why PHV uses a battery with a 4.4 kWh capacity. And of course, there are now a number of problems arising from the antagonist nonsense. The "*vastly superior*" gloating has pretty much faded away, but we do still hear this: "*The Volt leap-frogged the basic HSD design.*". The engine in Prius is more efficient already and there are thermal improvements on the way. The hybrid Camry uses an electric motor very close in power to that of Volt (105 vs. 111) and it's more efficient. The clincher though, coming from that same individual yesterday, was this: "*So you want to invent yet another metric? I think this one is silly.*" Recognize that? We've seen data-withholding efforts before. When has that ever been helpful? Providing data to let consumers draw conclusions on their own has always been the better approach.

5-28-2012 **Moving On.** This month is coming to an end, the first which Prius PHV is available (in the 14 initial launch states) to consumers who hadn't pre-ordered. That should make things interesting. The Volt downplay & denial was beyond agonizing. Not accepting the reality of price has been a big problem that won't be overcome anytime soon. So, the results from Toyota will be looked up with great scrutiny... since their plug-in was designed to be affordable. They targeted middle-market right from the start. GM won't address those consumers until the next generation, falling well short of expectations. Remember the ultimate plan for tax-credit money, to have 1 million plug-in vehicles on the road in 2015? Toyota should be able to meet the mainstream minimum rate of 5,000 per month sometime next year. Ford may be able to meet that the following year. Toyota's next generation Prius should be available for that final year. The new PHV will likely play a major role in the race to fulfilling that goal. Only a well-established plug-in could accomplish the high-volume numbers hoped for, for that matter, needed. Production then is expected to be domestic too, which is another intended benefit from the monetary incentive. What's realistic from the other automakers? What will Nissan end up doing? What about plug-in vehicles from Hyundai & Honda? How will VW react to the changing market? For that matter, what will Volt end up becoming? With the only certainty being a growing demand for gas, simply due to population growth and greater congestion on road, how seriously will the efficiency goals be taken with respect to plugging in? We know hybrids like Prius without a plug will prosper due to the upcoming CAFE requirements. But what will the reaction be to owners like me reporting an average over 75 MPG from a vehicle with a price of about \$30,000? That's what my thoughts are moving on to. The crazy hype of the past is quickly fading. What others had hoped for didn't happen.

5-28-2012 **100 MPG, part 4.** Collecting that data could be much more difficult than expected. In real-world conditions, efficiency simply doesn't drop that low for me. After 27.1 miles of driving around today, my errand running was done early in the afternoon. I wouldn't need the car again until sometime in the evening. There was plenty of opportunity to recharge in the meantime. The display showed 110 MPG... and I had no interest in driving around just for the sake of seeing how much further it would need to dip below 100 from just that one charge. It was already enough to support the thought of being able to go well beyond 20 miles. Will those curious about PHV understand that though? Without lots of data to illustrate that, greenwashers will just say whatever they want. There's pressure building. Other plug-ins struggling for sales will put Prius, which has only been available for a few weeks and only in rollout states, in a position of attention. When is the question. Soon is likely the answer.

- 5-28-2012** **HWFET.** I never looked closely at the "Highway Fuel Economy Test" procedure. We just knew there was a hard acceleration involved, that would cause the PHV engine to start. But we also knew after warming was complete, it could shut off immediately upon speed dropping to 100 km/h (62 mph) or below. So, there wasn't ever any pressing need to look at the detail. Today, someone brought up the graph of the speed & duration of that particular EPA test measure. Sure enough, right around the 6-mile mark was that acceleration. It visually explained perfectly why the window-sticker states 6 as a point of significance. Antagonists have used that to mislead, claiming the battery-pack is depleted at that point and totally disregarding the 11-mile rating. They claimed the remaining drive was in HV mode. With the speed on the graph clearly showing values in the 50's, arguing the engine doesn't shut off then would be an act of desperation... especially knowing owners like me have reported driving 14 miles before the engine started for the first time. One individual actually insisted that the battery-pack was totally depleted after 6 miles. I bet he was frightened by the EV-boost mode. Driving at 65 mph, I pushed the button. Switching from HV to EV-boost increased efficiency from 50 to an amazing 150 MPG. Seeing that was quite vindicating.
- 5-29-2012** **Backlash.** Watching new articles pop up about EV sales, it pleases me immensely that Volt wasn't actually marketed as a plug-in hybrid. Enthusiasts pushed hard to it to make it stand alone. That contradictory approach of wanting it to be popular selling niche was doomed from the beginning. How can you have something common yet be uncommon at the same time? They'd shun Prius, then strive for what it represented. Ugh! At least Nissan understood the importance of being affordable. Unfortunately, the economic realities of delivering a 24 kWh battery-pack caused the price to go up. Perhaps this is why there's so much emphasis on gas usage now, without mention of plugging in. It could be a scramble to disassociate, knowing the EV is becoming looked upon as "*plaything for rich environmentalists*". Success requires acceptance by the masses. And that doesn't mean the disingenuous reactions we all see at autoshows, where they love the idea but wouldn't actually purchase it. This is how PHV differs. While those enthusiasts mocked, ordinary consumers took notice. Now just on the verge of a backlash, where traditional vehicles gain attention for fuel-efficiency again, here comes an affordable plug-in choice from Toyota. Timing is difficult though. What happens now is critical. Sharing lots of real-world data will help keep the building of political tension from getting out of hand.

- 5-30-2012** **Improving EV.** The range estimate value is beginning to make some PHV supporters feel a bit lost. They aren't sure what to do for newbies who see it abruptly drop. The obvious suggestion is to provide information about improving EV. That sounds like a good approach, if the system only had an EV mode and a HV mode. But it doesn't. There's that one in between. So, you cannot easily define EV range or even identify the factors which contribute to the estimate value. I sounded off with: "EV-boost" confuses matters though. Depleting from the battery-pack while the engine is warming up and while cruising at speeds faster than 100 km/h (62 mph) provides remarkable MPG. That mode is great for efficiency, but doesn't count as EV miles. It's considered HV, since the engine is running. The fact that MPG is spiked at +100 on the display shouldn't be excluded from discussions. It likely will reduce the EV range estimate as well. New owners will be concerned pretty much no matter what information we post. But that's not necessarily a bad thing, since knowing there's a lot to observe enhances the ownership experience. You feel like your purchase is well thought out, when so many factors are already accounted for... and you get incredible results no matter how you drive it.
- 5-31-2012** **Measured, part 1.** For an entire decade, we were told price was a major purchase priority for any new fuel-efficiency technology to be accepted by the masses. That's how the \$3,000 to \$5,000 plug-in premium come about for Toyota and the \$30,000 target for GM with Volt. Then came the fallout, when Lutz started campaigning for heavy government subsidies and the \$40,000 base price was finally revealed... which is how I became so outspoken, asking "*Who is the market for Volt?*" Then came the range (40 mile, all conditions) and engine (50 MPG, combined rating) expectations not being met. So, physically checking out the car itself became pointless. After all, those endorsing the "*early adopter*" perspective said to just wait anyway. But today with another long-time Prius owning friend, we stopped at the local Chevy dealer. A salesperson escorted us over to an open Volt to check it out, though somewhat irked knowing I had absolutely no intention of buying one... since I had come there in my PHV and openly said I was there just to measure the interior. Wow! I had no idea Volt was that much smaller inside. I'm average height for a man (5'8"). So when my head touched the ceiling in back, it only took a moment to realize it would be difficult to remain objective. In the driver's seat, it was clearly shorter there too. I measured, though it was obvious just by sight. There is 2.25 inches less headroom. The cargo area is smaller too. The sunken floor would make loading large cargo a pain, not flush as with Prius. My 3-wheel recumbent bike simply wouldn't fit either. When I asked about carrying bikes on back, wanting to know if anyone had figured out how to use a strap-on rack even though Volt doesn't have a back bumper for it to rest on, I only got a hitch suggestion... which made me wonder how often that would scrape considering the lower ground clearance. That salesperson and the other who came to answer questions when we stepped inside were polite & helpful, but clearly didn't like Prius at all. We already knew legroom in back was less and there wasn't seating for a fifth person. But now finding out about headroom and confirmation about the cargo area, more than ever I have to wonder who the vehicle was intended for. With PHV having a base price of \$32,000 and offering a larger interior, I see it appealing to a much wider base of consumers.

- 5-31-2012** **Measured, part 2.** Size difference was an unnoticed issue with Insight all those years back too. The subject was simply avoided. Not being mentioned allowed the belief of equal size to persist. Whatever. It's pretty easy to notice Prius is larger once you see both. As for the rest, the debate is over... done... dead. How they disregarded such an important aspect of vehicle preference is only just a topic of wonder. Was there such intense dislike for Prius that would endorse anything offering greater EV capacity? Think about how the "complexity" argument has come full circle. I can easily imagine frustration arising from seeing Prius in such large quantity now. They're everywhere! It's great for someone like me, who has always sought out a solution for middle-market. Their desire to justify a higher price in favor of raising performance clouded logic. Simply delivering higher efficiency with a vehicle similar to what people currently drive was a better goal. The emission & consumption reduction was worth paying a modest amount for, but not a huge premium like Volt requires. Keeping price in check was what contributed significantly to Prius success. Engineering for maximum EV isn't enough, as they are now learning the hard way.
- 5-31-2012** **Measured, part 3.** I'm glad it has come to an end. Setting such high expectations on hope was never a good idea. Seeing all that former hype gone now is major relief. Today is the last day of the month. Sales results for May will provide a big dose of reality. Major growth had been expected for June, but barely squeaking by up to then won't be a good sign. Perhaps that will keep things from getting out of hand going forward. Lessons of the past with Two-Mode clearly weren't recognized as repeatable with Volt. However, now that the history has indeed repeated, there should be some type of trepidation about what comes next... rather than just accepting hearsay without question. They didn't believe it could be this bad. But with oil at just \$85.92 per barrel, that certainly isn't providing any encouragement. Gas staying at \$4 wasn't reasonable. Slow recovery of the economy combined with unwillingness to accept financial risk should have been sensible consideration too. That didn't happen though. There was a very heavy dependency on tax-credits and the belief of rapid acceptance. The smaller capacity of PHV was just a joke to Volt enthusiasts. They mocked & taunted. Looking back, do you think some of them now regret not at least taking the advice of diversification? They laughed at the idea of a second model offering a smaller capacity. Violating such a fundamental rule of business doesn't appear to have been a wise decision. What the heck were they measuring?
- 6-01-2012** **Expectations.** The morning started with this, still hours before May sales numbers would be released: It's been the same old game ever since Two-Mode was first conceived. GM says something vague & ambiguous, then allows hope to build without clarifying incorrect expectations. Then the executive who made the comment moves on, allowing hype to propagate without recourse in blogs & forums. The most recent example is the mention of a plug-in Equinox. Who knows what will become of that. But without accountability, you're fighting an idea, not a promise or actual goal. To complicate matters, people forget what happened when. That makes it really easy to be misled, simply by missing vital pieces of detail. That's why it boils down to sales. The debates about expectations are over.

- 6-01-2012** **May Sales, initial counts.** With the price of oil closing this week at \$83.23 per barrel, it's interesting to see sales numbers for Prius holding. Both PHV and the c model have been in very short supply too. To complicate matters, PHV will only be available in the following states this year: California, Oregon, Washington, Arizona, Maine, Massachusetts, Vermont, New Hampshire, Rhode Island, Connecticut, New York, New Jersey, Maryland, and Virginia. So even though the preorder deliveries were completed this month, there's waiting still. 1,086 PHV were purchased. So of course, the sales of 1,680 Volt were celebrated as a major victory... even though it is available nationwide and gets an additional \$5,000 of federal tax-credits and it is heavily advertised. That's well short of the revised goal of 45,000 that GM set for the year and a major reason for having stepped away from the rhetoric. What a mess! Anywho, the other Prius numbers were 13,053 for the regular model, 3,693 for c, and 3,645 for v. Those counts can be considered steady and on track for the year. Camry & Corolla on the other hand, whoa! They've both taken this market by storm. An amazing 39,571 for Camry and an impressive 31,847 for Corolla. The report of that over-shadowed Detroit recovery reports. Toyota surged way further ahead than had been expected. That's a head-scratcher for what it means to Prius. That most definitely reinforces the claim that traditional vehicles are the true competition, not other automakers. Each will have their own challenges for offering high-efficiency choices. 2012 is becoming quite a year for history books.
- 6-02-2012** **Switching Over.** When a revised goal from just 6 months ago is denied, you know switching over to other tasks will be without fallout. The original DOE goal (hence the tax-credit subsidy) for Volt in 2012 was sales here of 120,000. That was later revised by GM, lowered to 60,000 for 2012. Then when the revised goal from 15,000 to 10,000 wasn't even made for 2011, the new goal for 2012 became 45,000. Needless to say, the expectations for making that recent revision are quickly growing dim... so much so, none of the enthusiasts seem to remember any of those numbers anymore. Their downplay has taken hold. For me, I've switched to Prius. Sales speak for themselves. No need to spend time anymore discussing what could happen. Today, was my first test-drive with a c model. It reminding me of my Classic model, but with an enhanced system. I finally have enough material to update the User-Guide. The one for the 2010-2012 was quite different from the Iconic from the beginning. Now, it's going to include lots of PHV information as well. That means lots of new photos to consider and data to continue to collect.
- 6-03-2012** **That 100 MPG.** Knowing I wouldn't have an opportunity to recharge during the day with so much running around to do, it was a matter of deciding when to deplete the plug-supplied electricity I currently had available. The short drives on the highway were the best candidates... though I really enjoy taking advantage of the battery-pack at high speeds, seeing continuous +100 MPG despite the engine running. Capturing data for that new metric was the hope. Today wasn't working out though. MPG was only in the low 90's the entire time. Yes, I know that is absolutely outstanding efficiency. But not reaching 100 caused a rethink. For driving a little over 39 miles using only the overnight recharge, who would actually ever complain about results like that? Those real-world experiences sound great even on paper. The arguments against having a 4.4 kWh capacity just aren't stacking up. For the affordable price the package upgrade requires, you get a great return... regardless of how far you drive. It significantly reduces emissions & consumption. Isn't that the point?

- 6-04-2012** **No Mention.** Not having anything to respond with makes shooting the messenger extremely difficult. That's what the Volt enthusiasts have recently discovered. No mention of PHV anymore, focusing on GM's own inventory now, prevents accusations of Toyota defending. Traditional vehicles like Impala & Malibu selling well and no high MPG hybrid being offered, they really don't have much to say. Volt was suppose to easily achieve the 60,000 level this year, to the point where it was deemed an insult to even consider the possibility of that not happening. No, there's never any mention of that anymore. In fact, even the 45,000 level is being avoided now. The only discussion related to time is that of patience, instructing us to wait for the next generation... that those who expected 1 million to be sold the very first year were out of our minds. They use exaggeration to obscure. But there's no need. We're done. Hype allowed priorities to be misplaced. Now there's an effort to convince people using less gas is more important than being affordable... which is falling on deaf ears. Consumers in middle-market are buying lots of Prius. Some will seriously consider an upgrade to the plug-in model when it becomes available. PHV is a package choice, not an entirely different vehicle with a huge price difference. Ugh! Arguing business sense with those who focus primarily on bragging rights is rather pointless. I guess there's no need to mention that anymore either.
- 6-05-2012** **Reality Check.** It sure is nice not having to listen to all the hype anymore. The only thing left keeping the plug-in market from settling is the stir about Volt sales last month. Supporters simply disregard the reality that there was such a difference in availability compared to PHV. But that doesn't actually matter. They know all too well when the HOV sticker supply runs out, the tax & state credits expire, and the advertising campaign ends, Volt's competition is really the other vehicles GM offers. That trophy-mentality continues to influence comments though. Bragging rights dominate. Rewriting history is popular too. Prius was never a halo, since the definition indicates a lure of one vehicle resulting in the purchase of another. Lots of Prius were actually purchased, pushing it well beyond that minimum of 5,000 per month. In fact, it was quite normal to see sales more than double... and that was long before gas hit \$4 per gallon or any tax-credits. So, there's not a parallel as they insist on claiming... to Prius, that is. We had see the familiar pattern of Two-Mode until recently. That obviously didn't qualify for HOV privileges. The divergence now makes it unique... requiring a step back for a reality check.

6-05-2012 **May Sales, big picture.** The biggest "*haven't noticed yet*" news is that the second-generation BAS system from GM called eAssist is selling fairly well. Malibu came to 1,640 for the month, which was just shy of Volt's 1,680. There was 1,202 for Buick LaCrosse. The other Buick, Regal, was really off with 174 though. Not sure what the deal was for that. But with all the models of Two-Mode combined coming to just 223, there are other issues to consider. What should we be expecting? 683 for Ford's Fusion hybrid was a bit underwhelming. Could that be the result of the upcoming C-Max hybrid? But then again, seeing 4,403 for Camry hybrid does make you wonder. 480 for Lincoln MKZ hybrid raises other questions. Looking at Honda's Insight, the 512 may have been reasonable... since Civic is the dominant hybrid. But then again, those 708 don't stack up to the similar sized c model Prius, with 3,693 sold. For the v model, there were 3,645. The one I'm most familiar with is the regular model (often referred to as the "*liftback*" model now) saw 13,053 for sales in May. That is a good number, showing steady & strong quantity... easily providing a self-sustaining business product. We know that 1,086 for PHV doesn't tell a complete story. When availability spans to nationwide, then we'll get a decent idea. Currently, I wonder who even knows there is a plug-in model. How do people find out about new offerings like that? For electric-only vehicles, Nissan's Leaf had 510 purchases. Ford's Focus EV is brand new, with only 6 so far. Looking at diesel, the top-selling automaker here for them continues to be VW by far with 7,843. Jetta was the most popular, drawing 4,644 sales. Other noteworthy activity for May was the often overlooked Hyundai Sonata with 1,869 sold. Hybrid SUVs are rarely talked about anymore. In fact, the discontinued Escape shrank to 206. What does that mean for Highlander at 506? I understand it's AWD and 3,500 are genuinely useful for some, so a small market makes sense. Then you look at the RX from Lexus with 1,011 and take notice. 1,549 for the CT from Lexus (luxury hybrid sedan) is another. Long story short, the market has been stirred, there's lots more to report about now.

6-06-2012 **Who?** Got the answer! Finally!! That long asked but never answered question got some acknowledgement today. "*Who is the market for Volt?*" turned out to be a challenge of how to avoid providing a response without making it evident that the words would provide a change of context... and draw attention to those who were doing the avoiding. Anywho, the reply came under the guise of providing education for the sake of spreading information. In other words, we got more downplay. Thank goodness this nails the coffin shut. How doesn't matter anymore. And technically, Volt really did die. They just never wanted to admit how different its successor really would be. This current generation is only intended for "*enthusiasts*", not ordinary consumers as the "*early adopter*" label intended to imply. But the buying patterns have become too obvious to deny anymore. There are those who thrive on the efficiency and those who bought the car just for the sake of getting in the HOV lane. The middle is missing. The lesson learned is hype leads to pride. Overcoming pride is a major obstacle, one requiring a great deal of persistence & patience. Phew! Sure glad the obstacle itself is now so easy to see. Ironically, they'll probably really like the next generation, even though it will compromise their own standards. It's just so unfortunate it will take so long. Heck, just getting an answer to the question took years!

- 6-06-2012** **Figuring It Out.** It's always exciting to help out the newbies. Though, it can be quite challenging without really knowing their background. You give it try. Today's question that caught my attention was: "*Now if I could just figure out how to use the electrical motor the correct way????*" Coming from a thread already filled with attempts to explain, I tried to carefully word the response: Engine only is inefficient, hence the hybrid approach. The addition of an electric motor allows the engine to run in a less wasteful manor. That's what you want. Using the electric motor exclusively consumes your limited supply of electricity quickly. On the Eco-Meter, you can see that. The energy-bar is much larger for acceleration than it is for simply maintaining a steady speed. That's why you want to share the burden with the engine during times of high demand. Also, keep in mind that there's a second electric motor. While the engine is running to provide thrust, it will use that to generate electricity at the same time. This allows the engine to run at a more consistent RPM, which is more efficient. This recharges the battery-pack along the way too. Intentionally using the engine is counter-intuitive. New owners tend to fight it, not realizing they are preventing the system from doing what it designed to do... causing lower MPG. Enjoy electric-only when not much power is needed. The electricity is better used that way. When you do need power, don't be afraid to let the engine start. It shuts off quickly afterward anyway. And interestingly, that applies to the plug-in model as well. You have more kW & kWh available, but there's still just a finite amount. So, you want to consider when to consume it. Typically, when lots of power is needed, take advantage of the engine.
- 6-07-2012** **Routine 200's.** I've grown quite use to seeing that. The commute has ended that way frequently lately. I drive to work starting with a full charge and leave from there the same way. This week, I've been taking the 70 mph highway to work due to road construction on the route along the river. It doesn't offer the 400's and has quite a bit more traffic to deal with, but it's fairly nice. I can still take advantage of the extra electricity. And the difference between the two is roughly just 0.04 gallon each way. I'm into that efficiency range where gas is measured in tiny amounts, quite unlike what traditional so-called efficiency vehicles offer. It's a great example of diminishing returns. Higher MPG wouldn't result in much of a difference. Heck, vehicles without a PZEV emission-rating end up losing tiny amounts of gas from evaporation. Most people don't even realize vehicle pollution can come from something other than the engine itself. Anywho, with seeing that level of MPG becoming routine, I'm more curious than ever what Winter will end up bringing.

- 6-07-2012** **EV-BOOST.** It's a new concept... and exclusive to PHV. Combining gas & electricity at a more balanced ratio allows for greater efficiency, seeking opportunity otherwise lost by depending primarily on electricity or the engine. Think of normal HV mode, like this at 70 mph: 90% engine, 10% motor. Then consider a reduction of the one and an increase in the other, a more balanced approach, like this at 70 mph: 50% engine, 50% motor. EV-BOOST works something like that. You get the choice of how to consume the electricity. It's not just one extreme or another. And when it comes to non-propulsion needs, like heat in the winter, that choice could provide quite an efficiency gain. I'm looking forward to exploring this mode more. In my brief experiences with it before, I've cruised at 70 mph watching each 1-minute bar on the Consumption Screen display at 100 MPG. Too bad the scale doesn't go higher. I can see on the ScanGauge it wavering, going all the way into the 300's at times and dipping into the 90's at others. Even minor hills cause the value to fluctuate. There's no such thing as a truly flat stretch of road around here. It averages out to over 100 every time though. More to come. Stay tuned.
- 6-08-2012** **Now, They'll Like It.** How do you respond to this: "*Now, they'll be spinning it as a good thing.*" We all remember how the suggestion of a hold button was a horrible thing, that nothing good could ever come from intentionally starting up the engine... Since not hearing the same old rhetoric over and over again is a good thing, this was treated that way too with: It's frustrating when they conveniently forget that previous stance. We've seen their refusal to address the past already. But realistically, there's no reason to dwell anyway. Witnessing the change is confirmation of being correct all along and a step forward has occurred. That's a measure of progress. Accounting for the wide variation of real-world conditions takes time. The snap judgments we've been seeing lately are red flags, dead giveaways that generalizations are being made and/or some type of defensive response is at play. Efficiency is a balance of resources available. With speed, length, time, temperature, traffic, etc. altering on a regular basis, it simply doesn't make sense claiming that the restriction of choice is best for every situation.
- 6-09-2012** **Stirring The Pot.** The publishing of my most recent batch of personal logs came with the anticipation of rubbing someone the wrong way... almost inevitably, a Volt owner. Most have embraced the "*it's going to take a few more years*" outlook, that nothing else needs to be done except wait. Sound familiar? It's the pattern repeating, again! However, this time, there's just some "*here's what to watch out for*" comments. I'm already well into moving on. Taking those new photos for the User-Guide is great. I'm having fun doing that. It requires me to really think through the circumstances needed for each scenario. After all, you've got a limited amount of electricity available, the engine warms up mighty quick, and the lighting conditions required to capture a moment with the camera presents challenges. So, I've been devoting quite a bit of time to that. But knowing June brought the long-awaited upgrade to Volt, there was still some attention lagging. Turns out, the battery-pack chemistry was improved. That will provide another half of a kilowatt-hour of electricity for propulsion, raising the overall capacity to 16.5 kWh. No price reduction, though. The theme now is just to accept what they believe cannot be changed. Makes you wonder if they'll ever figure out how much influence they could have on the design. Prius owners discovered the power of their input long ago.

- 6-09-2012** **Wrap Up.** This worked out well. I ended up getting called out by a Volt owner and accepted the criticism with: How would you suggest getting it back on track? Isn't the purpose to replace traditional vehicles? The suggestion of a second model, one actually configured to be affordable, continues to fall on deaf ears. It's very disappointing to see the performance aspect being used as justification for purchase, rather than actually having something for middle-market. Step back and look at the other rollouts which were also niche vehicles, ones that didn't do anything to help mainstream consumers. You can disregard them or push to make them better. Also, keep in mind what you don't see. Those of us active on the blogs & forums prior to rollout are well of aware of the disenchantment. Enthusiasts of Volt left in droves once they found out about the price, range, and engine efficiency... leaving only the truly loyal remaining, who as a result took a very defensive stance.
- 6-09-2012** **Newbie Posts.** When a new Prius comes out, I tend to back way off. That gives the newbies an opportunity to develop a sense of community unimpeded by veterans. Letting that take form on it's own is empowering to them. When I post something, it will sometimes kill the discussion... since I have lots of real-world data to support whatever they were speculating about. Allowing them to think through those scenarios themselves is rewarding for them... and priceless for me, since that's how I get ideas for the User-Guide. Their non-interfered with comments provide an insight to their perspective... something I have difficulty seeing with 12 years of hybrid study. After all, the market continues to evolve. Think about how many people have smart-phones now. That places different expectations on what information a vehicle should provide, especially one like Prius. Of course, this leads to a perception problem. It gives the impression I'm not being attentive to them anymore. But then again, this is the same transition we've been through before. However, it was only 1 new HSD hybrid at a time... not 3 all at once!
- 6-09-2012** **Too Little, Too Slowly.** How does one summarize what has happened over the past 3 years, since that concern was first stated? I've used the grade analogy. This stresses constructive criticism, allowing you to suggest opportunity for improvement without it being taken as patronizing or condescending. It seems to be fairly effective too... since their had been many supporting Volt how immediately assumed anything negative was an implication of failure. Thank goodness that's changing! They've even accepted the timing some of us struggled to get them to understand from the start. Expecting all those goals to be achieved by the end of 2010 was absurd, hence the vaporware nonsense. That's over now. Phew! The complexities of delivering so much should not be taken so lightly... especially when the competition (traditional vehicles) continue to improve. It's a moving target they nonchalantly dismiss. It doesn't get easier. New challenges emerge at the entire industry advances. It's really unfortunate they don't see that yet. Without a constant push, the pressures of for-profit business gobble up opportunity. You can't just hope for the best.

- 6-09-2012** **Review Ratings.** They're a mess. The hullabaloo from a report about Prius *c* getting a "*we cannot recommend*" rating has stirred the pot far more than any of my ramblings ever could. Naturally, their measurement of efficiency was what provoked the outcry more than anything. Prius is no stranger to this topic. Remember the nightmare when the Iconic model was rolled out. All reviews published in the dead of winter reported terrible MPG observations... none of which were ever followed up on when the weather warmed and owners saw their MPG increase dramatically. It was quite controversy. They didn't want to admit having made such a terrible mistake. That's embarrassing and harm's reputation. Needless to say, we are quite intrigued how this will play out... since the situation is much more complex now. I contributed to the venting of feelings with: What else can be said? The topic of fuel-efficiency measure has been controversial for years, but limited to certain markets. Now that Toyota has penetrated into the lower-cost realm in large enough numbers to draw attention, the pot is getting stirred even more. To make matters even more complicated, adding a plug adds an entirely new dimension to the already confused comparison scales. How will middle-market consumers make sense of so much variety? Each design differs well beyond the typical understanding of what's under the hood. Trying to apply that to your own particular driving circumstances is a fruitless effort, even without considering seasonal change. Automakers will provide specifications. Publications will state their observations. But like in the past, it will be owner word-of-mouth endorsements contributing heavily to sales.
- 6-09-2012** **Tried Something New.** With EV capacity quickly running out, I wondered. Hmm? What would happen if I intentionally accelerated hard at each stoplight, just for a few seconds? The engine was already warmed up and I had several lights in a row coming up... which almost certainly would all be red. So, I tried it. Each time, the engine fired up briefly to assist. It shut back off just seconds later. But to my surprise, that short amount of time was enough to bump up the capacity. At each red light, it had climbed higher... despite the fact that I was still driving in EV between them. Normally, the stop & go situation is maddening. Now with the PHV, it becomes a game. I was taking advantage of the engine to get going and ending up with a little bit more driving with the engine off opportunity. The thought hadn't occurred to me. Making the best of limited resources is what Prius has always thrived at. This is yet another example. Instinct tells you using the engine is wasteful. Reality reveals that's not the case. The flexibility and rapid energy-flow change of the PSD can be utilized to squeeze out efficiency opportunities otherwise missed.

- 6-10-2012** **Finally.** I liked reading this: "*You're actually the last person I ever imagined defending the Volt to.*" It's confirmation of the paradigm shift. I responded with: You should have spoke up a hell a lot sooner. Having someone like you at my side to work with would have made things much, much easier. There was no open dialog. The other forums made outsiders feel very unwelcome. That allowed the constant comparisons to get way out of hand, since there was no venue available for input. Volt was promoted very differently until late last year. We kept hearing sales would pick up significantly in the second. Now, the perspective has shifted to a wait for it to evolve outlook. If expectations would have simply been stated like that in the first place, all that previous strife could have been avoided. Have you noticed how much GM's advertising has recently changed? The "*230 MPG*" and "*Gas Free*" campaigns of the past were very misleading and they did nothing with respect to informing how or when. Consumers got the impression it was a new revolutionary technology ready for mainstream penetration. That ended up contributing to the fallout we've been dealing with. Remember my recent complaints about mixing of present & future? I was reaching out, hoping for someone to finally step up. You did. So, what's next?
- 6-10-2012** **Take Away.** What can we take away from all the craziness? It stemmed from the setting of unrealistic expectations. Volt was hyped as the vehicle that would be "*vastly superior*" to Prius... back in late 2010, not a second-generation design years later. And now that so many supporters have accepted the "*early adopter*" perspective, it makes those of us who saw this coming seem like we were on some vengeful quest... rather than pointing out that what's been committed to is far more than just a future upgrade. The theme has overwhelming been to show some patience, please wait. That probably wouldn't have been so bad if they didn't continue to imply that other designs couldn't accommodate larger battery-packs or more powerful electric-motors. They can advance too. That constant misrepresentation had fed the fire for quite awhile. But now, even the MPG claims are falling out of favor. Cost has increasingly drawn attention. Embracing that shakes off the "*niche*" label, redefining it as just a delay instead. This could very well be why the "*pathetic*" label seems to have recently been abandoned by Volt owners flaunting MPG over Prius. If they really are willing to stop with the taunting and move on to constructive discussion, we can begin to deal with the big problems... like those against vehicle electrification of any kind.
- 6-10-2012** **Turning Point.** That's what I see this as. Things look quite different afterward, but are very uncertain right up until the moment they actually happen. That past is well documented, capturing the feelings & beliefs well enough to provide a basis to look forward with. Of course, we'll still remember all times EV range and MPG were brought up despite such blatantly obvious battery-capacity differences. But clarity allows us to finally to a step beyond the discord. And now that there is an effort taking place to move on, suggestions about what to do next should be the focus. Not stating goals has always been a major source of contention, so stating them now is my suggestion. It's really hard to argue particulars when it's clear that purposes aren't the same.

- 6-10-2012** **Eco-Meter Photos.** Some of us refer to the "Hybrid System Indicator" by that name instead, since it does much more than just indicate. Though, the newest version does actually have an indicator which is quite informative. The 2012 model introduced a "stealth" mode indicator. It's a small EV symbol that illuminates when in HV mode. That's nice to know with both the regular model and the plug-in. But I didn't have any photos of it available. And knowing how much stuff like that gets asked about, it was an essential thing to add to the User-Guide. Now, I've got a number of samples to work with. The bigger symbol for EV mode itself was obviously another I needed, especially what it looks like while the engine is warming up or you're traveling at faster than 62.1 mph (100 km/h). Of course, the part that varies a lot and often is the energy part of the Eco-Meter. That bar has colored zones. You can never have enough samples of that. The battery-capacity is the most intriguing though. When EV is plentiful, it's solid. When you get down to about the last mile, it fills up again but has divider-lines, which is something I'll have to explain in detail. It goes both down & up while you drive. Anywho, I captured a variety of new photos and just put them on this webpage... [photo album 176](#)
- 6-11-2012** **Somehow.** I wonder what will become of these thoughts I posted online today, in that rather abrasive thread: The post-rollout perspective of PHV is very different from what we had to deal with prior to availability. There's no reason on anyone's part to feel troubled by that. It's just what happened and there should be an effort to raise awareness showing how different things are already. It is frustrating though, that some just outright dismissed the early model data we had and intentionally raised concern on operational aspects we already knew were non-issues. But that's in the past now. We really are attempting to establish constructive discussion. It's unfortunate that the ally we sought years ago in the effort to promote plug-in vehicles is only now accepting of that olive branch. It was misunderstood for far too long. But hey, gotta start somehow.
- 6-12-2012** **Unaware.** It's amazing to witness the turnaround, when someone didn't realize they there was more to the story. That unaware factor has been a substantial obstacle with advancement of a hybrid like Prius. In fact, just today there was a renewed effort to keep the old debates from coming to an end. Some declare their postings as an endeavor to educate. A growing number of us see it as an intentional holdback. This is the same "raising doubt" undermining of the past. Don't let the conclusions from being draw, at all costs. Remember the argument against collecting that "100 MPG" data recently? Looking back, it has already becomes clear that was an effort to suppress information. Geez! Of course, being so obvious makes that easy to conclude. Confusing with red-herrings only goes so far. Focusing on power too much reveals misplaced priorities. They stall, waiting for the next big news event. In the meantime, people keeping buying more Prius... and studying the history. Reading blogs reveals much about what actually happened verses what some claimed happened.

- 6-12-2012** **Any Benefit?** I decided to try something new today. I modified my commute to work. Rather than jumping on the 70 mph highway just 3 blocks from my house, I drove roughly 4 miles in EV first. Would getting on later make a difference? Turns out, it did. But rather than being a benefit, the resulting MPG was the same but I completely depleted the battery. Jumping on the highway right away instead, I typically end up with a little bit over 1 mile of EV capacity still available. So, it was a net loss. That tends to make sense, since you only have to get up to speed once. Maintaining it takes far less electricity than having to deal with frequent stops. So, I tried another variation on the way home. I drove 11 miles of my 17 mile trip with EV only, before jumping onto the highway. That 3 miles of EV capacity I had available for the high-speed travel was consumed quickly. I watched my average drop slightly below what it would have been if I had just traveled on the highway from the start. In short, neither of my attempts to use more EV actually resulted in a benefit. I was better off doing the "*just drive it*" approach instead. Isn't it fascinating how counter-intuitive hybrid efficiency can be? That's why some of those arguments persist for so long. Assumptions don't match implementation.
- 6-13-2012** **Display Photos.** I've taken quite a few lately. There's a lot of variety needed for the User-Guide and it isn't easy encountering those situations, especially when there's good lighting and little to no traffic so I can use the camera. That has limited much of the photo taken to late in the evening. I'm getting there though. Enough source material now exists which I can build upon. After all, the User-Guide is a constant work in progress anyway. Looking at all those photos, I can't imagine where a newbie would start. There's just so many different indicators that individual photos don't portray well. It makes sense in action, watching the changes. But that requires video, which is my next capture challenge. Here's what I have so far... [photo album 176](#)
- 6-14-2012** **Pathetic.** Comments like that from the past causing new Volt owners to cringe is quite redeeming. They wouldn't say anything as offensive as "*pathetic*", so it's embarrassing to discover such declarations from enthusiasts back then... which is why I included those quotes so often in these personal logs. Humility can be an effective tool for overcoming major obstacles. They kept pushing the "*vastly superior*" attitude, to an extreme which is quite difficult to believe now. Not having any idea we had to deal with nonsense like that clarifies the stance we took. I remember having to tolerate the "*anemic*" claim for years. There was an intense effort to belittle & mislead about the plug-in Prius, something only now being exposed. Understanding comes from learning about origins. More importantly, it prevents those same mistakes from repeating. The goal is to penetrate the mainstream, not showcase a performance vehicle. Hype dominated. Expectation management was a joke. Attempts to be constructive were labeled as undermining "*spin*" and the threads either overwhelmed with red-herrings or just outright closed. It sure is nice to have finally moved beyond all that.

- 6-15-2012** **Greatest of Ease.** Driving the same roads as with my 2010 Prius, which I filmed myself doing not too long ago, brings back incredible memories already. The engine shuts off sooner with the PHV model. The power threshold for electric-only is quite a bit higher too. With the greatest of ease, I travel those driving experiences with a new perspective. That's exactly what I was hoping for. My expectation management was well researched. I knew that the 60 kW traction-motor was being under utilized, that more could be returned from the same system simply by having more electricity available... and the supply the plug-in battery-pack provides certainly does that. It's great, though odd. Watching MPG drop below 100 comes with a brief moment of trepidation. You tend to lose perspective. That's well above the usual 50 MPG still. What's interesting is that I find myself using the engine more often now. Seeing that it adds some EV distance when used and knowing how quickly it shuts back off afterward, why not? Overall, that works out really well for travel beyond the capacity available. In short, it's becoming remarkably easy to promote the "*Just Drive It*" motto.
- 6-16-2012** **40 MPG Challenge.** This new article was an interesting read. That perspective is really beginning to be out of touch with the big picture. This was my favorite quote: "*After all, a hybrid might easily get 40 mpg, but it customarily carries a sizable cost mark-up to pay for its exotic technology.*" Since when is a well-established hybrid like Prius exotic? In fact, it's easy to consider the 6-speed, automatic, dual-clutch traditional systems more complex. And when 5 of the 6 vehicles they tested were in the same price category as Prius c, you have to wonder about the price claim. Naturally, there wasn't any mention of emission-ratings either. I was particularly amused by the calling of 40 MPG for fuel-efficiency as "*lofty*". With plug-in hybrids entering the market featuring battery-capacities with affordability in mind, you have to wonder how long they'll be able to keep up the avoidance. I've been averaging 100 MPG over the past 2,000 miles from mine. How does that influence their challenge? They asked a final question: "*How much money will you save when you pick one of these fuel sippers over another?*" Think about how much pressure the traditional market will put on anything offering a plug, especially with the current disregard for hybrids. At what point does the reality of diminishing returns come into play? This is a very important question when it comes to plug-in vehicles offering larger capacity batteries? People are growing accustomed to pay \$4 for a gallon of gas.
- 6-16-2012** **Upgrade?** 54 miles for the daily commute, round trip. Is it worth upgrading from a 2006 model? Trade-in value is decent, but not being able to plug in at work raises questions. It can be a difficult situation to consider. Hopefully, some real-world input will be helpful. Here's what I contributed to that discussion, following someone else's comment that results may be disappointing: That's a matter of perspective. Realistic expectations make all the difference. It depends on whether or not effortless 70 MPG is impressive. I didn't get a chance to plug in at work the other day and drove close to that distance with only a single charge. Evening errand running is quite amazing if you plug in after returning home from work. My late night runs to the store are typically all EV. Seeing that 999 MPG, especially on short trips, is a dramatic upgrade from 2006 model. Don't forget that you get to choose when & how to use that electricity too, with the HV/EV button.

- 6-17-2012** **999 MPG.** Today was my very first with the PHV. Ending the day that way wasn't the plan. I wasn't even trying. It was just unusual circumstances that prevented the need to drive too far. One trip in the suburbs isn't enough to use up the entire supply of electricity. Traffic around here is quite reasonable. There's hardly ever a the need for lots of power. It's nice being able to drive around without the engine ever starting, but that's not an expectation. I don't mind when it starts, since so little gas is used anyway. It shuts off quickly in the warmth of Summer. Come this Winter, the warm-up should be interesting. Since I'll intentionally start the engine for cabin warming in those much colder temperatures, the option of rapid on & off for acceleration will be enticing to take advantage of... since then the engine won't have to come on as soon for more heat. It's an excellent balance of resources. Observing the dynamics of the system makes first-year Prius ownership experiences quite rewarding. The PHV is certainly no exception. Anywho, it was all electricity today.
- 6-18-2012** **Drive-Thru.** That was sweet! I pulled up to the drive-thru window and the guy there greeted me with: *"I love that sound. Every time I hear that..."* He was referring to the proximity warning, a subtle artificial sound made by the car when you drive slower than 15 mph. It's intended to warn pedestrians of the car's presence. In reality, many aren't even attentive to headlights when you are right there behind them in a parking lot. Unfortunately, the noise of a shopping-cart or the preoccupation of a phone conversation makes them oblivious to their surroundings. But at least the sound will help a few... and it turns out to be quick entertaining for people working the window... especially this time. He assumed it was just a Prius in EV mode. I know that, because when I pointed out my Prius was a plug-in model, his face lit up with excitement. His reaction was great! I then proceeded to share current MPG statistics. He gobbled up every bit of info I could quickly through at him. Want to bet he's even more attentive to that sound now?
- 6-19-2012** **Carbon Reality.** I watched a new special on television today. The evidence of climate-change is overwhelming at this point, especially with record temperatures and drought becoming so prevalent. The major contributor is the carbon increase in our atmosphere; that's very difficult to deny now. The source of that is still wildly under debate nonetheless... much like smoking was in the past. You know nothing good comes from certain consumption, yet there are plenty of excuses to not change your habits anyway. It's seem absurd at this point not to try. We have the technology. What the heck we will tell our children later... we suspected it, but didn't bother. Yeah, that will make them feel wonderful about the prior generation. Thank goodness hybrids are well proven now. Prius has become such a normal part of everyday traffic, it's basically flat out denial that it's not realistic... especially with plug-in variants now entering the market. Long story short, the program I watched provided new detail. It followed up on some of the things we had considered a warning sign in the past... confirming those fears. To think that some people see absolutely no need to embrace motor & battery use. They insist the combustion engine alone is improving enough for use not to be concerned about carbon emissions. That goes to show you how short-sighted they are. Even if that was true, our children will see the end of abundant oil. Then what will they do? Totally disregarding what electricity has to offer is not a good plan. It's like we're living in a modern version of the dark ages.

- 6-19-2012** **That Splendid Drive.** I finally had the opportunity to drive that memorable route with the PHV. It was indeed splendid too. The story had been retold many times over the past 2 years. I drove from my house to McDonald's and back in EV mode. A surprising number of Volt enthusiasts denied it was possible. They claimed there was no way a plug-in Prius could do that journey using only electricity, especially since it required a climb out of the valley at 45 mph. That never happened, period. It was infuriating, for me. It was outright denial, for them. Heck, even the blog moderator got involved. When I pointed out the power output from the electric motor increased from 27 kW to 38 kW, he hid the post "for review" later. As expected, it remained hidden. That's when I knew things had gone from bad to worse. Nothing good comes from facts being suppressed. They just plain didn't want to believe the PHV was anything more than a Prius with a bigger battery and a plug. After all, admitting the components in the current model are under-utilized means acknowledgement that Toyota planned for this long ago... rather than scramble to compete with Volt as they had been claiming. Needless to say, it was a delight getting to recreate that drive again.
- 6-20-2012** **Now Silent.** The big stir a few weeks ago dwindled down to nothing. It was an "*all bark, no bite*" situation. The antagonists made a huge ordeal out of something, complaining about this & that, yet never actually provided any suggestions for change... hence the way they have been and continue to be identified. It fit the recognizable pattern all too well. In this case, that served as confirmation of finality. Though frustrating to experience, seeing nothing was ever delivered reveals it was really just a desperate attempt to retain attention. They know the market has seen Volt and is moving on. It's been written off as too expensive for now and won't get another look until the next generation is presented. Ironically, that is logical outcome of promoting as an "*early adopter*" rollout. They didn't think through the entire situation though. That outcome is undesirable. Oh well. Stating goals could have avoided this. The silence now is good; however, I am rather bummed the reach out for constructive discussion didn't result in anything. It sounded hopeful, especially from the one outspoken individual. Oh well.

6-20-2012 **Review Audience.** The uncertainty of who is growing as attention slowly shifts over to PHV. With the spotlight no longer on Volt, you have to wonder who the plug reviews are actually for. The vague rollout of Volt confused everyone... the very problem we attempting to prevent. Oh well. The damage wasn't too bad. But it does beg for some answers to questions emerging as a result of that. On a thread featuring a teaser review (brief hint of what will be in the next issue) of PHV, my thoughts were: Who is the market for Volt? That question was asked countless times prior to rollout. We knew the consumers who would be interested would not be the same as those who Prius targeted. It's like trying to sell a plug-in Camaro to someone that was looking for a fuel-efficient Cruze or Malibu. Yet, enthusiasts refused to acknowledge that. When they said "leap-frog Prius", it was implied as direct competition; now the claim is quite different. So, we move on to discussion from other sources, now about what Toyota is offering. How will popular rating publications portray the plug-in model Prius? The "*you can't drive it completely gas-free*" comment really makes you wonder about market. Who's needs are they addressing? Why would that matter to someone who was considering a different model of Prius, a Corolla, or a Camry? Would any of those consumers really have a priority of no gas whatsoever rather than just a significant MPG boost? The beauty of PHV is that it is package option, an upgrade choice. It's an enhancement to a vehicle people already know and like. There's no paradigm-shift required. You're not buying something fundamentally different. There's a major improvement to efficiency & emissions. Simple to understand. Easy to sell. A small decision to purchase.

6-21-2012 **More 999 MPG.** The unusual circumstances continued. I had 4 days in a row of electric-only driving. Today, road construction ended that. Trying to cross a road with very heavy traffic funneled down to a single lane resulted in me simply dropping the pedal to the floor for maximum power. Though probably overkill and knowing it would cause the engine to start, I did it anyway. Taking advantage of what the system had to offer was a wise choice. You never really know how frustrated or confused others dealing with all the traffic are. So when it was my turn, I did as seemed best. That was in the morning. Late in the afternoon, I ended up needing to run an errand further than the EV range available. So, the streak would have come to an end anyway. It was interesting. Feeling the engine come back to life provided assurance that extra power was about to be provided. That certainly isn't the way antagonists have been portraying such an experience. They spin it as a negative, sighting how it prevents you from being "*gas free*"... which makes no sense, since any vehicle with an engine will have to run it from time to time for longevity maintenance. I obviously don't believe in absolutes.

- 6-21-2012** **\$78.20 Per Barrel.** That was rather interesting to see. The price of oil dropping well below expectations sure adds to the challenge of selling vehicles that offer high MPG, when expensive gas is the primary influence. I see this as yet another reason in support of the configuration for PHV, where capacity was carefully balanced with cost. There isn't dependency on what happens with oil. People will consider the purchase even without the pressure at the pump. That's important when it comes to deep market penetration. The raising of CAFE standards is a change for the entire fleet. The technology must be well established and well accepted to sustain high-volume sales. That's means no dependency on tax-credits either. How each of the automakers will deliver, especially if the efficient choice is expected to be green as well (SULEV emission-rating or better). With the economy having fallen into such a deep recession, the need to have well-balance choices available is more important than ever. We cannot just hope for the best as so many had done in the past. Seeing \$3.39 now for a gallon of gas certainly makes a person think too.
- 6-22-2012** **Info Omissions.** A new 10-minute video provided by an automotive publication motivated me to post this as a response: The review begins with this introduction: *"If you're looking for a commuter car that doesn't just get good, but exceptional fuel economy, there are two standout options."* Then it goes on to point them out, the Jetta TDI and the regular model Prius. What the heck? You know VW supporters would complain to no end if they had compared a regular Jetta to Prius. Yet, this brand new review published today made no mention that a plug-in model even existed. Had there been some disclaimer, like an "another category" or "at a later time" reference, that would be understandable. There is simply no excuse to for a professional automotive organization to totally ignore. People expect them to be well informed and comprehensive. An omission like that is misleading. And since the introduction put focus specifically on fuel economy, that could qualify as greenwashing. That being said, the sticker-price of the base model Prius PHV is \$32,500 and it easily delivers double the MPG of the Jetta TDI. It's significantly cleaner too. The review itself was actually fairly good. It featured a mix of priorities with a variety of opinions and seemed reasonably objective... but makes you wonder how much longer excluding models will be able to continue without backlash.
- 6-23-2012** **Who Said What?** From time to time, I've stumbled into arguments stemming from quotes I never actually said. Someone else did, yet I got blamed. It's very frustrating to be trapped in that situation, where they truly believe you changed your stance... because you are now saying something different from what they remember. It's very easy to disassociate, especially when there's strong emotion involved. They're totally unaware of it taking place too... or at least were until recently. I don't know if some are making an effort to read my personal logs or search through old forum posts, but a few unexpected apologies have emerged. That's quite a surprise. I hope I am properly acknowledging them too. It's easy to sound condescending or patronizing in broken discussions like this. Fortunately, some of the tension itself is instantly relieved upon the revelation of having mixed up who said what. It's makes starting fresh threads easy. There's a desire to move on coming from multiple sources now too. After all, the hope for late 2010 is well beyond the "please wait" stage now.

- 6-24-2012** **13.5 Miles.** After driving a PHV for awhile, you focus on the overall results rather than observing individual drives experiences. Today was different though. To my surprise, I traveled beyond the usual EV estimate range without even trying. The engine simply never started. I went 13.5 miles with just electricity alone. I've went further before, but not effortlessly like this. The feel of the driving is obvious becoming natural. It's like the way automatic transmission drivers just naturally avoid both hard downshifts and wheelspin. They just do without any thought. It becomes habit... one that's a challenge to break when you tell new Prius owners it's perfectly fine to drop the pedal to the floor, since the system controls the wheel movement for you. They don't even realize it was something they were avoiding. Anywho, it's fun experiencing what I've looked forward to for so many years... especially something so easily understood by other Prius owners.
- 6-24-2012** **Change.** It's nice seeing it happen. Raising awareness about bad practices still "stirs the pot" though. Some unknowingly continue to greenwash feed. Bring that up results in responses like this: *"Your first post here was trollish though."* I understand their upset from being pointed out and am thrilled to observe their change following that. It's a slow process. But if sincere, overcoming that is totally realistic. This was my reply: That comes with taking a "pushy" stance. Wanting to move on means not letting the rehash of old information dominate anymore. Unfortunately, that desire for progress appears to others as "rocking the boat". And sadly, the approach has been to welcome "cheerleading" and shun those attempting to have more than just the repeating of particular points. Think about what still hasn't been addressed yet, items we don't stand a chance at discussing while the rhetoric continues. It's been a heck of a challenge trying to get any real-world data about winter performance. It's a topic that is simply dismissed whenever brought up. That makes a topic like recharging in winter a daunting challenge to even just acknowledge. Are people of the fact that charge-rate can be reduced in sub-freezing temperatures? Think about the influence that could have on capacity discussion. Many haven't, yet pounce on those who attempt to bring it up. Thankfully, we are beyond the paranoid stage. In the past, when a Prius supporter would bring something like that up in a discussion about Volt, it was immediately assumed to be an effort to undermine Volt. The enthusiasts were in a state of panic, blindly lashing out in fear of anything that could tarnish reputation. I sure am glad that isn't the case anymore. Phew!

- 6-24-2012** **Improvement.** You can see hints already. The plug-in hybrid and EV are moving forward, people just beginning to become aware of differences from impressions of long ago. I find it exciting, since I've been paying close attention. It's intriguing how so many seem to overlook (or more likely don't even notice) just how many angles of attack Toyota is actually taking. The process is slow, but the variety of choices to become available as a result will shift the entire product line. The partnership with Tesla is an obvious example. It's a win-win situation for both. It's not a "let's try this" approach. It's a "here's what we are going to do" strategy. That makes it matter of when, not if. That's why questioning the PHV model seems so pointless. A diverse offering in the future means providing a low-cost plug-in option for the mainstream. Toyota is already well on the way to doing that. The design brilliantly enhances the existing hybrid system. Consumer willingness to spend more means the choice of increased capacity & power. It's not required for great efficiency & emissions though. The start with PHV demonstrates heavy dependency on tax-credits isn't necessary either. Replacement of traditional vehicle production shouldn't be taken lightly. Viable solutions are needed soon. That shouldn't be argued against. We all know the risk attached to consumption & emissions. A small quantity of token vehicles or just mild improvements are far from enough.
- 6-25-2012** **No Politics.** That was today's declaration. It is the formula prescribed for moving on. That sounded really good, until asked the question of how tax-credits were still ok to discuss. That obviously argued a few. I found it quite hypocritical. It was yet another example of cherry-picking. That's frustrating considering the level of vague surrounding what the next steps should be. I've stopped referring back to the past. They totally disregarded that, jumping on me for asking what the "*no politics*" actually referred to. Fortunately, these small attempts to reignite passion of the past, quick before month-end results are posted, don't seem to be accomplishing anything. It's the harmonic nature of progress. There will always be some residual resistance. That's following the familiar pattern we've seen before. So, this will likely work out fine. Advancements include scuffles, but they fizzle out and are commonly forgotten afterward... which I'm really looking forward to.
- 6-26-2012** **Reduced Again!** Here we go, again. Prior to rollout, the Volt enthusiasts were appalled if you were to even just consider the possibility of not meeting the 60,000 sales goal here in the second-year. They were quite adamant that there was no need to question the quantity. It would happen, period. Then came first-year sales well under the rate needed, so the goal here was revised to 45,000. Of course, some spun that to say that was the goal all along, that the 15,000 for the market in Europe was always included in that amount. Whatever. Those having paid close attention all along knew that wasn't the case. But no need to dwell. The effort has been to move on, accepting the revision as-is. Fine. That didn't last long though. Now, the expectation has been lowered to 20,000. It's enough to make you crazy. If you even just mention that change, you get catechized. So, I won't bother. The numbers will speak for themselves anyway. By the way, the number for Europe has been reduced too; it's now 10,000.

- 6-26-2012** **Avalon Hybrid.** The future of this model of car offered by Toyota was always a bit uncertain. Only here in America was there demand for such a large sedan. Would that continue? We'll find out. The upcoming redesign later this year will include a hybrid system, the FULL type like Prius uses... but bigger. Getting a major efficiency improvement, unlike the modest increase from a domestic automaker, will likely be the draw for consumers who still want the size but cannot tolerate guzzling anymore. The expectation is 40 MPG. That's quite a bump up from the current 25 MPG. It's always exciting to see how well the system scales. This is yet another example of the flexibility with engine, motor, and battery possible. Variety is very important for business. In fact, lack of diversity is what has crippled other efforts of the past. One size does not fit all. This newest offering takes Toyota another step further toward ending the production of traditional vehicles. People will just naturally transition over to the hybrid options.
- 6-27-2012** **Drawing Conclusions.** Just as we saw in the past with previous struggling new technologies, there were statements like this about the more successful competition: *"Certainly the Prius PHV looks like it has a battery that has too small a capacity for the market, which makes the rumors that the battery capacity increases likely."* That's the rumor Volt supporters are trying really hard to spread. It appears as though their attempts to belittle based about the top EV speed aren't drawing the attention they hoped. They've discovered the EV-BOOST mode is remarkably efficient. Arguments claiming sustained efficiency above 100 MPG aren't finding an audience. So, they've switched to capacity... quickly, before proof emerges that the conclusion they are drawing doesn't have any actual merit. According to who? This is why I asked the market question for years. How could typical mainstream consumers already be saying that? Based on what? As for the capacity increasing, that's a rather pointless thing to say. Of course it will. Generational improvements are a normal expectation. Each gets progressively better. That's the way battery technology has been for decades for portable devices. Why would it be any different for those used in vehicles? I find it amusing how after only 3 months on the road, with very little real-world data available yet, they can make a blanket statement about the market with complete disregard for cost.
- 6-27-2012** **Recharged Twice.** Traveled so far 38.1 miles. Displayed average 118 MPG. Remaining EV distance 7.9 miles. That made for a very interesting commute. The slower, longer, more enjoyable route finally opened up again. Construction season is causing lots of detours. Prius makes dealing with the unexpected much easier. I had no idea a return back to the usual would yield such great results, especially switching to A/C halfway through the return home. The evening included some time to relax and do some blogging. On my journey out, I didn't use EV much. In fact, the use of HV mode bumped the EV range up to 8.2 miles. At 47 miles total for the day, the average had only dropped to 99 MPG. That made me especially curious what the outcome would be. After traveling 55 miles for the day, it ended up coming to 117 MPG. Easily staying above 100 is great. That's the boost many supporters have promoted for years. Of course, they envisioned a much larger and more expensive battery-pack. I did that with a small one, just recharging twice instead. But then again, my daily driving is further than the typical person.

- 6-28-2012** **Where?** The final arguments from Volt owners antagonizing PHV are falling on deaf ears now. The realization of not having anything for middle-market is beginning to provide the rebuttal for us. Simply reading about experiences from new owners plugging in their Prius depicts a situation quite different from what they are familiar. It doesn't resemble what you'd expect from an early adopter. There's no sense of having something to prove. As far as they're concerned, the technology is already established. These are ordinary people just trying to figure out how to get the most out of having a plug. I posted this as a synopsis of their last attempts: Lowering expectations is exactly what the auto task-force warned about. Remember the "*too little, too slowly*" concern? Why should we just settle for something out of reach for mainstream consumers? Remember back when we used to strive for ambitious goals? Now there is trepidation about even just stating goals. You know the recent backlash & downplay is due to the sales falling way short. It wouldn't be so bad if the overlooking of PHV the belittling finally ended. But those who speak out get catechized. Where's the choice for the masses?
- 6-29-2012** **Forum Trolls.** A thread from 3 years ago was bumped back to life today on the big Prius forum. It was interesting to revisit it, especially due to the timing. That was back when the newest generation was first rolled out. Obviously, there were strong feelings about that from those who supported the competition. I added to the discussion with these recent observations: Sadly, as a forum matures, some members go rogue. They thrive on the lively debates and drop bait to entice responses. Newbies often bite, unaware of what's happening. There hasn't been a term coined for that yet either, because the identifier of "troll" is defined as an outsider joining to stir trouble. When a well-known member does it, that really becomes a problem. The sign to watch for is the "invitation" post, something that clearly isn't correct or constructive. There's often a strong opinion included too. But because that person has been around for years and typically have thousands of posts, no one calls them on it. That became a huge problem on the big GM forum awhile back. Finally, the moderators declared a clean-up campaign. It was better to callout the activity of those well-known members rather than allow the reputation of the forum fall apart. It was a fruitful effort. They watched their posts for intent. The "provoke" is easy to spot when you're looking for it. That worked well. Some popular names quickly vanished, never to return. Being constructive is the key. Arguing for argument sake isn't productive. What is the purpose of the discussion? Do they simply contradict or is there actual substance to replies? Will that information benefit other members or is it a desperate attempt to keep a thread active? And of course, what does it have to do with Prius?
- 6-29-2012** **Yellow Skyline.** The cityscape I see when taking the scenic route to work looked absolutely awful today. The dense morning air kept the pollution from blowing off into the country as it usually does. Knowing that is normally passed on to others by the wind makes it even more disgusting. But you usually cannot see it, especially up close. Being about 15 miles away, the distance allows you to easily notice it. Emissions from our vehicles contribute heavily to that. Those who point out the problem get labeled as a "treehugger" or the driver of a "greenmobile", insults that are commonly accepted still. Far too many guzzlers populate roadways, making the attitude easy to share. The yellow color of the sky is dismissed as contributions from vehicles long ago. They claim emissions are much better now, providing an excuse to consider newer vehicles good enough. Why bother with a SULEV or PZEV rated vehicle? That's sad.

- 6-29-2012** **New Own Panic.** The EV estimate, the range of miles displayed upon completion of recharging the PHV, has been the start of new threads lately... coming from owners new to the forum expressing their feelings in a heightened emotional state, with the insistence upon contacting the dealer right away. It's been quite riveting to witness. There's passion about this topic from all involved. This was my contribution to the one today: I watched mine decline as I drove more on the highway in HV mode. It gave the impression capacity was somehow being lost each recharge. In reality, it was just the EV estimate value influenced by previous driving data. Now mine is up higher than ever, not having taken a long trip recently. Actual EV driving distance hasn't actually change. It's been consistent throughout, despite the estimate going up & down. It reminds me of the reaction Prius owners had throughout the Iconic years. When the battery-level dropped to 2 bars, that change to pink on the screen made them panic. They truly thought something was wrong. A few even took desperate measures, not realizing that was perfectly normal. Everything is fine. They certainly don't feel that way seeing it though. This is unquestionably the "panic" situation for new PHV owners.
- 6-30-2012** **EV modes.** There are 2 different modes available while driving faster than 62 mph (100 km/h). Regular HV is when you explicitly push the button to halt EV depletion. This causes the Prius to revert to the usual 50 MPG hybrid driving. If you don't push the button, the default EV mode transforms to EV-BOOST mode. This causes the system to take advantage of the plug-supplied electricity, which results in efficiency above 100 MPG. When the EV symbol is small and the Eco-Meter has a center-divider to indicator a white zone, that's HV mode. It will remain that way until push the button again or shut the power off. When the EV symbol is large and the Eco-Meter only has a green zone, that's EV-BOOST mode while driving fast. It automatically turns into EV mode when you leave the highway and changes back to EV-BOOST when you exceed 62 mph... or you acceleration hard... or the heater cycles back on.
- 6-30-2012** **Rollout Progress.** The antagonists pounced before much real-world data about PHV became available. Focus was concentrated on those who had already begun to draw attention to choices for the masses. With a plug-in like Volt, lots of time is still needed for significant cost reduction. Seeing the rollout progress of PHV poses a very real threat. I doesn't take much to confirm their fears either. Reading new owner posts reveals the appeal of the simple approach. The plug is offered as a package option. You get a Prius with added battery capacity, expanding upon the abilities already offered. Instead of a little bit of EV as the regular model provides, you get a whole lot more. There's no paradigm shift, consisting of an entirely new vehicle. It's the next logical step. As a result, progress is rapid. There's no resistance. There's no hype either. It's just a soft build up of interest. By next year when national availability begins, sales will highlight the natural acceptance those of us very active online are observing now. Ford will be offering a plug-in hybrid too. The antagonists are well aware of the pressure building, where the expectation is for growth. Low sales are bad enough, flat is even worse. Watch what happens in states without local tax incentives or HOV privileges. That will be telling about what's to come. Remember, there will continue to be a MPG push from traditional vehicles, making sales of hybrids & plug-ins even more of a challenge.

7-01-2012 **Branding Choice.** Ugh. The past has many, many examples of vehicles rebranded. The automaker would choose to offer a cosmetically different vehicle that was virtually identical under the hood. Volt appears to be taking that approach too. Cadillac ELR will be the next GM model delivered. It is expected to be the first to offer what the next Volt will include. So, we are looking at a nicer class interior, sound-proofing, and suspension, but not much else different. It could be the first step to downgrade Volt to being more representative of what Chevy usually offers. That's good. But no change to the propulsion system means it will remain very expensive. So, what's the point? Why didn't GM just do that in the first place? I posted this in that discussion on the big GM forum today: Yes, GM would have done well choosing to offer Volt as a nicer class of vehicle first. It was configured to appeal to buyers of that price-point anyway. Much of the flack & comparisons could have been easily avoided that way too. The vehicle simply would have been paving the way for an affordable model later without any conflict of approach or even expectation. Instead, the decision was made to make it a Chevy... which contributed heavily to the hope of mainstream sales within the first generation, feeding hype that could have been prevented. However, there is the constraint of time and the reality of the technology not scaling as promoted. What resources will be expended to offer something other than a compact? How will aspects of price & performance be affected? When should we anticipate that? Think about how price has already pushed Volt interest over to other GM choices. The growing pressure from CAFE standards means competition from within. More affordable options from other automakers doesn't help either. Can people be convinced to just wait in the meantime, as the technology improves? If so, what will they be waiting for? Long story short, we're beating a dead horse unless someone provides a new set of expectations.

7-02-2012 **Prorogation.** It would be nice for the current backlash/fallout/downplay to truly be concluded. The Volt owners who launched an offensive on the big Prius forum have grown quite quiet. In fact, the one who made a huge deal out of my stance, who said he'd help out with the effort to share information, has vanished. But looking at his past, there was only a single post last year and none before that for an entire year. So, it's not like he was contributing anyway. Everything was about keeping Volt in a good light still. That meant belittle Prius and turn a blind eye, denying that was happening. It was so obvious they were not being sincere. But that was a fantastic way to find out what each individuals purpose was, since they'd never just outright say it as I do. That approach worked. Of course, one particular individual took to the old antagonist technique of changing a definition. He attempted to spin "*too little, too slowly*" as a reference to Toyota. It was a desperate effort to conceal the reality of it meaning something must be delivered to the masses soon. That was said back in 2009 as part of the GM bankruptcy recovery plan. 3 years later, we are now being told it will still be another 3 years before something could possibly be available as an affordable mainstream choice. It's a sad statement, but closure nonetheless. Meanwhile, Toyota is rolling out several options for middle-market buyers. My favorite is the PHV model.

7-03-2012 kWh Gauge. That idea has been tossed around quite a bit over the years. Currently, we have an analog representation of percentage and an estimated distance. Neither of which give you a clear understanding of what the outcome would be. kWh measure for EV really wouldn't either. But the thought is that could be more informative, especially when used in conjunction with the other displayed values. I've always liked Toyota's KISS approach. The simplicity has proven to attract mainstream buyers too. Is having a plug different? Would introducing that be too complex? Would it contribute to new assumptions or help dispel misconceptions? At this point, no one knows. These are my thoughts I posted: Unfortunately, a kWh gauge wouldn't work either. 14.1 miles had been my record EV distance until recently, when the hot summer mornings arrived. Although the EV estimate stated 13.7 miles yesterday, I actually traveled 15 miles of EV with 2 miles remaining when I arrived at work. It was 84°F degrees that morning, quite a bit higher than the usual mid-60's. Today, it was 77°F and I was curious as heck how far I'd be able to travel in EV. So, I refrained from the usual HV button push to warm-up the engine during the most efficient portion of my drive. 17.2 miles later, I was in the parking ramp with 0.3 miles of EV still left. The entire commute was with electricity, even though the EV estimate stated only 13.7 miles were available. In short, YEVWV is the new term we'll have to learn to accept. Your EV Will Vary, based upon acceleration demand, cabin comfort, window clearing, and outside temperature. There's simply no way to accurately depict expectations.

7-03-2012 Sales Spin. We all saw this coming. Televisions commercials for Volt have been abundant. Promotion of zero-percent financing, state & federal tax incentives, and HOV privileges was heavy. Constructive discussion never emerged, despite efforts to establish. There was hope without anything to actually support it. A popular Detroit publication took month-end results and titled that report with "*sales rise*". In the article itself, there was this quote to peek interest: "*The company abandoned its 2012 U.S. sales forecast of 45,000, saying it would instead match supply to meet demand.*" And it did too, I was quite intrigued to read on. The remaining half of what had been written was all about how much lower Nissan Leaf sales were. Why acknowledge the 31,402 Malibu, 20,793 Equinox, 18,983 Cruze, or 6,785 Sonic of GM's own offerings when you can draw attention to an unrelated vehicle from a competitor instead? Needless to say, the Volt quantity sold was much lower: 1,760. That's below the number to even make the newest revised goal. Unfortunately, there isn't a breakdown available for Prius sold with a total of 19,150. Fortunately, it still holds the third position behind Camry's 31,107 (including the hybrid model) and Corolla's, 26,647. The goal of diversification is clearly being addressed by Toyota. It will be interesting to find out how PHV did, being available only in select states still. Meanwhile, the article stated that 5,300 Volts are available for immediate purchase as of the end of June. So, the supply meeting demand question has clearly been answered. Reading the comments, it was very clear that people are worried about the politics and slow progress... seeing the situation very different from what Volt supporters have been saying.

- 7-03-2012 PHV Sales.** It didn't take long to find out the tally for the United States. June was the first month of open availability, but inventory wasn't stocked with more than just a very limited selection until last week... and that's only in California. So if you didn't want what they specifically had and wanted one that wasn't a demo model, you were out of luck. July should be different, the first to offer a hint of actual demand. Neither March nor April did, since both were pre-order deliveries. May was a mix of pre-order and pre-sold units. But those facts won't stop the antagonists. Here's what I posted on the big GM forum, hoping to at least present some facts before they start their Volt spin: 695 sold from the 14 states it is currently available (California, Oregon, Washington, Arizona, Maine, Massachusetts, Vermont, New Hampshire, Rhode Island, Connecticut, New York, New Jersey, Maryland, Virginia, and Hawaii) in June. It sure will be nice when nationwide happens. But then again, people still await real-world data to make their purchase decision. Warm weather has been making quite a difference with mine. Today I drove my morning commute, that's 17.2 miles, entirely with electricity. In fact, I ended up with 0.3 left in the parking ramp. That's well above the EPA's 11-mile estimate. My current tank is just under 900 miles, averaging 120 MPG. So, I do indeed see it as a better compare than a pure EV like Leaf. I still wish there was a more affordable model of Volt available. Diversification is needed anyway. Offering a choice of a smaller pack with a system tuned more for HV efficiency would be a win-win for both automaker & consumer.
- 7-03-2012 Sales Breakdown.** The impatience and self-defeating mindset of monthly sales hit Toyota hard this month. There are people waiting for c model delivery. PHV availability is very limited as well, even within the states it is currently offered. The number-crunchers don't care though... and neither do those yearning for an opportunity to claim falling demand. Guess what happened. Yup, the resulting 695 sales of the plug-in model for June were indeed spun as market interest dropping already. That's so hypocritical. With all times we were told by Volt enthusiasts to be patient and wait for the second-year, not doing the same now is the ultimate show of disingenuous intent. Of course, when we did wait, they made excuses to wait until the next-generation model rollout instead. Thankfully, the short-sighted nature of these reports makes it easy to focus on year-end results later. For the month though, there were 11,514 of the regular model here, next with 3,657 for the c model, and 3,284 for the v model.
- 7-04-2012 EV with A/C.** The holiday was going to be a hot one. We were all planning to do some shopping around town. That meant driving EV with A/C. It was an opportunity to observe firsthand the punishment those down south have to routinely endure. Seeing triple-digit temperatures use to be rare up here in Minnesota. Now, it happens routinely... a few days here and there. I cannot imagine what that would be like all the time. But then again, I bet that's exactly what they say about sub-freezing conditions up here. Anywho, I looked forward to the day's travel. We had 4 stops. Each was long enough to allow the car to heat back up when we stopped. I was generous with the A/C, curious if the draw would cause the engine to run at some point. It never did. EV driving through the suburbs was no big deal. I was very pleased with those results. Errand running is quite pleasant with the plug-in model Prius, exactly as I had hoped it would be.

- 7-04-2012** **Competition.** I provided the sales numbers for Malibu, Equinox, Cruze, and Sonic. This was the response: "*Only in your mind is that the competition for the Volt. Unbelievable.*" It boggles the mind how greenwashed GM supporters have become. It's a game and a race to them, but only Volt, Leaf, Focus-EV, and Prius PHV are competing. To them, nothing else matters. They don't see the rest of the market or any pressure to become affordable quickly. Sales lost to those other vehicles don't matter, as long as their own category of vehicle has Volt on top, all is well. Thankfully, not all feel that way. But the majority participating online certainly don't see any problem with GM having dropped sales expectations for 2012 again. That's so bad, it seems pointless even bothering to point out the limited inventory of PHV still. I'm better off just waiting for stock delivery and distribution to the other states. In the meantime, interest will build from forum posts and website updates. Currently, the typical person isn't even aware that a plug-in Prius has been rolled out. That's quite a drastic difference from the heavily advertised Volt with television commercials. My follow-up post was with this: The "game" is traditional vehicle replacement. The "race" is mainstream penetration. To achieve those high-volume sales, you can't just disregard the other choices available.
- 7-05-2012** **Dual Sighting.** I spotted a Prius c up in the distance. It was that Habanero color (the vibrant orange), very hard not to notice. I caught up to it at the next intersection. Me getting into the left turn lane meant pulling up next to it on my side. I looked over to check it out. The owner was obviously use to getting the attention from what she was driving. She just passively looked over at me, then my car. You could see her expression suddenly change to bewilderment. She had obviously noticed the "Plug-In Hybrid" emblem and was in the process of recognizing what that actually meant. The expression transformed to a smile. We had just checked out each others Prius. It was quite an unexpected experience. That adds even more to how Prius makes waiting for a light to turn green a more pleasant event. I cannot wait until I finally spot another PHV on the road. Here in Minnesota, it could be a very long time still. Rollout won't hit this state until next year and it's rather unlikely many will pounce on the opportunity in early January... the dead of Winter.
- 7-05-2012** **First Mega-Regen.** The result of 87 miles of driving, using only the electricity from overnight recharging, was 71 MPG. That was quite pleasing, especially considering this drive to a remote bike-trail included use of the A/C. On the way back, it was late in the evening. Open windows did the trick that. Of course, that cooling reduces efficiency too. The most exciting part of the journey though was a long decent downhill. That was my first opportunity with the PHV. In the past, I had used "B" to avoid over-charging the battery-pack... since the 2010 didn't have enough capacity to hold that much electricity. This Prius does. So, I was quite curious what would happen. Down the scenic valley road I went, watching the charge-level climb. When I got to the bottom, there was 1.4 miles of EV now available. That was the kind of result I was hoping for. With MPG having been so great up to that point, I was reassured the return trip up wouldn't be much of a penalty with that much electricity to help out. That indeed ended up being the case too.

- 7-06-2012** **Entune Updates.** Toyota has been delivering updates to their in-car information/entertainment systems to customers via postal mail. With such a variety & quantity of vehicles, many more than just Prius, getting something at home is much more convenient than having to come into the dealer... especially when it has nothing to do with vehicle operation itself. That means most owners are discovering a USB memory-key in their mailbox. You plug it into the port somewhere inside the vehicle, then accept the update prompt on the screen. For advanced plug-in owners, like myself, the process is different though. I didn't get anything in the mail. The update was broadcast to me wirelessly via my smart-phone over a bluetooth connection. That's happened twice now. I pull up the screen in my garage and discover an update is available. Clicking YES, the software is updates. It only takes a minute if you have a fast internet connection too. Someday, most everyone will likely get updates that way. For now, I'm among those helping to verify the wireless method works well.
- 7-07-2012** **Signs Of Hope.** The bait dropping got quite intense lately. They missed me on the big GM forum. All the provoking & taunting to get me to post something was very amusing. It's like they have no idea that forum is a fanboi venue, not having any reflection on what ordinary middle-market buyers are interested in. Other websites focus on what you get for what it costs instead. They thrive on bragging rights, not caring at all about business objectives. With the price of a barrel of oil currently in the 80's and gas around \$3.49 per gallon, it should be clear that efficiency is a higher priority for buyers now... but not the highest. Price of the vehicle itself is having a major influence on sales. That target of "*nicely under \$30,000*" is still a major goal. Oddly, that message is getting through. Fewer and fewer antagonist attacks prevail. They simply aren't drawing attention anymore. With 39,970 regular model and 28,736 c model sold last month in the US and Japan, it's not much of a stretch expecting growth for the PHV model. Everyone knows it too. The Volt rhetoric is dying down.
- 7-07-2012** **Missed It!** Someday I knew it would happen. Stopped at the light today, I was taken by surprise when a subtle vibrating sensation grabbed my attention. It was the engine warming up. For the first time with my PHV, the transition from EV to HV was totally overlooked. There's was lots of traffic at the time and I had just climbed a very steep hill amongst all those vehicles. Running out of electricity at exactly the right moment prevented me from noticing. That was cool. I figured not focusing on the screens so closely would allow that automatic mode switch to occur without drawing attention. After all, the engine runs at a low RPM and the pumping cycle makes it faint in comparison to traditional vehicles. The startup process itself is different as well, far less strain on the engine. The system waits until oil-pressure is established and spins the engine up to idle speed instead. Long story short, I missed it!

7-08-2012 **New Advice.** Actually, it's the same old advice of the past. But now we have a new audience. The nature of online forums is a dynamic with much uncertainty. PHV doesn't make expectations any more clear. It's a little better though. The big warm-up penalty of the past has been reduced rather significantly. The hybrid system is taken advantage of even more. Nonetheless, we still have lots of emotion to deal with when it comes to the purchase of unfamiliar technology. I put it this way: I have a feeling it's going to be common hearing complaints about EV range. It's a sad reality that people will seek out a venue when they're upset but remain totally unknown when pleased. What's worse is the disregard for purpose, which is to boost MPG, not electric-only driving. I'm sure we'll gain quite a bit of experience with this in the next few months. Hopefully, maybe, some of those silent owners who are quite pleased with their purchase will sound off too. We've seen a lot of venting over the years... where they've already made up their mind. So no matter what suggestions are offered, they're already done. When it comes to plugging in a hybrid, that is definitely new territory. We are bound to encounter a variety of misconceptions and unrealistic expectations. The best we can do is what we've done in the past, just keep sharing real-world experiences.

7-08-2012 **62 MPH Assumption.** What do you do when an assumption undermines your own actions? That's what some of the Volt supporters have been asking themselves recently. Turns out, there was a sincere belief that once speed exceeded 62 MPH the plug-in Prius would revert back to HV mode... despite information to the contrary provided countless times over the years. With all my talk about the boost effect, I thought they were just greenwashing. We've seen the intentional spreading of misconceptions in the past. Why would this be any different? To my surprise, that belief was real. No wonder some of the retaliation was so harsh. That assumption enabled the antagonists to shoot the messenger without consequence. It was just looked upon as rival automaker banter, acceptable regardless of what was said in defense of their own. To think something like that could persist for so long. Thank goodness some are now questioning what had previously been assumed to be correct. A power-split hybrid drawing enough electricity from the battery-pack to allow the engine to run at an extremely slow RPM, raising MPG significantly as a result, should be obvious. It clearly wasn't. The plug provides electricity, rather than the engine. With it, there's much more electricity available to draw from... which is exactly what happens when you exceed 62 MPH. That's quite different from HV mode, which is just ordinary hybrid driving without plug-supplied electricity. There's no MPG boost like you get when drawing heavily from the battery-pack.

- 7-10-2012 Superiority.** It was like watching an avalanche. There were cries of superiority coming from the few remaining Volt supporters who believed the discussion about middle-market sales was somehow a campaign to prove Prius was better. Then when someone provided some historical background pointing out that the most popular sellers are typically not the vehicles that earn the highest scores in every category, they were at a loss about what to do next. Nothing followed later either. Those attempts to distort facts about Prius PHV no longer had an audience. The reality that simply getting over 100 MPG on the highway will attract lots of buyers appears to finally be sinking in. It doesn't take much study of hybrid history to confirm how big of a deal being affordable has been. That's absolutely essential to achieve high-volume sales. No level of promotion with change that. It's the nature of the industry... and even more of a problem when you look beyond the market just within our borders. Global realities and demands of business, not to mention oil-dependency or environmental problems, are only now becoming a worry. They're noticing a big penalty for having only considered needs from an engineering-only perspective. Why did it have to come to this? Why couldn't they have listened sooner? Ugh!
- 7-10-2012 Statistics.** The sharing of real-world data is priceless. It's a major component in market acceptance. Without owner endorsements, it's quite a challenge to get consumers to try something new. PHV very much falls into that category... since there is no basis of comparison available. Allowing assumptions to persist is not a good idea. So, I jump at the opportunity to provide information about my experiences. Today, there was a rather constructive review published. It wasn't perfect, but the effort to deliver true journalism was clearly there. It wasn't just the weak observational reporting we've had in the past. The following is what I posted as a comment for that review... Here are stats on my advanced model 2012 Prius plug-in: 5,752 miles. (includes a 636-mile road trip, 34-mile round-trip commute) 115 days of ownership. (it's been a thoroughly enjoyable experience) 185 recharges total. (There's a charging-station available at work.) 68.9 gallons of gas. (10% ethanol blend, measured at the pump) 574.1 kWh electricity. (3.1 kWh per-charge estimate includes conversion loss) 83.5 MPG calculated average overall.
- 7-11-2012 Factual Errors.** How much damage is caused by articles publishing facts that are incorrect? Some websites circulate errors too. What does that do to those who are genuinely trying to do constructive research on a purchase. The majority likely don't understand the numbers or how they are derived anyway. Being misleading makes that information even worse. They probably don't do enough searches to verify facts either. That limited effort makes clarity absolutely vital. It contributes to online debates quickly turn into heated arguments. Some people have no idea as to the accuracy of what they found. To complicate the problem further, they are unaware some of that is intentional. Information that's vague or outdated transformed into facts without a source. Some people spread that, not realizing they are contributing to efforts to greenwash. It's a mess out there. Adding a plug provides a whole new dimension of misunderstandings. I wonder how we'll deal with so much content new for so many people. Buying a new car now is much more difficult than in ages past.

7-12-2012 **Failure.** I pretty much had to respond to this today: "*What is it about the Volt that makes people actively root for its failure?*" Saying anything about Prius translates to speaking out against Volt. That automatic association is quite maddening, for all involved. No matter what you say, they hear spin to give the sense of Volt failing. That's why I have such a difficult time avoiding the topic. It comes back without even trying. There's a sense of self-fulfilling-prophecy compelled by the urge to defend. It makes me wonder why there still hasn't been any real offense taken after all this time. Why always react? Being proactive is so much better. Oh well. I posted this: Looking at the plug-in market exclusively, it's very easy to get the impression. Stepping back to look at the entire auto industry, there are those pointing out struggled efforts of the past and recent successes... all which point out the challenges Volt still faces. What has been the response? It's shooting the messenger and telling people to be patient, rather than actually acknowledge the concerns. Watching opportunity slip away isn't a good plan. But the fierce avoidance of setting goals does exactly that. In other words, if you don't actually define success, just about anything could be interpreted as failure.

7-12-2012 **Why?** How this question could be asked at this point is a topic of fascination: "*Why would anyone buy a Leaf or Prius over this? I don't even get it.*" Do those participating on that discussion thread this afternoon really not know, after all this time and all those attempts to explain? I provided this: Understanding buyers has been a fundamental problem. Price is a major priority for middle-market, the consumers who a hybrid like Prius targets. Look at all the cost-analysis papers over the years. A gain in performance simply isn't taken into consideration if it increases price. These vehicles are expected to be sold in high-volume at small profit margins. Car enthusiasts have never embraced common vehicles which focus primarily on getting from point A to point B using medium-grade components. Their version of competition is comparing rare designs that strive to exceed top-of-the-line specifications. They have no interest in the middle. In other words, the appeal factors for Volt don't match that of mainstream expectations. Notice how no one challenges the performance claims? The power & handling exceed what's actually needed. There are highly desirable traits which simply cannot be justified when considering a purchase of the family car. That's why there have been separate categories for sports & luxury vehicles. The difference between want & need is far greater now than when it was back in the days when monster-sized SUVs guzzled their way to dominance. There a very real need to balance efficiency with affordability. Watch how Volt adapts over time to better target middle-market buyers.

7-12-2012 **Bickering.** We've been watching the situation progressively get worse. Using me as a scapegoat isn't working well anymore, causing some to finally speak out about the bickering outcome. Ignoring those attempts to provoke results in the fabrication of intent. They claim I said things to get me to react. Reluctant to be their conduit of blame, I sometimes respond anyway. This was the post today, shortly after hearing that the president of GM's European division will be stepping down: It always comes down to the realities of business. Volt can remain a great niche, enjoying a classification similar to that of Corvette & Camaro, or it can become a popular seller like Cruze. Lots of profitable sales are required. The catch is time... and that pressure has been growing quite intense lately. The recent drop of stock price to under \$20 per share makes that all too clear. GM will need to focus on the business-sustaining products. That means vehicles like Cruze, Malibu, Equinox, and Sonic will get a bulk of the resources... undermining some Volt advancement. Blaming the competition is the best way to feel better, rather than actually dealing with the situation at hand. Attempting to be constructive, my suggestion would be to aggressively work to drop Volt cost by no longer adhering to the EV mentality. That obviously makes it appear as though it's an endorsement for PIP. Well, too bad. Step up to the plate by supporting something actually capable of achieving high-volume sales relatively soon rather than waiting for a miracle drop in production & battery cost. Diversification by creating a Volt family is good business anyway. So what if one model offers far less EV capacity. Isn't the point to spread the technology?

7-13-2012 **Time Overlooked.** The availability of public charging-stations is an interesting new topic to address. How will they be perceived? How will they be used? How will they be paid for? That last one is the biggest issue. Will owners of businesses be interested in offering them with the hope of consumer patronage in return? With so few plug-in vehicles on the road currently, that's a big uncertainty. Cost is a major factor to. You don't want to tear up a parking lot for just one. Leaving room to expand is important. The location itself is a problem too. Where do you put them to entice without taking away prime parking spots from others? Then there's the problem of snow removal, a serious dilemma for those of us in the north. The charging-stations prevent the plow from pushing away the routine Winter mess. Needless to say, there are a variety of concerns to address... just to stir installation interest. In the effort to justify cost, the aspect of time was completely overlooked. Business owners will never recoup enough from usage fees to cover the labor & equipment cost, so they must focus on opportunity. When visiting a restaurant or coffeeshop, a stay of 1.5 hours is quite realistic. Longer is not. The same is true for shopping. For strip-mall availability, the quantity needed and the competition to consider, the factor of time makes it compelling. I find it intriguing. That just happens to be the exact size of the PHV battery-pack. It takes 1.5 hours to fully recharge. Coincidence?

- 7-14-2012** **New Chapter, the past.** Many years ago, we watched the anti-hybrid campaign transform into efforts of support. The messages were mixed though. How much of an investment they'd become remained a mystery. With automakers like Toyota, Ford, and Honda, it was a push to get a lot from a little... always keeping price as a major priority. From GM came a complete disregard for that; they sacrificed being affordable for speed & power. We wondered if that would eventually change. It didn't. The next big step forward with motor & battery technology again focused on speed & power. That was a disappointment for many, including enthusiasts. But those disenchanted are long gone, forgotten by just about everyone. Online discussions revolve around the survivors, those standing true to an ideal rather than becoming realistic about what the market actually needs. That brings us to last week. On the big GM forum, no matter what I said about the demands of business, the reply from the die-hards was that my efforts were to prove PHV superior and discredit GM. In other words, they made up what they wanted instead of acknowledging what was actually posted. That finally upset other forum members. Their disingenuous replies were too much. It was harming the forum's reputation. They began speaking out, making themselves the target rather than me always being a scapegoat. I was awestruck by the change.
- 7-14-2012** **New Chapter, the present.** Even though things have settled down both on the big Prius forum and the big GM forum, there's still trouble. Thankfully, it's not that daily blog for Volt anymore. That turned about to be a conduit for hype, a source of building hope based on unsupported expectations. Prior to rollout, they said what ever they wanted without needed to take challenges seriously. The uncertain nature of the information was basically just propaganda, making it easy to accept & dismiss. Now, we know. Those facts can no longer be denied. So, no more blog. It's just a general newsfeed now. There is a forum though. That's where those particular die-hard supporters went to. And they sure are trying to stir the pot now. A new thread was just started, a blatant effort to spread misconceptions about PHV. Reading the quotes left me in awe. I was amazed they would even attempt such nonsense. That is quite a change from being frustrated, as in the past. This present is very different. It appears to be a desperate effort to greenwash. So, I collected my favorite quotes from the thread to document here... wondering if anyone will later believe what they posted. But in these early days of PHV rollout, there is still opportunity to mislead. That won't change until more real-world data becomes available.
- 7-14-2012** **New Chapter, 62 MPH.** I always wondered whether or not those particular Volt enthusiasts understood how PHV actually worked. Unfortunately, time has revealed they really do... but simply don't care. I've seen it far too often. How would you respond to that? This quote was a good example of the situation: *"However, you would get crucified here for driving 62 mph or less in an HOV lane so it really doesn't even work here."* No matter how many times you point out EV-BOOST mode, it doesn't matter. They don't want you to discover that MPG is over 100 while traveling faster than 62 mph. They just want to spread the belief that there's no benefit of having a plug unless you are driving slower than 62 mph. It's a misconception they've been working hard to maintain. They have been exploiting the assumption. That's how greenwashing works.

- 7-14-2012** **New Chapter, the engine.** The other aspect of design they want to mislead you about is that the engine starts up whenever you accelerate. No matter how many reports of PHV drivers running errands through the suburbs, exclusively with electricity, without the engine ever running, they pretend that isn't true. Heck, I've even done an entire 17.2 miles on my morning commute entirely in EV mode. They don't care. Pointing out motor-power and battery-draw falls on deaf ears too. Facts don't matter when you're still holding on to that "*vastly superior*" hope. And they said Prius owners were smug. Geez! Anywho, I liked reading this quote: "*The max speed 62 mph is not the whole story any time you step on the gas you use gas in other words the electric motor assists the gas engine.*" That just plain is not true. And on those occasions when the engine does start, it shuts off quickly anyway. But looking at the resulting MPG doesn't matter. They still push the mentality of purity... even though Volt has and uses an engine too.
- 7-14-2012** **New Chapter, marginal.** On the big Prius forum, the Volt owners there have claimed there haven't been any posts which belittle PHV. That was rather shocking to read. I see it all the time. How can they be so selective about what other owners have been saying. This was the example from that newest thread: "*The PIP makes no sense, it's too expensive for the marginal improvement over the basic Prius.*" Apparently, an improvement of around 50-percent is just marginal. That makes you wonder how they evaluate the difference between mild hybrids and traditional vehicles. Watching my MPG jump from 50 to low 80's is quite an increase. How can claim it isn't? But coming from a thread starting with the word "*disappointing*", it was obvious they wouldn't actually be constructive. It was really just an chance from them to collect & distribute so-called facts... and me the opportunity to document what they're up to.
- 7-14-2012** **New Chapter, nothing more.** One of the biggest efforts to mislead came about from the discovery that the third-generation Prius was designed to support a larger battery & plug right from the start. The spin had been that PHV was really a retrofit, an after-thought which came about as a last-minute scramble to compete with Volt. Finding out that isn't actually the situation puts pressure on the enthusiasts. Unfortunately, it puts those who innocently purchased a Volt and didn't know that in a bad situation too. They feel somewhat threatened as a result, backed into a situation they had nothing to do with. That makes reading this a problem: "*PIP is nothing more than a regular hybrid with a somewhat larger battery that can also be wall charged in addition to by regen.*" All but the staunch recognize that's not actually true. The rest of us know that the larger battery allows greater draw, which results in more power from the electric motor. It's the very reason the idea of a smaller battery-pack for Volt is so fiercely resisted. Less power is a tradeoff they are unwilling to accept.

- 7-14-2012** **New Chapter, downplay.** The effort to mislead doesn't always work. When that happens, those hoping to undermine switch to downplay instead. Here's an example from that "disappointing" thread: *"It's a Prius with a larger battery that under some rare conditions (driving at a snail's pace on flat ground) can drive a few miles on electricity."* I'm driving along with traffic, climbing up hills, and accelerating from stoplights all using only electricity. PHV delivers much more than they want to admit. That denial is becoming more and more obvious. Remember how Prius was sold years ago? People liked the idea, but were uncertain of how it actually performed. The test-drive experience made them commit. It's very easy to convince someone on the fence to buy, once they try it. That's because Prius looks so good on paper. The financial decision is sound. How it responds to everyday driving can only be determined behind the wheel. That's why greenwashing efforts try to hard to prevent that from happening.
- 7-14-2012** **New Chapter, dead end.** The most passionate effort by Volt supporters who want to undermine is well stated in this quote: *"Realistically, going forward I think the Prius is dead. It's doing great right now but the drive train is simply too expensive for the relatively small advantages it delivers."* Notice how there's an attempt to distract from the expense of Volt by calling Prius that instead. Anyone who's actually looked at the design can see it's not, that the HSD system is an affordable alternative to the traditional automatic transmission. The next thing which jumps out is the marginal reference again. The size of the boost is significant overall and enormous for short-trips. Saying that MPG improvement is *"relatively small"* is insincere, at best. I call it greenwashing. As for being dead, who's going to believe that? Ordinary consumers have been posting comments saying how much more PHV could deliver with a larger battery-pack. How come they can see that, yet those Volt supporters not?
- 7-14-2012** **New Chapter, has begun.** Whatever happened in the past is just that, past. This new chapter has begun. Volt has been on the road for a year and a half and PHV is just now reaching the first customers who were unwilling to order, wait, and purchase a vehicle they heard almost nothing about from actual owners. Those real-world reports and being available on dealer's lots make a big difference. Voting with your purse or wallet is the key. That couldn't happen before. Unfortunately, PHV is still limited to select states, but this is a start. It will be quite revealing too. If Volt sales remain stable, despite all the television advertisements, and PHV grows to a similar level, it sets up quite a battle for next year when nationwide availability begins. The point continued growth. Expanding the market quickly is essential. Delay reduces the benefit of the tax-credit. Mainstream volume must be achieved prior to expiration; otherwise, momentum will be lost. An impact to sales after subsidies are no longer offered could harm progress that had been made. We don't want that to occur. Can some level of cooperation finally be attained?

- 7-14-2012** **New Chapter, group think.** A good way to conclude this particular topic would be to point out how "group think" works. People tend to unknowingly follow the herd. When the potential of a threat emerges, they automatically go into defensive mode. They typically aren't even aware it's happening. So it's easy for assumptions to take place. They simply have no reason to question the reactions. The outside force must be incorrect. After all, what purpose would they have to participate? I see that a lot, when I point out a fact and it is summarily dismissed. Claiming it isn't possible is quite different from saying it's rare or unlikely. Yet, that's exactly what we've seen occur again and again. Very few make an effort to consider the design at this point. What you say is mostly just ignored. That's how we know a new chapter has begun. Rather than aspects of design being argued as they had been in the past, there's a "this group must be correct" belief. That makes it much easier for someone from within to finally have a voice... since everyone else shares the same conviction. At last, they can be heard.... rather than someone like me drawing all the attention... more evidence revealing something has indeed changed. The long, on-going, seemingly endless saga of hybrid evolution takes another step forward.
- 7-15-2012** **IR Thermometer.** I bought one of those devices with a trigger and laser-sight for measuring temperature. (It can measure distance too.) It takes only a second to find out how hot a very specific area is. That's turning out to be remarkably informative for me. I've often wondered how effective parking with the front of the Prius facing the sun could be. How much of a difference does that make for keeping the battery-pack cool? Turns out, quite a bit. Upon my first measure, I discovered it gets up to 150°F between the windshield and the window shade I put up, with the outside at 100°F. In back, the area between the glass and the rollout shade for the cargo area, it was 137°F and the area immediately under that 107°F. Then pointing the laser into the battery vent, it said 96°F. That provided some thought-provoking real-world data. Baking in the sun while parked all day at work is very hard on the batteries and there's been claims that "active" cooling is better... yet that only works while the vehicle is drive... hence the curiosity. I have the ability to start up the A/C remotely too, no plug required either. The analog gauge on my smart-phone shows a significant reduction in cabin temperature as a result. I haven't had a chance to actually quantify that yet though. In fact, that's what got me to finally purchase the device. I wanted detail... especially after having so many experiences with the solar-roof on my 2010, knowing it was beneficial but never actually being able to articulate how much.

- 7-16-2012** **135 MPG.** I've switched to taking the fast route to work lately. Watching each of the MPG values shown on the consumption display with 1-minute increments is all the same while cruising along on the 70 mph highway is fascinating. Just like in the past, those not believing the results claim you are going much slower than the speed-limit and holding up traffic as a result. Then, it was 50 MPG. But now with the PHV, it's 100 MPG. Just flowing along with the other commuters, each consistently maxes out the plot area available on the graph. Having an aftermarket gauge, I can see that MPG is actually higher. It varies quite a bit. 80 is usually the lowest. But the need to rapidly accelerate can push it down even lower. Any declination at all makes the value shoot way up into the 100's. Actually going down a hill, it tops out at 300 MPG. The 9.5 mile journey today 135 MPG. I look forward to seeing that day after day. When the cold season arrives, that should be especially interesting. Since the engine is running anyway, the need for heat will be a non-issue. Traffic slows though. Winter conditions means slow enough to drop below 62 mph. In that case, I'll be cruising along using only electricity and wondering how long the coolant feeding the heater will last. With the 2010, it was about 8 minutes during really bad snow-impaired driving. This Prius has an HV/EV button, optimized temperature tolerances, and nicer heated-seats. I'm definitely curious what that will be like. In the meantime, I'm still very much enjoying Summer.
- 7-17-2012** **Attack Articles.** It has been fascinating lately. As the plug-in Prius settles into the mainstream, which consequently means drawing less attention to itself, the result is Volt again becoming a target from those who feel threatened by change. Some of the attack articles have been brutal lately too, especially the comments readers post. That's the reason the whole approach from Toyota differs from GM. And no matter how many times you point out the differences, those supporters just don't see it. In their mind, this is just the same situation as a decade ago only with the next big step forward with automotive advancement. Recognition of why & how isn't understood, for them. For me, it's rather obvious. I clearly remember market expectation & reaction back then. It doesn't match what's happening now. That's for sure. I tried again to point out a few key points: Prius was a product designed specifically for middle-market. That was blatant too. No wild promises. No hype. It was simply a traditional vehicle replacement. Volt clearly didn't follow the same path. Rather than being designed to accept motor & battery improvements as cost justified like Prius, it started at the end configuration with the hope of rapid cost reduction. That's a profound difference. Priorities are no longer the same as back then either. So, what's with the claim that people want to kill Volt when they have been actually demanding something more affordable instead?

7-18-2012 **Better.** The obsession with MPG is remarkable. Higher is better, period. That concept of diminishing returns doesn't exist for some. Regardless of cost, they always want more. I see beyond bragging rights. It's the same old story... blinded by a single number. This time though, it's coming from Volt supporters rather than those trying to undermine the progress of hybrids. Nothing else quantitative gets any attention, especially sale counts. Only MPG matters. They spin it in the form of "*gas saved*" too. I summed up the situation this way: The whole "better" topic indicates something isn't going as planned. Having wandered from goals is a dead giveaway. For PHV, it was always clear. The target capacity was stated as 20km (12.4 miles). The target price was stated as a \$3,000 to \$5,000 premium. The target efficiency following depletion was stated as 50 MPG. The target efficiency was stated as roughly a 25 MPG boost. The target emission-rating was PZEV. Having hit so close to the mark right out the gate makes it a prime target to vent frustration on... especially since the business of the automaker as a whole isn't meeting plans either. That leaves us in an awkward position. Enthusiasts loyal to a particular brand just plain don't trust others who support affordable solutions from all automakers. And of course, there are some who simply just thrive on bragging rights, making the push for middle-market seem untrustworthy. So, what happens now? Continuing with the spin & bickering only reinforces the observation of outcome not meeting expectations. Not addressing details of need is trouble as well. We cannot just pretend all is well and hope for the best.

7-18-2012 **Most Feared.** The one thing I really, really wanted to find out prior to leaving the big GM forum was what those handful of antagonists feared the most about PHV. With their excuses for Volt so well rehearsed, it seemed pretty much impossible to get an answer. But stepping back to what the other members take over the arguing actually was revealing. Turns out, it's the 62 mph belief. That makes sense, since it was the least understood. There was no basis upon which to confirm their assumptions. So, they ended up discovering it delivered far better results than expected. So naturally, I only had a single chance to post detail... knowing they won't like the bitter truth of the situation: I find the careful avoidance of what actually happens above 62 mph quite telling. The 70 mph highway is 3 blocks from my home. The ramp onto it is uphill. The distance of travel on that stretch of highway is 9 miles. At that point, depending on whether traffic is flowing at 70 the entire way or slows to 65 about halfway, my average is between 115 and 135 MPG. (The remainder of the trip is another 7 miles, which is entirely with electricity. So overall MPG is always in excess of 200.) For many years, getting +100 MPG is what people have been asking for. Who has been asking for EV purity at high speeds? At lower speeds, sure, since you can drive with the windows open and there is an abundance of variety. But on the open road when you're just cruising, who? Notice the topic of this thread? Better is a great thing if you are an enthusiast. They understand & appreciate every little detail, including EV driving in absolutely every situation. They wonder who would ever be interested in less than a pure EV experience. The consumers from middle-market are quite different. They ask questions relating to cost and diminishing returns. They require a balance of priorities. They are pleased when MPG stays above 100 even when traveling faster than 62 mph.

7-19-2012 **Welcome, Prius.** This fit into the new chapter perspective perfectly, coming from the big Prius forum. It was the observation of inventory being filled. Seeing PHV available on the lot is quite a change from "sold order" deliveries. The key is how long they stay available, that's turnover rate... which none of us can judge yet, quite unlike that other plug-in. Anywho, it stirs worry when change is observed. I provided a "rude awakening" type response, making sure people have realistic expectations: Did you think it was going to be easy, that the sales wouldn't require any effort on our part? If so, better read the forums & blogs from 2000 to 2002. Toyota remembers what happened back then. That's why the ramp up isn't until next year. Some of us participated in that history firsthand. We remember those times quite clearly. You never forget resistance to change like that. This year is the shake out. Those hoping to undermine exploit assumptions with the goal of creating & spreading misconceptions. It gets ugly, but we persist by sharing details real-world experiences and identify strengths. Our endorsements are a weapon they have little defense against. They panic and unknowingly reveal their fears. We point out how well thought out the design is, confirming it is an excellent solution for the masses. The key to literally "just drive it". The outcome speaks for itself. Rather than feeding hype, you convey realistic expectations based on lots of owner information. That's out of the hands of Toyota, something only we can do... and it worked amazingly well in the past. Toyota's role becomes that of the observer, collection every little suggestion we provide and taking it into consideration for the next generation. It's rewarding to look back upon later; however, quite an emotional rollercoaster along the way. Prepare for the onslaught from a wide variety of competitors... once they finally figure out how capable PHV actually is.

7-20-2012 **Welcome, Volt.** Being available nationwide since late last year, the situation for Volt is quite different. We've observed it's turnover rate already. Specific vehicles sit on the lot for weeks. Sales are well under expectations. Some of that is from the concept of plugging in. Some of it is from uncertain expectations. Some of that, obviously, is from price. That last reason irritates the Volt enthusiasts more than anything, as this quote today so expresses: *"I wish people would get off the price thing as it makes no sense."* I enjoyed responding to that: You wish the automotive market made sense! The certainly explains the bewilderment of so many Volt enthusiasts. Those of us supporting hybrids years ago attempted to convey the illogical decisions being made by business & consumers. They were always dismissed as an effort to covertly promote Prius. No matter what we said, the words of warning were always believed to somehow not apply to Volt. Now those enthusiasts are scratching their heads wondering why the "better" points aren't well accepted. Turns out, that even a vehicle which performs quite well may not result in many sales. In other words, the purchase criteria for ordinary mainstream buyers makes no sense. That's why there are billions of dollars spent on advertisements promoting features of vehicles you'll never actually ever use. Welcome to the real world.

7-21-2012 **Welcome, Energi.** It certainly has been a wild ride lately. With Volt enthusiasts having run out of excuses for a more affordable model being offered, the turn to attacking those who make any mention of cost or tax-credit dependency revealed how desperate the situation had become. Shot the messenger and avoid addressing actual need at all costs, that's an undeniable sign of trouble. Diverting the discussion to Prius hadn't worked, since there's enough real-world data now to question why a 16 kWh battery-pack was deemed absolutely necessary for Volt. I was always amazed they felt so threatened by a plug-in hybrid offering just 4.4 kWh. Perhaps they were paying attention after all, quietly accepting the reality that adding capacity is much easier than reducing it. We already know Prius PHV can utilize sub-packs, switching to another as the other became depleted. And of course, combining all the cells into a single pack allows for greater discharge rates, which provides more horsepower. That then exposes the shortcoming of Volt, the loss of power with less battery available. Anywho, Ford is totally taking advantage of the situation. It was stated in the press release this way: *"The new Ford C-MAX Energi is expected to achieve more than 20 miles of electric-only range – nearly double the Toyota Prius plug-in hybrid..."* Knowing that PHV delivers more than the 11-mile rating anyway, that really gives the Volt enthusiasts something to worry about. Obviously, the price is still a concern and naturally that wasn't provided yet. But the point is difficult to deny. This other statement from Ford was a thought-provoker too: *"With a maximum electric-only speed projected to top that of Prius plug-in, C-MAX Energi drivers might be able to reach wherever they're going a little faster, too."* It's 62 mph for PHV. What does that actually mean? In the end, it doesn't matter. The point is that choices are expanding. The new offering is another endorsement of what middle-market is more likely to purchase. That's an new offensive coming from another front... which they knew was coming, but hoped it wouldn't matter.

7-21-2012 **Seeing Red.** That caused panic back with the Iconic model. When the charge-level indicator for the battery dropped to 2 bars, the color within changed from blue to pink. That was nothing but a driver convenience, so you wouldn't actually have to count the bars. The color told you at a glance. But rather than seeing pink, some people interpreted that as a light red and fear set in. They jumped to the conclusion that something must be wrong... taking drastic measure upon first discovery, some as much as pulling off the road and calling for help. Thankfully, those extreme over-reactions were rare, but nonetheless an enlightening insight into how some people think. Something similar is happening with the red zone on the the Eco-Meter now. But rather than panic, they do their best to never make it happen. And unlike the Iconic owners in the past learning of their incorrect assumption, some owners now may never find. I would suspect they are associated that red with the redline on a tachometer, indicating stress on the engine. That most definitely is not the case for Prius. But how to you get pass the assumptions some people make. How would they ever even find out their response is incorrect. Fortunately, the resulting lower MPG and traffic impairment they clues them in. I provided this on a thread today about this particular problem: Keep in mind the purpose of the PWR zone is to inform you that the ideal has been exceeded, so keep it brief. It is not there to inform that you are requesting too much power or driving in an inefficient way. Far too many new owners misunderstand that intent and assume it should be avoided entirely.

7-22-2012 Looking For Clues. It takes a long time to figure out what some people's motives actually are. Sometimes, they aren't even honest with themselves, making it unwise to accept anything claimed without detail to support it. Patience is required. Other influences help a lot, as we are now seeing with the emergence of Energi. The variety of perspectives provide clues otherwise never revealed. Looking for then is a challenge, but rewarding when actually found. Since once found, you can actually communicate constructively rather than just posting facts and hoping for some type of acceptance. Today, it was this revelation: "*The Prius family has done nothing but convince the vast majority of consumers that conventional powertrains are the smart choice and why compromise?*" I had no idea he didn't believe in progressive upgrades. That's just an inherent part of the younger generations. They naturally expect each new product replacement to be better than the previous. Those of us buying MP3 players over the past decade have experienced that firsthand. That's the case for computers over the past 2 decades as well. Each new one offered an improved processor, a larger hard-drive, and more memory. Why is believing the same won't be true for vehicles too? He obviously doesn't. Of course, if you read posts from Volt enthusiasts, many don't believe the increased power & speed from PHV is even possible. Some absolutely insist the engine will start up with anything more than just the lightest touch on the pedal. And that's exactly what I mean about them not being honest with themselves. How many times can you be told that's not true before you finally question your own assumption? Long story short, I now understand why that particular person has always fought so intensely against all hybrids yet heavily endorsed Volt. His ideal didn't meet business or consumer need.

7-22-2012 Motor & Battery Acceptance & Advancement. Stepping back to consider the big picture, that "*has done nothing*" is a quite a remarkable statement to make. Prius advanced the market, fundamentally altering the way people looked up motor & battery usage in passenger vehicles. Prior to rollout, the majority believed anything electric was so slow it couldn't be driven along with the flow of traffic. Now we hear complaints of ordinary people driving them the same way they do with other vehicles, weaving in & out of traffic and speeding. The majority also believed the only way to recharge a battery was with a plug. They are well aware now that isn't actually the case. In addition to that, PHV is about to inform people how much more hybrids have to offer. It's really too bad that acceptance has not been seen by that particular individual. But it is educational for us to learn that are some who have no appreciation for the market advancements which have already taken place. What other vehicle has provided such a fundamental shift in acceptance? In the past, it was always a new technology that was spread to other vehicles without any real attention given to how it was introduced. Significant improvement to emissions & consumption has clearly identified Prius as the leader. Know why? It's because each generation was better than the previous... an aspect the market has come to expect, quite contrary to the "*has done nothing*" claim.

- 7-22-2012** **Different Now.** Reading comments about how much things have changed since PHV pre-orders began gave reason for reflection. This was my contribution to that growing thread: Trying to point out that history as it was unfolding didn't make much of an impression for some. Others got swept up in the moment, not realizing it was about to come to an abrupt end. Heck, even the quarreling with Volt owners was inevitably short lived. That's why those of us familiar with such experiences took full advantage of the rare opportunity. Now PHV is in the hands of owners. Answers to questions are only a post or two away. No more wonder. No more anticipation. We are participating in a different stage. Market progress is what we make of it. Hopefully, we do a good job of sharing our observations, enticing others to join in. It's a different sort of excitement at this point. Jitters from pre-order uncertainty and the intense anticipation of delivery has been replaced by discovery at the dealer. Just like in the past, the curious will crunch efficiency numbers and justify the well-balanced offering of features. But it isn't until they actually sit behind the wheel for a test-drive that the worth is confirmed. The rapid shut off of the engine and smoothness of the motor simply cannot be conveyed online. There's that eerie silence too. Interestingly, the lack of excitement from plugging in at home adds to the well thought out nature of the design. You don't need to do anything special. PHV is basically just another portable device to recharge. You plug-in each evening much like you do with your smart-phone already. I'm thrilled to be among the early owners, knowing it won't be long for others to join in. The addition of an affordable plug is a natural next step, something easy to understand the benefits of. In a market quite finicky when it comes to matters of acceptance, that's a very good thing.
- 7-24-2012** **EV Expectations.** The current PHV owners get lots of questions about what to expect for EV driving. With Prius being a plug-in hybrid, that's really the only way to find out. It's difficult enough figuring out how an full EV will respond. With the ability to utilize an engine, that definitely confuses matters. Hopefully, my contribution will be helpful: Acceleration from stoplights eats EV range. So suburb conditions are more efficient than "city" driving. A/C usage cuts it down too. Keep that in mind. Fortunately, once you've went through the warm-up cycle, rapid on & off of the engine really helps out. People get worked up about using gas until they realize how nice that works out for driving beyond EV capacity. The more scenic route for my commute takes me through the suburbs, with a variety of speeds from 45 to 55 and the occasional stoplight. It's 17.2 miles. The result varies between 400 and 550 MPG with a slight downhill bias. On the way back, without plugging in again, it drops to the low 100's. With a fresh recharge, it's in the 200's. For me taking the fast route, the 70 mph highway, it's 16.6 miles. The result to work is usually between 225 and 250 MPG. With a recharge there at work, the overall average is usually around 200 when I reach home. Also note that I'll take advantage of the HV/EV button on the way home, using the engine to preserve EV for use later in the evening. Doing that, I end the day somewhere in the 100's. Long story short, you'll see a substantial MPG boost regardless of your driving situation.

- 7-24-2012 Tire Rotation.** I didn't have an opportunity to bring the Prius into the dealer until today. For just a routine tire rotation, there wasn't much of a need. Nothing else is required during the 5,000-mile service. Of course, the backup beep was starting to become annoying. So, I had the rotation done along with getting the beep change from continuous to single. Both were done quickly and free of charge. That's always nice. At 6,687 miles, everything is running absolutely perfect. Not costing anything wasn't end result either. I actually got a coffee and a free car-wash out of the visit too. Certainly no complaints about coming out ahead like that. Imagine if all visits to the dealer were so positive. Fortunately, the system doesn't have any belts. That's great for reliability. Not having power-steering is a plus too. And the brakes last a remarkably long time, since most deceleration is achieved using regeneration rather than friction. In short, things are going well.
- 7-24-2012 Price = \$32,950.** That was unexpected. Of course, some of that is likely attributed to differences in features the base packages offer. But nonetheless, the plug-in hybrid from Ford will have a price fairly close to that from Toyota. Taking the larger tax-credit available due to the larger capacity, the price actually ends up lower. It will be introduced next year with a sales expectation of 10,000. That's a bit on the low side, but reasonable considering the circumstances. Like with Volt... which we were told countless times... it's the second year that matters... even though those same people are now being hypocrites by not following their own progress criteria. Whatever. The point is a plug-in with an affordable amount of capacity will be offered. That's a big difference from the very-large-or-nothing approach we've been dealing with from GM. That choice from Ford will be 7.5 kWh. The capacity tested in the Two-Mode plug-in prototype was 8 kWh. So, it's not like the size hasn't been considered. Again, whatever. Consumer purchases will tell the story of acceptance, not an automaker executive decision. With both Toyota & Ford targeting \$30,000 as the price for middle-market, we should see some interesting sales numbers starting next year.
- 7-26-2012 Plug-In Sightings.** My first Nissan Leaf was a week and a half ago. I was night biking and it passing just happened to catch my eye as I was turning. So, there simply wasn't enough time or light to confirm what I had actually seen. The distinct tail-lights were easy to confirm when I had my first proper sighting yesterday, just 3 blocks from my home. Then today, I saw another. This time, I was driving side-by-side rather than it just passing by. I tapped the horn & waved. Unfortunately, a SUV decided to push its way through immediately after that. So, the moment was all too brief. Oh well. Yesterday brought another surprise. At lunch, just after having I went out to plug in the Prius, another PHV drove by. I pursued on foot for a block, enough to confirm I had indeed witnessed what I thought. Was it the only other known PHV in Minnesota? The distinct blue makes it a possibility. I'll have to send an email to him to find out. Unfortunately, that owner has become very quiet lately. That's an unfortunate consequence of Prius ownership. It works so well, online participation is typically short-lived. They just drive it. I was quite shocked by that unexpected opportunity and quite surprised by the timing coincidence with Leaf. It sure will be nice next year when sales begin here. Being one of so few isn't fun. It much more fulfilling when you're driving something the masses can purchase. After all, my career in software development & support depends upon large numbers of users.

- 7-26-2012** **Partial Charges.** What the heck! Twice today I got to my destination with plug-supplied electricity still available. That feels like wasted recharges and lost efficiency opportunities. In reality though, MPG is still outstanding. That (and reduced emissions) is the point... which is especially redeeming with the knowledge that others will have different driving needs anyway. Then later when increased capacity becomes affordable, my own results will be different as well. So, I have partial recharges used from time to time. I suppose there will be instances when I won't have time to recharge the battery-pack entirely either. Today, it was a little over a mile on the way there and over two-and-a-half available on the way back. I bet that will really surprise some who assume the capacity is too small.
- 7-27-2012** **Why Bother?** I wonder how many posts like this will continue: *"If you're going to use gas all the time, why bother with a plug? If you're going build a car that can run off battery alone, why limit speed/accel, and use such a small battery the range is meaningless?"* Those individuals just plain don't understand. The affordable 75-100 MPG market is becoming increasingly more apparent. The typical consumer certainly doesn't respond to my 83 MPG average as meaningless. Their reaction is always one of excitement. They most definitely don't ask those questions. In fact, it's like the "complexity" arguments of the past. The only people who cared were those who understood the intricate details of how an engine & transmission actually worked. Most people in middle-market have no idea how an automatic transmission works. They don't care either, as long as it is affordable & reliable. That makes you wonder who the audience will be for the "why bother?" type questions. Hybrids of the past have taught us a lot about what to expect from hybrids of the future.
- 7-27-2012** **Missing The Point.** It still continues. Fortunately, the audience is quite small now. The hype & anticipation has been replaced by the practical & sensible aspects of the purchase decision. In other words, when it's finally time to vote with wallet or purse, actions don't often match original comments. This caught my attention on that old daily blog for Volt, which is now just another green newsfeed but with a clear comment bias for Volt: *"GM needs more time to establish it's green halo & it's technology halo more, and when it does finally start to settle in to the mindset of those on the coasts, that is when you will see the tide turn."* They aren't hostile to outside posts anymore, but they still miss the point... and oddly, accuse you of that very thing. Of course, what the heck does a "halo" have to do with selling a vehicle to middle-market consumers anyway? Profit doesn't come from a showcase vehicle. It comes from the ordinary vehicles we see parked in neighbors' driveways. Regardless of their misguided purpose, I felt compelled to post this: Think about what happens when Li-Ion density goes up and price goes down some more. Most people focus on the high-end, overlooking an affordable choice for the masses in the near future. Toyota already has a 4.4 kWh system that doesn't require liquid cooling. Transferring it into their smallest model Prius to offer that choice is fairly difficult to argue against. It seems a very sensible business move. Remember, the "killer app" is rarely the one which performs the absolute best. It's whatever is adopted in such high volume that it becomes almost ubiquitous. That means being affordable is essential.

- 7-28-2012** **Plugless Drives.** Late this evening, I got one of those "*please rescue me*" calls. In this case, it was a family member unexpectedly trapped at the airport. I had already finished for the day. The battery-pack was depleted, the display reset, and the plug-in timer set. Now, there was the need for a spontaneous drive. At a very comfortable 66°F degrees outside, I was looking forward to it and intrigued what that would bring in terms of efficiency. This was my first drive with the PHV as an ordinary hybrid, but with a Li-Ion battery-pack instead of NiMH. The 37.7 miles of driving was a delight. The result was 64 MPG. With an effort-free outcome like that, not using any plug-supplied electricity, I certainly am collecting some great real-world data to support this Prius with.
- 7-28-2012** **True Colors.** We saw this coming. There was a group of Volt enthusiasts who only cared about bragging rights. Their complete disregard for cost and battery-pack capacity made that obvious. But it wasn't until Ford's recent Energi press release that confirmation of what I had been saying all along made their responses hypocritical; yet, they still didn't care. It's intriguing to see their own concerns of the past are now being abandoned for the sake of putting Prius down. The insults are truly amazing... to the point where some Volt owner are seeking disassociation with that group. They want nothing to do with those enthusiasts. It's an embarrassment to know principles aren't being followed. In other words, a product for the masses isn't what they wanted from the very beginning. The trophy mentality persists. Sure glad that cannot be denied anymore. It means on to the good stuff, finally. Looking at what Ford has actually done, it sets an interesting stage. Their plug-in hybrid will offer a 7.5 kWh capacity. This was apparently accomplished by filling the entire false floor as well as raising it. That's similar to what the test-model Prius PHV had done, which used a lower density 5.2 kWh battery-pack. So based upon market acceptance, Toyota could do the same later. It really depends upon consumer response. Toyota has a nice system with the 4.4 kWh which could be utilized by Prius v or the Camry hybrid. We'll see what happens with Ford's Fusion plug-in hybrid in the meantime. Gotta start somewhere. And increasing capacity is easier than decreasing it... especially with those showing their true colors now out of the way.
- 7-28-2012** **Being Affordable.** The return back to the basics sure is nice. I didn't know how much more of the cost disdain I could tolerate. It was amazing how there was no regard for middle-market. Having ordinary consumers considering the purchase of a plug-in hybrids is what we were striving for. Now that is becoming realistic. It reminds me of the early days of Prius rollout. The price-gap was just small enough to entice. It was very close to being affordable. Some real-world data and a test-drive pretty much finalized the decision. We're at that point where you can see questions of consideration popping up from those who are not enthusiasts too. They see the plug-in model as the next natural step in efficiency improvement. You just recharge every night like you do with other rechargeable devices. Being affordable is the key. Sustaining profitable business isn't what an enthusiast cares about away. We need a high-volume solution, not something only a few will have to brag about.

- 7-29-2012** **Remembering Two-Mode.** Prior to the rollout of Volt, some enthusiasts were downright hostile when any mention of that past was brought up. Others simply dismissed it as being far too different to discuss. Now, no one wants address it... likely because that pattern is very easy to see at this point. It too was a heavily anticipated new technology, inspired by a remarkable amount of hype without market need to actually support it... in other words, an ideal driven by want. The key weakness was disregard for cost. A dramatic drop would supposedly follow in the coming years, justifying the design. That still hasn't happened. In the meantime, sales would be strong enough to establish that new approach. That didn't happen either. Long story short, it was an over-engineered business nightmare. Sure it worked, but there weren't many consumers interested. Volt also works, but how in the world will it achieve on-going sales in a market simply wanting MPG improvement. Mainstream consumers haven't been clamoring for a pure EV experience. At such a premium for that, it's a hard sell. The need is for a big boost in efficiency. Toyota, Ford, Honda, and Hyundai are all activity pursuing affordable solutions. Heck, even VW wants to join in. GM knows their recovery will continue to be a challenge, so why not set the stage to diversify? Why such a strong hold on specific capacities? The size & power obsession with Two-Mode basically killed it. Does that inflexibility make sense for Volt too? Remember how sales just limped along after the initial rollout finished?
- 7-30-2012** **Electric Assist.** Continued attempts to belittle PHV persist. The latest is portraying the plug-in system as an electric assist. I find that quite amusing. Clearly, it isn't. The traction motor is capable of delivering up to 80 horsepower. 51 of that comes directly from the battery-pack, drawing up to 38 kW. When more power is needed, the gas engine joins in. It delivers both thrust for the wheels directly as well as generating additional electricity for the traction motor to take advantage of. How is that in anyway an assist design? The engine is helping out. Primary motivation is coming from the electric side. The engine assists. The intentional misrepresentation is frustrating. But then again, it's easy to frustrate those making an effort to greenwash. All you have to do is post detail. They're always vague. Providing values to quantify the design puts them in an uncomfortable position. They were hoping people would just assume they were correct. You reveal they were not. And of course, you can then provide real-world data. The incredible MPG numbers do a great job of reminding people of purpose.

7-31-2012 **0.1 Miles.** I'm getting better and better at estimating how much EV to use and when. After all, the work-commute and running around town is quite repetitive. You get familiar with the driving conditions. That recognition of patterns makes the decision for HV/EV button use easier and easier. A few times, I've driven up my driveway with only 0.1 miles having shown on the display since before turning the corner onto my street. Is that considered hypermiling? I'm not actually doing anything to change the driving itself, like pulse & glide. It's just knowing when to use EV and when to use HV. Switching to the appropriate mode is no big deal, especially since you only would do it once or twice during the entire drive anyway. This is definitely a paradigm shift with the way with the way people drive. Remember how the automatic transmission was a profound change to from having to manually shift yourself? This is trivial in comparison. Think about how many times the clutch-pedal would have to be pushed during a typical drive. This is nothing... and the results are huge. But then again, driving in EV mode all the time delivers remarkable results too. But if you know you're going to do a bunch of suburb driving after having been on the highway, it's better to take advantage of the great HV efficiency while cruising at high-speed and saving the electricity for later.

8-01-2012 **Slow & Steady Growth.** You'd hope that's what the focus would be on. Nope. A few had things like this to say: "*Volt is crushing PIP*" and "*Also, this month the Volt outsold the Plug in Prius by nearly 3-1*". Knowing that model of Prius has only been available for a few months and is only available in 15 states doesn't matter. It's all about being "better" than the assumed competition, hence this comment: "*Plug Prius sales continue to drop month over month.*" The cumulative effect of the pre-orders is simply ignored. Reality is, there basically hasn't been anything from Toyota to promote PHV, on television or even online, doesn't matter either... quite unlike what GM has been doing. If I had a nickel for every Volt commercial. The heavy advertising makes you think too. Will it continue? Anywho, some simply don't care, especially with respect to coming up far short of the re-revised sales goal. Of course, they won't address fleet sales either. Fortunately, more are shifting expectations. It's still frustrating though. Now the story has been changed and the next few years are suppose to represent market establishment (proving the technology) rather than market penetration (becoming a mainstream vehicle). That's quite different from the expectation back in late 2010. It doesn't make good business sense for Volt, since it's a bet-the-farm approach. Both Ford & Toyota are quite different, also offering no-plug models. So, they'll be selling lots of hybrids in the meantime. It wouldn't be so bad if there was some type of guarantee. But the extreme between vehicles delivering MPG averages in the 30's and one with a 38-mile EV capacity represents a massive product gap. That's means slow & steady growth has become essential.

- 8-02-2012** **New Expectations.** I'm not sure what adjective best describes the situation now. Even the Volt enthusiasts turned antagonists are giving up. They're realizing the shift to electricity is going to be met with far more resistance than they ever imagined. The challenges Prius faced a decade were assumed to have paved the way, dispelled misconceptions to the point where acceptance of a plug would be as simple as pointing out the price of a gallon of gas. The thought of a 50 MPG hybrid with a battery-pack only a quarter of the size of would even be considered as competitive choice was laughed at then dismissed. The situation wasn't taken seriously, nor was acknowledgement of need. Want blinded judgment. The desire for a "leapfrog" jump in technology made seeing market realities very difficult. Now, they do. True, some will claim the drawn out advancement was actually the plan all along. But that's still the same outlook nonetheless. So, it's not even worth expressing the "too little, too slowly" concern anymore... since that is indeed what happened. The requirement was not fulfilled. New expectations are the result. It's going to be more expensive and take much longer... hence the well deserved motto rearing it's ugly head one more time... over promise, under deliver. This is very similar to what we saw in the past. Reaction to challenges far greater than anticipated resulted in a "reset" scenario. It's quite strange to witness the pattern repeat.
- 8-03-2012** **What Started It All.** It was the overwhelming amount of incorrect information being posted on the (back then) new daily blog for Volt. After already having went through the very same nonsense with Two-Mode development, I wasn't about to just watch that happen again. Two-Mode was a bit different though, it was portrayed as a direct competitor with the existing Toyota system. Volt was intended to leapfrog it, which is how the "*vastly superior*" motto came about. Anywho, the abundant posts with misleading statements about how Prius actually worked is what started it all. Now, some simply label my comments as hate, even though the original message of "*looking for an ally*" still remains true. It was always hybrids against the gigantic offering of traditional vehicles. That meant vehicles with a plug would be facing an enormous challenge. They simply didn't care. That hopelessly unconstructive trophy-mentality dominated. What I get a kick out of now is that it still does. The Volt enthusiasts refuse to acknowledge the reality that a new generation of Prius is expected just 2 years from now, including improvements to the PHV model. Some are even trying to spread the rumor that the plug-in doesn't have a TMS (Thermal Management System). I find that amazing. They're trying to spin the cooling-fan system as something which doesn't qualify. That's both misleading & disingenuous. In a way, I find it ironic that it reveals the over-engineering problem GM has frequently faced. That trophy-mentality means always striving to deliver more, even if it isn't necessary and adds substantial cost. Thankfully, the continued financial struggle is helping some change their attitude. Of course, part of the change is likely due to PHV real-world data. The plug-in system works better than the enthusiasts had anticipated... despite me repeatedly posting data to the contrary, based on my driving opportunities with one back in 2010.

- 8-04-2012 New Battery Cost.** It was quite normal for those considering the purchase of a hybrid to have considered cost to replace the battery-pack. That doesn't happen much anymore, since the longevity is well proven now. Most simply never encounter that situation. The majority see it lasting as long as the vehicle itself. Rollout of a plug-in model, though, has reintroduced that consideration. It's quite reasonable for the cost to drop significantly by the time replacement would ever be an actual concern. So, there's much to actually think about. Much if it likely won't matter, since the tolerances & cycles of these plug-in batteries were carefully researched, just like those for the hybrids a decade ago. The vehicle warranty alleviates most of the worry anyway. These were my thoughts on the topic today: This first plug-in Prius will become quite enticing for enhancement as the system, since the system was designed deliver EV anyway and already has a charger & port. Just think what people will do when battery cost is a fraction of what it is now. While driving, the battery-pack will draw up to 38 kW, then the engine will join in to provide some thrust and additional electricity. A larger battery could provide that additional electricity, as well as additional capacity. This could result in unusually high resale value, even with lots of miles. The gas-engine is babied, not ever having to work hard. And the brushless electric-motors can last a remarkably long time.
- 8-04-2012 It Continues.** The sales numbers are out and the news is wildly being spun. My favorite is the claim that GM will come close to their 40,000 goal for Volt/Ampera production this year. The 45,000 for the United States and 15,000 for Europe goal has mysteriously vanished. See what I mean about new expectations? Whatever. Some of that spin is actually rather amusing. Sales of PHV were 695 in June and 688 in July. Supposedly, that indicates a falling demand trend... even though July was 3 business days shorter than June. Geez! And that's only a difference of 7, which is well within the margin of error (paperwork reporting delay). It shows how desperate the situation has become. I see quite a few Prius every time I drive. They're all over the place, here in Minnesota. So, it will be fascinating to see how PHV are once availability here begins. Meanwhile, the other hybrids making slow headway. The regular model Prius lead the pack with 9,954. It was followed by Camry-Hybrid with 3,162. Prius c came next at 3,197, then Prius v at 2,839. The eAssist version of Malibu came in with 1,938. That's rather interesting. Sonata-Hybrid is another to ponder, at 1,888. Lexus was next with 1,499 for CT200h and 1,171 for RX450h. The final hybrid over 1,000 for the month was Fusion-Hybrid at 1,109. It's an interesting mix afterward. The trend basically continues. Growth would be great, but that's asking quite a bit in this economy. Volt's magic number was 1,849. That wasn't much of a surprise considering there was such a large television advertisement campaign... plus \$10,000 of tax-credits and HOV access for purchases in California obviously helped too. Makes you wonder what will happen with PHV after it's been available for that long. Toyota isn't doing any promotion yet. You bump into an online banner if you've been searching for Toyota vehicles or Prius. That's it. Nothing else. Like in the past, the word-of-mouth endorsement from owners is the primary method of stirring interest. This is why it's not worth arguing. The sales approach is so fundamentally different, the online debates would be endless if you didn't just eventually move on. Anywho, the other worthwhile numbers to mention are those for diesel. No surprise. Same old story. Jetta led the pack with 3,787 sold. That was followed by Passat with 2,171. We have no idea what the numbers for Japan are yet. Those are always way better than here... the land where 30 MPG is still considered "fuel efficient".

- 8-06-2012** **\$4 Gas Is Back.** Summer is travel season. Yesterday's outing for me was a bike trip with friends. That was 103 miles of driving with only a single charge. The result was 68 MPG. Certainly nothing to complain about from that... especially even with \$4 gas now making a repeat appearance. After all, I did spend more on food & drink as a result of pedaling 51 miles. Taking advantage of the warm (here in Minnesota) is rewarding. When a beautiful days comes along, you don't squander the opportunity. Anywho, I'm quite curious what the more expensive cost at the pump will do for sales. Prius has always done well then. What does that mean for others? The days of guzzler promotion are long gone. But the advertising for efficiency vehicles is really screwy. The commercials for Volt don't really tell you anything; expectations are quite vague. The one we see for traditional vehicles don't really have a specific MPG anymore. The magic 40 has been obscured by the generic "*hybrid*" labeling. That makes it really difficult to identify what people will flock to. Affordability is still a major priority. The price of gas influencing decisions about size & power make that clear. The monster-size SUVs are gone! Where did they go? Now that we're seeing \$4 again, what affect will that have? I suspect the kick off of the auto shows late this year will really stir interest in hybrids & plug-ins.
- 8-07-2012** **Called Out.** My lack of online participation is starting to make the GM enthusiasts crazy. They always felt vindicated having someone supporting a plug-in with a smaller battery-pack to taunt. I didn't mind, since they were a great source of feedback... especially when it came to business need and affordability. But now that Volt has proven not to fulfill those requirements, I've moved on. So, now they are calling me out by name... hoping for relive the days of hype. I read the posts on the big forum and the daily blog, seeing references to me by name. A quick look at the other post activity explains why. They've got nothing to discuss there anymore. You'd think that big forum would have on-going threads about Volt. That's not happening. Same with the daily blog. The participation has all migrated elsewhere and it's making them crazy. Websites catering to the niche have their fans, but getting ordinary consumers involved doesn't happen. Middle-Market always wins in the end. It's easy to see that on the big Prius forum, where I have been posting frequently. There, we get lots of ordinary consumers participating. The difference is astounding. That's my vindication.
- 8-08-2012** **Street Parking.** How do you argue with someone who has no idea what they're talking about? A friend of mine tried yesterday. The new parking system that's being installed downtown is quite different. The guy saw terminals being installed, one on each street. Not bothering to actually look at one up close, it would be reasonable to make a quick assumption that they could be plugs for plug-in vehicles. But it only takes a moment to question where the electricity would come from. Simply bolting down an object onto the sidewalk doesn't accomplish that. There's no cord for a car to plug with either. Yet, the guy absolutely insisted... even when my friend stated that was a replacement for the old coin-meters for parking. People jumping to conclusions without any thought is a very real problem we have to deal with. I suspect much of the misunderstandings about hybrids come about from instinctive reaction rather than taking a moment to consider the circumstances. The guy was clearly wrong, but he didn't give my friend any opportunity to explain why. That's really unfortunate.

- 8-09-2012 C-Max Attention.** Ford stirred the pot and the internet has reacted. Attention is fading away from a certain other vehicle that worked really hard to retain the spotlight. It wasn't the goal of Prius to be a "halo" vehicle and that never actually happened, despite the claims otherwise. The difference is sales. If the vehicle itself sells well, the goal of achieving high-volume production and resulting cost-reduction as well as money to invest into further development is fulfilled. Selling only a token few is totally different. Doing it through a dependency on tax-credits makes the situation even worse. Thank goodness Ford's upcoming offering doesn't resemble that at all. C-Max is striving to achieve the same as Prius. Being a dedicated hybrid (in this market anyway) and offering a model with a plug puts it on that same course to success, baring nothing is resemblance to the "halo" image. I'm quite curious how the introduction will go. Rollout can be complicated with so many factors at play, include efforts to undermine. We'll find out in a few months. The attention now seems promising.
- 8-10-2012 Remembering Insight.** I immediately dismissed that Honda as a mainstream contender, way back in 1999 with my first in-person encounter. It was very small, manual transmission, and used an all-aluminum frame & body. How could a 2-seater with such an expensive design compete? Turns out, it was confirmed quickly that it could not. Volt draws on similarities I hadn't noticed until just recently. Thankfully, it is an automatic. But compared to the seating both Prius PHV & Energi offer, there's no contest. The cost of the battery-pack is a major challenge that will always hold it back too. The Toyota & Ford systems allow for adding capacity. Lack of flexibility is the same limitation Insight had. More didn't do any good. With Volt, less would cause a power penalty. It's stuck with a one-size-fits-all dilemma. Not being able to leverage efficiency from the engine is the same situation. So even with disregard for business need, there are engineering barriers. Of course, none of that will stir consumer excitement anyway. Interest from middle-market will be stirred by the usual purchase factors... just like when Insight was first offered. Some things just don't change, even with a plug.
- 8-10-2012 Past & Future.** The vague & ambiguous statements were presented to stimulate excitement. GM allowed hype to flourish. Unfortunately, that left Volt wide open for the "*over promise, under deliver*" to play out. Notice how no other automaker does that? What I find intriguing is how different the opinions are from those who joined into discussion following rollout. They have a perspective quite unlike the people who participated online prior to operational details being available. Each reveal over time resulted in the disenchanted jumping ship. We remember names of those who argued intensely in favor of the design, then changing their tune dramatically after finding out that info wasn't actually correct. Now, those names are nothing but a memory from the past. Some assumptions still continue. There's strong belief battery cost will drop dramatically quickly and that people will consider EV a major purchase priority. What are they basing that upon? Owners of PHV will grow, each sharing stories of their experiences. That's not hype. That's real-world data from a design with affordability a high priority... the same success factor attributed with strong sales from previous generations. And think what will happen for Prius when battery-cost finally does drop. The PHV model will thrive. The simplicity of +75 MPG from just plugging in each evening is a easy sell with a sticker-price at the mainstream level. We could see the introduction of a high-capacity option as well. How will Volt attract interest, especially if we see Ford's plug-in competing directly with Toyota's?

- 8-11-2012** **47 MPG Rating.** That's the official word on C-Max. It was revealed today. The sticker will say: 47, 47, 47. All three values (city, highway, combined) got the same MPG estimate. That sure makes the situation easy to consider and no likelihood of confusion or misleading. Gotta like that. Of course, the plug-in model later will introduce a new dynamic. But so far with Prius PHV, that hasn't actually been a problem. Still being a hybrid after depletion keeps things simple. Ford's approach to efficiency, following a very similar FULL hybrid implementation as Toyota, helps the entire industry. Having a power-split device, the system is very flexible. Many different combinations of engine, motor, and battery result. To think that it took this long for genuine competition to emerge; it gives reason for pause. Supporters of hybrids expected something similar to Prius ages ago. True, the versions of Escape & Fusion were worthy advances. But neither was intended to directly compete. This is the first to take Prius on directly. A good old fashion rivalry is long overdue.
- 8-12-2012** **999 MPG Day.** Sometimes, you just don't wander far from home. Today, it was one of those days. There was only a single errand to be run, nothing else. So, I didn't use a drop of gas. The drive was entirely using electricity. I find it remarkably redeeming. The route was the same as that one 2 years ago... that one where the Volt enthusiasts absolutely insisted it was impossible to drive a plug-in Prius anywhere without the engine ever started, especially climbing a hill out of the valley at 45 mph. They absolutely refused to believe that I had indeed done exactly that. Today, I did again. They were wrong and very stubborn not to believe the firsthand report. Now, other owners are sounding off saying the very same thing. The hope was PHV would be underpowered and dependent upon the engine. That's not the case. It never was. But their efforts to greenwash were difficult to counter. Of course, they were also wrong about cold engine startup. Again, they refused to believe the design would deliver such performance. Yet, it does. I'm thrilled.
- 8-13-2012** **Growing Anticipation, thoughts.** Thoughts of the cold season are beginning to emerge. Posts asking about heater usage are gaining attention. I was excited to jump in with: Watch for our reports in a few months. As the snow begins to fall, the role of EV-BOOST mode become the center of attention. That's the mode which you get much more electricity from the battery-pack than in HV mode, but it's not EV since the engine is running. The plug-in model is designed to take advantage of that situation, since the engine must run to provide heat during the winter anyway. Currently, you can witness the +100 MPG that mode delivers while driving faster than 62 mph. That resulting efficiency is very important, since the engine will run at slower speeds in the winter for heat. So you won't get as many "EV" labeled miles, but you'll still get outstanding results.

- 8-14-2012** **Growing Anticipation, discussion.** Thoughts about the upcoming temperature drop is stirring new discussion threads. This snippet within a response caught my eye: "*this is where PiP shines*". How could I resist not responding to that? So, I did: The anticipation is growing. We welcome winter's arrival. There's a discovery process with each new Prius. Our online community here makes unexpected observations... about things Toyota never mentioned. The design speaks for itself through the firsthand experiences we share. It's how the "*under promise, over deliver*" reputation came about... quite the opposite of a certain other automaker. We discover things along the way. But in this case, we have aftermarket gauges and lots of cumulative knowledge already. Watching how the warm-up works with EV now provides hints of how it will work in the cold. Warm-up is faster than with the regular model. We can preheat the battery-pack simply by having the recharging conclude close to departure time. ECO mode still provides heat until the coolant drops to 114°F. The engine stays off for multi-minute intervals while driving in stop & slow winter traffic. Having more electricity and more motor power available will deliver a nice improvement to winter efficiency.
- 8-14-2012** **One Size Fits All.** This quote speaks for itself: "*I think that the winning strategy for automakers will be to offer different ranges as different models or levels within a model...*" In other words, pressure continues to push Volt supporters to acknowledge the need for more than a single configuration. They had been working really hard to offset the current disappointment to the next generation design. That didn't address offering more than just one choice though. It focused entirely on cost reduction. Diversity continues to be a serious problem. This is why enthusiasts absolutely refused to acknowledge the Camry or Highlander hybrids. That existence of multiple battery & motor options, especially with the plug having already added a new level of performance, was simply too much to deal with. Demands of real-world production & sales require it though. Automakers cannot expect to succeed with a one-size-fits-all approach. Look at the expansion of Prius taken by Toyota this year. Look at what Ford plans to do next year. The slow pace from GM is really starting to show, which isn't good considering the financial situation and increased consumer interest in high-efficiency vehicles. It's missed opportunity, handing over sales to the competition. That's a loss they cannot afford.
- 8-14-2012** **2 Kayaks.** Today was the first day of true Summer recreation. I loaded up both kayaks onto the roof, one 12 feet long and the other 14. That experience was repeated many times with the Iconic Prius, a few with the 2010 as well. This was an entirely different experience. The paradigm shift had me wondering. With 2 massive objects interfering with the aerodynamics of the vehicle, the loss of efficiency was looked upon as a worthwhile sacrifice. After all, no vehicle could carrying that same load without also experiencing a similar penalty. No vehicle without a plug, that is. In this case, the 16-mile trip resulted in 83 MPG. I easily can handle that drop.

- 8-15-2012** **390 MPG at 2,503 Miles.** Seeing that reported from a plug-in Prius owner sure is exciting. How far you drive makes a huge difference. Fortunately, this isn't like the Volt supporters always sticking to less than 12,000 miles per year for their expectation setting. Carefully avoiding any reference to the standard 15,000 annual measure was bad enough. Not taking heater usage made it even worse. Remember all that nonsense we had to deal with? It was always analysis write-ups treating the ideal as something all owners would normally experience. With Prius, we make an strong effort to prevent that type of misleading. This report very specifically highlighted the situation as low-miles. I go out of my way to contribute high-miles data. We're showing the spectrum of possibilities, making sure those curious about their own potential understand all the factors at play. It's really nice knowing you support a design capable of satisfying a wide variety of driving needs.
- 8-16-2012** **Fusion Energi.** We got a tiny bit of info from Ford today. Basically, it will be the new Fusion hybrid with a bigger battery-pack and a plug. That really doesn't tell us much, but it certainly stirs the market. Knowing the regular Fusion hybrid will deliver 47, 47, 47 just like C-Max, it's reasonable to see interest in hybrids growing next year at a faster pace than we are seeing now. More charging-stations showing up at popular public locations will add to the potential. There's a nice rivalry growing between Ford & Toyota now. We all like that. There's a mutual benefit. It's something I've been looking forward to for a very loooong time. The advantages of the FULL hybrid system will really become apparent to ordinary consumers with the choices growing like this.
- 8-17-2012** **Recognizing Potential.** Some of us saw it many years ago, having engineering backgrounds and technical detail posts online. Others noticed it along the way. Newbies are recognizing potential surprisingly fast. My guess is that the reason stems from so many misconceptions having been dispelled already. Rather than expending effort debating operation, thought has shifted over to the "upgrade mentality" instead. That's the norm for portable electronic devices. What will the next improve upon? Now with several generations of Prius on the road, the design has proven to be upgradable. So, it makes sense that we are now seeing posts asking what those upgrades could be. Here's what I posted to stimulate discussion: 60 kW is the max electric traction output available from the +2010 models. 27 kW is pulled from the regular model's NiMH battery-pack. 38 kW is pulled from the PHV model's Li-Ion battery-pack when plug-supplied electricity is available. Additional kW is supplied from the generator by the engine when more power is needed. So, there is unused potential which could be tapped into with a more powerful battery-pack. Of course, we've always known Toyota builds for the future. The EV button hinted at that. PHV provided proof. More can still be delivered.

- 8-17-2012** **Those Mode Buttons.** Living in Minnesota, squeezing out more heat from engine waste is a benefit I enjoy. The improvement that new ECO button on the 2010 offered was immediately clear to see for me. Getting stuck in heavy commute traffic caused by a fresh snow is really annoying. I cannot imagine just how frustrating that is when you're burning up \$4 gas going nowhere. In a Prius, the engine will remain off for as long as it can. The demands of the heater are usually what cause it to start up again when you're stuck in a seemingly endless line of traffic congestion. Watch what ECO mode does during Winter driving. ECO lowers the coolant threshold from 145°F down to 114°F. The result is the engine staying off longer, yielding higher MPG while still keeping you warm. My duration my 2004 could stay off was shorter. My expectations for the 2012 plug-in are anxiously waiting confirmation. My brief taste of snow last March wasn't that informative, especially since I was on vacation at the time. The system has been tweaked to deliver heat faster than any other Prius model. That's very exciting to know. Falling temperatures are on the way.
- 8-17-2012** **Poor EV.** Now that C-Max Energi is grabbing so much attention, those in favor of Volt are really at a loss. The arguments against Prius PHV fall apart when applied. It certainly is vindication for me. The design opportunities I've pointed out FULL hybrids can deliver are being taken full advantage of by Ford. There's a great balance the power-split device offers. There's also flexibility, which is difficult to explain without implemented examples... which we finally have them. The plug-in system I now drive everyday is a great candidate for high-volume sales. All the elements mainstream requires are there. However, the focus is just like you'd expect from any type of automotive repartee. The form in which it manifests itself most often is to say PHV offers "*poor EV*" abilities. Notice the same old pattern of the past? Yup, the vague is back. Rather than actually address details of the purchase decision, it's using adjectives to belittle. Thank goodness that shallow approach isn't how middle-market buyers choose a vehicle.
- 8-18-2012** **Biking.** I spent the day with friends, on a long biking trip. We drove to the trail, then rode for 48 miles. It was a great Summer experience; however, it was also a chance for try out a new bike-rack on a traditional vehicle. I was passenger in a vehicle that used triple the amount of gas as mine. Eek! So my PHV sat in the garage all day, never touched. What a waste! We had a good time though and it never hurts getting that alternate perspective. It isn't often an opportunity like that comes along. I'll get to use the PHV plenty of other times anyway. Of course, the fundamental problem of being stuck with a trunk without fold-down seats was obvious. With the Prius, having those 3 bikes on back would still leave a ton of cargo space readily available. With that sedan, everything was trapped inside. Turns out, we have a lot of cargo. Each person had a bag of stuff along with helmets. We had a cooler too. It's amazing how quickly you can fill a vehicle when it comes to recreation.

8-19-2012 **9 Seconds.** The obsession with EV purity borders on absurdity. Why is that so important? What makes that absolute worth the cost? The whole point of a hybrid is to seek out efficiency opportunities, based on the energy available. At no time has that ever meant using electricity as much as possible. It takes between a minute and a minute and a half for the engine in my PHV to warm-up. During that time, emissions & efficiency are still outstanding, even though the engine is running. The plug-supplied electricity allows the most graceful of warming... well above what the regular model (no plug) delivers. The engine shut off afterward is remarkable too. On the drive this morning, I watched the timer on my audio system. Accelerating hard (but not flooring it) from 0 to 45, the engine ran for 9 seconds. That's it. How can such a short time be a bad thing? The reduction of gas consumption is quite significant.

8-19-2012 **Bankruptcy, again.** Long story short, watching this unfold hasn't been much of a surprise. Who knows how it will actually play out from here. But the events & decisions made up to this point don't paint a good "recovery" picture for GM. This were my thoughts upon reading an article by a well known financial publication bringing up the topic: For continuing to point out the efficiency product-gap and slower than planned plug-in progress, there some here that choose to shoot me as a messenger, rather than actually address the financial situation. Fortunately, the dismissal of goals and blatant effort to shift focus won't change the message. The requirements of business are often claimed as pencil-pushing efforts that undermine the spirit of automotive enjoyment. But reality is, there's still a major business burden to deal with. Those outstanding 500 million shares of stock should make that obvious. The unclear plans for the future should confirm it. We're seeing some of the same problems from before the bankruptcy emerge again. The biggest was the heavy emphasis on monthly sales, rather than judging from an annual perspective. The next was the disconnect between need & want, basing success on hope without regard to the market itself. Remember the mess Two-Mode became? What a massive waste of resources. All that time, money, and talent devoted to something few would benefit from. Volt fell into that same trap. Had there also been a lower-capacity choice or a no-plug offering, things would be different. Instead, there's a major dependency on tax-credits for a limited audience. What happens when those expire? What happens if cost cannot be reduced enough to be competitive? What about the rest of product-line? For that matter, how will further research & development be funded? That's a lot of risk during a time when risk cannot be afforded.

- 8-20-2012** **Recognizing Change.** Most of the time when people see something new, it simply gets accepted without much thought. We've become use to products getting better over time. We even accept innovation as it that miracle of engineering was destined to naturally happen anyway. It's to the extend where some change goes without any notice. Differences sneak in without causing any type of resistance. They just become the norm. That's the approach Toyota has always strived for with Prius. Having a display screen a decade ago served as a mechanism for conveying efficiency information. That fact that it was there provided the means for offering other features... which consumers consumers simply accepted. They just did without any other thought. It made sense to have your phone, music, comfort settings, navigation system, and reverse-camera there too. The same goes for the hybrid system itself. People accept the engine & motor design. It has become the norm for a ballet of gas & electricity to provide power. That makes adding a plug no big deal. The system is setup with a battery. Greater capacity just expands upon abilities already available. Will people even recognize that change? Will they even care? Or will it simply be accepted.
- 8-20-2012** **Plug-In Routine.** The act of plugging in has become such an ordinary task for me, even my friends think nothing of it. After all, they all own several plug-in devices of their own. Making sure their phone & computer are charged is part of their routine anyway. What's another device requiring similar needs? You pull into the garage, unload stuff from the car, then plug in. It's no big deal. I was hoping that would be the case, but was uncertain how long that would actually take. Turns out, there's nothing even to adapt to. The act of plugging in is so basic, the process seems ordinary almost immediately. Think about all the other rechargeable devices we have. Many households have plug-in tools. Heck, most have had a battery-operated vacuum for decades. We even have toothbrushes that you place into a recharge-dock after using. Think about all the music players out there. Now the tablet is becoming a popular everyday piece of equipment you carry & plug too. We need very little to take the step toward plugging in a hybrid. There isn't even the problem of forgetting. If you do, the engine will run. You forget with your phone, you're out of luck.
- 8-21-2012** **Exposition.** I think I may be annoying some of my online colleagues. A few of my posts recently included lengthy explanations of the situation, plus some background that may or may not be pertinent to the discussion at hand. The extra information without request often prevents topics from straying. They tend to forget that and often don't have the desire to supply overhead detail proactively. But with so many newbies right now and not having resources readily available to refer to, it really is helpful. We've seen that in the past. I have to remind them of that. I do have to wonder myself about the effectiveness. You never really now how much prevention is actually necessary. Everyone's experience level is different. I keep an eye out for trends though. Seeing a pattern is the clue that we don't have clarity about a particular topic. Misunderstandings after the fact are more difficult to deal with than providing exposition up front. So, that's what I do.

- 8-22-2012** **First Rain.** Today was when I plugged in for the first time in the rain. It was no big deal. The system is designed to deal with moisture. But it's still an event worthy of noting. After all, you can only do it first once. Then all which follow are just part of the routine. Reading specifications for the equipment itself gives all someone like myself what they need to understand the care taken to account for real-world situations. The engineers took everything realistically possible into consideration. Rain is ordinary. There's still the thrill of actually using the produced equipment afterward. Years of waiting for the opportunity make it significant for you, even if there's not much to the process itself or that anyone else would care. In fact, it's exactly like you would normally do, only you get wet. I enjoyed it though. Next is snow.
- 8-24-2012** **Lot Sharing.** While busy in a store at the local strip-mall, a Nissan Leaf pulled into the same lot. That's the first time I've ever shared where there wasn't a charging-station. It's about time. Having an ordinary encounter is something I've long waited for. Unfortunately, I was too busy to sneak out to say "Hi" and none of the for in that EV likely had an clue to even look for a plug-in hybrid. It would have been exciting to have exchanged a few quick pleasantries, but that simply wasn't realistic. Oh well. There will be plenty of other opportunities over time. This was just the first. It's very much a mixed blessing not getting noticed. After all, the goal of becoming mainstream is to simply be part of the crowd.
- 8-25-2012** **309 Miles, less than 1 Charge.** I had an absolutely wonderful excuse to drive up to central Minnesota today. It was an errand that had to be done, so why not make a day of it, see the sights along the way? And that's exactly what we did. I started with a full charge and used EV only when traveling in city & suburb conditions. The highway travel was all HV. The entire trip was 309 miles. I used only 70 percent of the EV available, resulting in 4 miles still remaining once we got home. I was thrilled with the results. Without any effort, the efficiency was great. The final average after all that distance ended up 58 MPG. With all the undermine attempts over the years claiming the battery-pack being worthless for long-distance travel and the weight of it causing a penalty, results like this certainly stir some emotion. They were very, very wrong. Antagonists certainly don't have much to misled with anymore. The design is proving very, very effective.
- 8-26-2012** **0 Miles.** I didn't drive the Prius at all today. It was one of those rare circumstances where I didn't actually need to go anywhere at all... in a car, anyway. I biked about 20 miles, but that trip started & ended at home. It actually seemed a little odd passing through the garage without any reason to touch the Prius other than to take out my sunglasses. But that's what happened. It was a beautiful Summer day, one of the few remaining this year, so full advantage was taken of the opportunity. On my spreadsheet, for lack of any other way of logging a no-drive day, it was noted as 999 MPG with zeroes in the distance columns. That's quite a dramatic difference from yesterday's adventure.

- 8-27-2012** **4 Blocks.** It was late at night. I had 4 fairly short blocks to go and only 0.1 mile of electricity available for EV. What the heck! Why not? Watching the Eco-Meter, I kept the speed at the lowest possible draw to keep going at a reasonable pace on that lonely neighborhood road. That ended up being 18 mph. I made it just fine to the gas station. The cold engine wouldn't need to start up until after I had documented that current tank's statistics. It's a bit of a moot point after having driven so far without having plugged in much. But there's this element of curiosity of wanting to know that you simply cannot resist. The discovery process is quite compelling when you are already driving what is an excellent fit for being a common vehicle of the future. Then, no one will care. Exceeding 75 MPG will be no big deal. Unfortunately now, we have automakers proudly advertising MPG in the mid-30's.
- 8-28-2012** **First Competition.** To be a "killer" of "Prius" as the article title implies, more criteria would need to be exceeded. The published claims hover a little too close to cherry-picking, rather than being a slam dunk. C-Max is well thought out, a very good endorsement to the FULL hybrid design many of us have been endorsing for over a decade now. So, there's no problem at all acknowledging what Ford has delivered as companion worthy of helping to overcome the reign of traditional vehicles. What I find fascinating is how the publicity for C-Max focuses on Prius v exclusively with detail but generically refers to Prius. That will establish a heightened awareness for both the Ford & Toyota products. It's a subtle approach to build the market rather than just garnish bragging rights. That's a dramatic difference from what we've seen from a certain other Detroit automaker. I'm excited to see the field expanding, finally. The well-established reputation Prius has speaks for itself. So when offerings expand, consumers will have choices to consider. Their resulting education is priceless. In the meantime, I'm quite pleased with my 85 MPG average with the plug-in so far. More real-world data from owners will help us overcome the terrible rut the industry has been stuck in.
- 8-28-2012** **Surprise Safety Feature.** Normally when you encounter a vehicle stopped ahead, you either lift your foot off the accelerator-pedal or press the brake. Without anyone approaching, the road was basically just us, I knew that vehicle would be getting out of my path soon. So, I didn't bother. If for some bizarre reason it didn't actually move, switching to the other lane on my right was no big deal. Whoa! All of sudden the display screen changed to a warning (an exclamation-point with a vehicle image) and an alert sound shrieked. The radar system on the Prius detected the danger and was attempting to inform me. I had no idea that safety feature existed, especially without the dynamic cruise-control even on. Apparently, the radar is always scanning the area in front of the vehicle. What a surprise. Sweet!

- 8-29-2012** **Charger Available.** Every now and then, a PHV owner reports getting unplugged before charging is complete. It was easy to blame Nissan Leaf owners for not understanding the charge indicator-light, since their system illuminates when complete. That's the opposite of Prius. Of course, there is the possibility that they felt EV need paramount to a plug-in hybrid and didn't care. It's hard to tell. However, that misunderstanding shouldn't last too much longer. The excuse is weak. That indicator education is simple. The charger itself also tells you status of the vehicle plugged into it. For the public charging-station type I use, the screen clearly says "Available" when draw from the vehicle has ended. That's important, since usage isn't always free. If someone pays for service and the cord is removed prior to finish, do you think they will be ok with that happening?
- 8-29-2012** **First Sighting.** YES!!!!!! I saw a new Prius approaching. He was turning left. I was turning right. As I did, the green color stood out. Could it actually be? Sure enough, the emblem said "PLUG-IN HYBRID". My jaw dropped. With only 2 known PHV in all of Minnesota, what was the story with this third one? I had to find out. So, I just stopped along the drive. Sure enough, he pulled up along side me without concern for blocking traffic. His was only 2 weeks old, driven all the way from Portland to vacation out here. Encountering mine (and at that point the wildly excited driver) was quite a surprise for him. So, we pulled into spots and chatted for a bit. That was sweet. The potential for PHV next year when national rollout begins is remarkable. Just listening to the conversation two owners can stir up is powerful confirmation. All the rhetoric about the battery-pack being too small will fade away fairly quick. The simple operation and overall efficiency speaks for itself. Getting the word out about that is the key... something we as owners are happy to provide.
- 8-30-2012** **54 MPG.** That's the new requirement stated in the CAFE rules just revealed. Seeing a fleet average that high seems a bit of a stretch considering how much automakers other than Toyota still have to strive to increase MPG in their variety of vehicles. But then you realize those numbers are different from the measurement EPA provides. The criteria is less stringent. It's easier to fulfill these. Nonetheless, it is an improvement to the current situation. Our fuel efficiency standards are pretty disappointing. The industry lowered them. 40 had once been the goal. Now, we see the combined value down in the low to mid 30's. Considering how long Prius has been available, that's bad. You'd think an effort would have been made to match that. Decades from now, they'll look back at what happened with amazement. Instead, of trying to be competitive, the monster-size guzzlers became popular. Prius actually had to face Hummer as a mainstream choice. What the heck!?

- 8-31-2012** **More Stations.** What a pleasant and quite unexpected discovery today. Within next few months, the plans are to have 2 more charging-stations installed at the ramp where I park for work. That's exciting. When rollout of the plug-in Prius finally starts here in Minnesota, there will be more than just a few token spots available. That's a big plus considering how inconsiderate a few traditional vehicle owners have been in the past. When there is only a spot or two available, people have been known to park there with a vehicle that can't even be plugged in. That's referred to as an "*ICE'd*" spot, since it is used by an Internal Combustion Engine vehicle rather than a plug-in hybrid or EV. With more spots, that's less likely to happen... since the area set off to the side for plugs will be highly visible rather than something easy enough to claim ignorance to. The spot situation is difficult enough when you've got a variety of plug-ins all wanting to use them. After all, who should get priority when availability is limited? And what is the protocol when your charging has completed but you haven't left yet? Is it acceptable for the next person to begin using that charger without checking with you first? For those of us with smart-phones and the connection-service, we'll get notified immediately. How will we respond? Then of course, there's the issue of cost? I have already seen a change from a per-hour to a per-kilowatt approach at one location locally. How will that change over time based on demand? There are many questions. Getting answers starts with having more stations available.
- 8-31-2012** **Efficiency Cost.** That has always been the biggest topic of debate when it comes to hybrids. That's why the cost of Volt has been such a concern by so many. Anywho, on the opposite end of the spectrum is eAssist... or so we thought. The point of that particular technology was making it so inexpensive it would be feasible to make it standard. That seems to be reasonable too, if it actually delivered a decent MPG bump. Turns out, the efficiency difference is only modest and the price way more than anticipated. For Buick Regal, it will indeed be included on all models. However, the 2012 (with eAssist an option) was \$27,055 and the 2013 base (with eAssist standard) will be \$29,015. That's a nearly \$2,000 increase. For a large sedan delivering only 29 MPG combined, that doesn't exactly stir much attention. The hybrid Camry delivers 41 MPG combined and starts at \$25,990. The hybrid Fusion delivers 47 MPG combined and starts at \$27,200. How exactly is GM's hybrid even remotely competitive with Toyota or Ford? This is the concern many of us have been really worried about. Even if things look good at the moment, next year and the following don't appear that way.

- 8-31-2012** **Month End Trouble.** It's getting intense. The friction Volt continues to cause now is worse than last year. That's because there's more pressure to deliver now than there was then. Availability in all 50 states and wide recognition is what makes it different this year. That should translate to higher sales. Instead, the outlook look bleak... just bragging rights among other plug-in models rather than taking the market by storm as it had once been hyped. I tried to injection some realism into the situation, but you know how that usually turns out: GM's own second-year sales projections is what we should keep focused on. They were originally 60,000 annual here, which is the mainstream minimum that's been used for ages. So, it made sense. Volt's purpose is to become a common vehicle, right? As this year began, the number got revised to 45,000. Fine. The adjustment was reasonable, acknowledging a slow market startup but still pushing to get beyond the tax-credit dependency. 2,500 falls well short of the revision, bringing the rate to 30,000 annual. What does that mean? Reading this thread, that s a good question. Not remembering when things happened and the omission of information is one thing. But voting down of facts, how is that constructive? With Ford about to enter the plug-in hybrid market, the mixed messages about Volt will become a liability. Market need must be addressed. Want should not dictate approach.
- 8-31-2012** **Two-Mode Discontinued.** Announcements from GM tend to be ambiguous, so you can never really hold them to a particular decision later on. It's irritating that other automakers are clear about their intent, yet GM still remains as it was in the past. But with all the spin coming from supporters, it really doesn't matter much anyway. Sales end up speaking for themselves. Results of them have been so bad, we get new of Two-Mode being discontinued just before the month comes to a close. The choice to get ahead of the inevitable bad news seems to be a good one. We'll find out soon enough. I'm relieved the nonsense is over. Once hyped as the solution for their entire line-up, it quickly became something only for the large guzzlers. Seeing it not catch on after all these years (nearly 6 now), the time had come. Either we'd see that next generation promised or the program would come to an end. Looks like it's the latter. My summary of the situation was in the form of a comparison, since there's an obvious parallel enthusiasts continue to refuse to address: The Two-Mode aspects of meeting middle-market need closely resemble that of Volt. Even though both delivered significant efficiency improvement, the cost has made them well out of reach. Too much sacrifice was made for the sake of capacity & power. A better balance is required. Problem is, the vehicle won't stand out then... which is not the type GM has wanted to build & sell. In other words, a radical approach shift is required. This decision may be a sign of that actually happening.
- 9-02-2012** **i-MiEV Sightings.** I saw my first Mitsubishi EV, called the i-MiEV, a few days ago at the Minnesota State Fair. Today, we just happened to drive by a dealer. There were 4 available on the lot. It was an odd sight, but still not as out of place as a Smart or Fiat dealer. The radical looking small car isn't what you see on the road around here. Several other cars have mimicked Prius over the years, confirming the sensible nature of the size & shape even for non-hybrids. The lack of basically any hood at all is a step beyond that, not something a traditional vehicle could adopt either. No engine at all and limited range already make selling an EV a big challenge. Visual appeal adds to that. I'd be intrigued to find out what others think. After all, Nissan Leaf much more closely resembles a traditional vehicle. But even with that, sales have been under expectations. I obviously reducing the use of an engine rather than eliminating it entirely. People's needs differ though. It's good to offer a variety. Time will tell.

9-03-2012 **999 Again.** I thought the start of the holiday weekend two days ago presented a rare event, driving the entire day using nothing but electricity. Turns out, today was the same way... 9 miles before... 10 miles this time. That's fun to experience. It's a nice benefit of living in the suburbs. Most of what you need is only a few minutes away and you usually don't need to jump onto a highway. That was indeed the case both days for me. There's no effort to drive with pure EV. It just happens at times. Owning a plug-in hybrid means outstanding MPG. Having an engine that rapidly shuts off is part of that. But seeing the 999 MPG from time to time is still nice. Just think if I had a shorter daily commute. Then I'd see it far more often than an occasional weekend. My frequent road trips means dropping all the way down into the 50's. Can you believe I can tolerate such low efficiency? Imagine if other vehicles had that problem. Sadly, most don't even achieve 50 at their best.

9-03-2012 **Very Very Different.** It doesn't take a rocket-scientist to see what's happening. Sales pressure continues to build. Enthusiast of Volt are clearly on edge. On what's left of that daily blog, I posted: Facts getting voted down is not a good sign. That's a dead giveaway something isn't right. Originating from this statement, *"Toyota beat the advertising drum repeatedly for years to build up the image of the Prius and make it more acceptable and desirable."*, it's fairly easy to see what the actual story really was. Misconceptions were abundant then. "YOU HAVE TO PLUG IT IN" was by far the biggest. All of the early owners were constantly explaining to people how the system actually worked. "CAN YOU DRIVE ON THE HIGHWAY" was a close tie with "HOW OFTEN DO YOU HAVE TO REPLACE THE BATTERY" for the most common questions. Let's not forget how cheap gas was back then and how low of a priority using less was. What would the point be of heavily promoting the first generation knowing the second generation was already well into development anyway? Remember, that's when the switch from sedan to hatchback took place. That change alone would seriously complicate the purchase decision. The fact that Prius wasn't even available on dealer's lots until 6 months before the rollout of that next generation began was another. (Prior to that required direct order and delivery wait.) Why promote something in such limited supply? Long story short, the situation for Volt is very very different.

- 9-04-2012** **August Sales.** Here in the United States, it was a good month for Prius. Sales counts for other hybrids are mixed. The hybrid version of Camry was among those that did well, selling 3,840 in August. That outpaced Sonata with 1,766 and Fusion with 1,071 by quite a bit. The Lexus hybrids aren't doing too bad either... CT 200h at 1,472 and RX400/450h at 1,170 and the ES at 817. The eAssist story is rather odd, Malibu at 2,414 and LaCrosse at 1,024 sold, since that version of Malibu is the only 2013 model available and LaCrosse isn't offered without the hybrid system. So, neither really tells us much about actual demand yet. At with MPG so low, what's the point? The only other noteworthy number to point out is the Lincoln MKZ with 998. As for Prius, there were 13,311 for the regular model, then 3,428 for c, then 3,325 for v. PHV, still only available in 15 states, came through with 1,047 sales. I can't wait until nationwide rollout for the plug-in. At that point, there will be plenty of real-world data to entice sales too. Less than 6 months doesn't tell much of a story yet. Lastly, there were 70 for Silverado, 63 for Escalade, 36 for Yukon, 36 for Tahoe, and 26 for Sierra. Needless to say, this is why Two-Mode isn't something GM is interested in selling anymore. With numbers that low, what's the point? The story for Volt continues, the 2,831 sales in August falls well short of goal and is subsidized by a tax-credit triple that of PHV. Fortunate for Toyota, they have a large market in Japan too, allowing production to take advantage of higher volume... something that's really important when subsidies expire. Next year certainly is going to be interesting. The availability of plug-in vehicles should push hybrid sales highway. The question is, what MPG will consumers seek?
- 9-04-2012** **Plan B.** What is it? Knowing the sales of Volt will continue to be a struggle, what the heck will GM do? What are supporters expecting? What will consumers purchase? Something will be produced in high-volume for business-sustaining sales. What will those vehicles be? What about when the tax-credits expire? The situation is a confusing mess. This is why the media and online-comments go wild. We have no clue what to expect now that hope didn't match reality. Of course, there was no sense of realism in the first place, hence the fallout. It was mostly hype, since there wasn't data to support the claims. Putting all your eggs in one basket is never a good plan anyway. What other high-efficiency offering will there be? And will it actually be affordable? Remember GM's own goal of "*nicely under \$30,000*" when Volt design just began? What is the alternative plan?
- 9-05-2012** **Same Old.** First thing this morning, I was treated to an article comparing the plug-in Prius to the Vauxhall Ampera (that's the European model of Volt). Getting a non-American opinion seemed hopeful. But instead, nothing. There was neither mention of emission-rating or expected efficiency. All it did was focus on EV abilities and portray the design as a stop-gap. This is the modern version of the same old GM support we saw nearly a decade ago. It boggles the mind that such desperation would emerge again. They call the technology a compromise to distract from the reality that it delivers upon business need. In other words, the PHV model appeals to consumers with just the right balance of traits to achieve high-volume profitable sales... which infuriates the competition. But rather than attempt to greenwash, they instead to label it as inadequate. Think that same old nonsense will work this time? It failed miserably before.

- 9-05-2012** **Exaggeration.** To conceal the problem at hand, a common technique is to exaggerate. The thought is over-emphasizing will cause the reader to agree with you and simply dismiss the topic without giving it any further consideration. This example today was a classic: "*Many journalists started writing stories that GM shut down because lack of sales... that the sales had gone down to nothing.*" I never saw anything claiming an absolute like that. It was surprising a supporter would even attempt such deception, but that's common practice in politics. Heck, keeping people from wondering about detail is what we see in television commercials all the time. Sadly, it's easy to distract... especially when there's brand loyalty as a factor. Needless to say, I wasn't thrilled about reading that and fired off this in response: Nothing? No. It was said that supply was much greater than demand, that there was already enough inventory available to sustain sales for awhile. It made sense too. GM had anticipated a demand of 3,750 per month. Selling at a rate of roughly one thousand less and meant dealers didn't need to have any new ones delivered soon. Profit is lost when unsold vehicles sit on the lot. Avoiding that is good business.
- 9-05-2012** **Facing Reality.** Some just plain don't want to. Volt didn't meet expectations. I helped the process along today: The withholding of CS-mode efficiency data was the first sign of expectations not being realistic. The MPG following depletion fell well short of what had been hoped for. Then came the reality of heater demands in Winter. No matter how many times we pointed out the impact to EV range electric-heating would have, the enthusiast just plain did not want to acknowledge it. They even fought intensely against the benefit of having a HOLD button, despite the reality that it could help overcome that problem. The reason for resistance was obvious. They wanted to differentiate Volt from Prius... hence all the "*vastly superior*" chanting we had to endure prior to rollout. Now there's the reality of acceptance. PHV delivers great all-around efficiency and without the need to consider purchase of an aftermarket charging-station. PHV also comes close to middle-market pricing without dependency on tax-credits. Energi availability will change the dynamic too, creating more pressure to compete with an array of features rather than just heavy EV focus. The reason for the "*too little, too slowly*" concern will become more apparent in the next year. Time is not abundant. Reality will be faced. Change will be required.
- 9-05-2012** **Accord Plug-In.** Details revealed by Honda today about their upcoming hybrid with a plug were interesting. It will have a 2-liter gas-engine, a 124 kW electric-motor, and a continuously variable transmission. Since the system uses clutches, it's a confusing mess trying to figure out how the system actually operates. Supposedly, it will be totally electric up to 62 mph. What happens faster than that and once depleted is still unknown. The 6.7 kWh Li-Ion battery-pack will supply 10 to 15 miles of EV travel. It takes up a large chunk of the trunk, making it narrow & tall. Since the pack itself is located behind the rear seat, there is no fold-down or pass-thru available. How consumers will perceive it is anyone's guess. Price will obviously have a big influence. The EV purity is what I'm curious about. Utilization of electricity on-paper differs quite a bit from reality, since most people's expectations don't account for all the variables at play in real-world driving. Simple things like the need for heat are a big unknown until you actually sit in the driver's seat. I know this firsthand, having owned a plug-in Prius for almost 6 months already. Time will tell.

- 9-06-2012** **Japan Sales.** August was yet another strong month for Prius in its domestic market. 23,828 of the liftback model were purchased in Japan then. The count for the c model was great too, with 19,076 purchase there. Imagine if we saw that many here. Not only would Prius be mainstream, it would be near the top. There were times in the past when sales spiked here, but never were they sustained. The thought of not one but two models accomplishing it would be clear evidence of traditional vehicles losing their title of common. Someday, the standard choice will be hybrid. Sadly though, that won't happen here anytime soon. As the technology continues to be refined and batteries enhanced, the thought will become reality. After all, the business-sustaining aspect of is already. Long gone are the days of being dismissed as a niche. Yeah!
- 9-06-2012** **15.2 Miles.** My record continuous EV distance has been 17.5 miles. I made it all the way to work, taking the long route, ending with 0.3 remaining after having parked. The morning temperature was 88°F. That's well above the norm here in Minnesota, so I don't often refer to that particular experience. Here, the maximum EV distance I've seen on a regular basis on my morning commute has been 14.1 miles. So, today when it hit 15.2 miles, I was left scratching my head wondering how that happened. The drive was quite typical, a mix of hitting lights green & red with medium traffic... nothing I haven't seen routinely. The variables at play are plentiful. Even someone with a heightened awareness like myself can miss all the circumstances there are to observe. This complexity is why we tell owners to "Just Drive It". The response to random outcome can lead to a misinterpretation of how it was achieved. So like me, we just point out the observation for the sake of giving others an idea of what the system is capable of delivering, but carefully avoid setting that as an expectation.
- 9-07-2012** **Intersections.** It's rather surreal when you pull up to an intersection in a plug-in Prius when there are already 3 more Prius stopped there. The other vehicles were an old-school Pontiac and a Smart Car. Where have the monster-SUVs gone? To think that they, along with giant pickups, dominated the roads. I still remember, years back sitting in the Prius at an intersection with my father, pointing out that my vehicle was the only car there in that crowded maze of traffic. Things certainly have changed. The claims that \$4 gas wouldn't have the influence protagonists stated were indeed the case. Clearly, consumer preference is different now. A quick survey of any store parking lot confirms that. The lust for size & power has vanished. It's as if that ugly chapter in our history never happened. Seeing so many Prius now on the road does an especially good job of validating progress. Symbolically, the intersection well represents what's happening. The stop & go marks the end & begin. The guzzlers are fading away. Yeah!

- 9-07-2012** **Available In Canada.** Today, sales of PHV began in Canada. It's nice to see that market finally getting an opportunity to purchase. I'd go nuts not having any way at all to purchase one until sometime next year. Purchasing mine in California then having it transported to Minnesota is unusual, but knowing a great salesperson out there made all the difference. Now, I can collect & share real-world data to help others with their decision... here in the 45 states that PHV isn't available in yet. Canada is different. You cannot cross the country border as I did with the state. It gets very complicated. Things like warranty coverage and safety/feature configuration are the same here, so it's no big deal. Paying the appropriate sales tax and titling isn't too terribly difficult either. There, the option to purchase elsewhere simply wasn't available. Being that far north, there's the obvious desire to enjoy the new vehicle before Winter sets in too. I understand the situation, but can only provide so much vicarious experience. Now, they can firsthand. Sweet!
- 9-08-2012** **Vastly Superior.** The past week has been loaded with examples of flagrant bragging. There have even been cries of "*traitor*" to those who purchase an imported vehicle, even though that import significantly reduces the importing of oil and provides employment for many here. This is likely why the membership has increased significantly on the big Prius forum and participation on both the daily blog for Volt and the big GM forum has dropped significantly. We are at a turning point. In other words, this is the transition from enthusiast to mainstream. That's putting tremendous pressure on need, which is a big departure from all the attention previously place on want. The difference between this and the past is scale. The time has come for a solution for the masses. Needless to say, there isn't any reason to participate on the struggling blog & forum anymore... except one, trolling. They've been dropping quite a bit of bait lately, calling me out by name and surprised I don't respond to all their taunting. I finally did. This was my favorite quote: "*He is just loathe to admit that the PIP is inferior. Yet anyone with even a bit of honesty would immediately point out the fact the Volt is vastly superior as an EREV. It has no compromises in its drivetrain.*" I responded to it with: Except cost and engine efficiency and emission rating and... Of course, there is no solid definition of what "EREV" actually means. There's just vague references to speed & power, both of which are blurred by the plug-in hybrids Ford & Honda will be offering. Again, ordinary consumers have different priorities. That's why they purchase cars like Cruze & Malibu.

- 9-08-2012** **Battery Size.** It was inevitable. Seeing how great the MPG is from the plug-in Prius, argument tactics to favor Volt are changing. Attention is being diverted to battery-size. They are attempting to portray the PHV approach as too small. Since most people have no concept of scale, they are hoping the same appeal other bigger numbers had in the past will now apply to plug-in vehicles. Assuming bigger is better is the key, hence moving away from the detail MPG provides. This is the quote on this new topic got me going: *"You mean the 4.4KWh battery that ONLY powers the car in EV mode if you drives like grandma?"* It's sad to realize they think that will work. These are different times. Consumers are no longer compelled to purchase more size & power than they actually need. The financial consequences of that choice have been quite painful. Repeating that mistake is unlikely. Many have learned that lesson the hard way. Anywho, this was my response: Greenwash. You get 4.4 kWh of electricity benefit regardless of how you drive. My morning commute includes 9 miles of driving at 70 mph. Again, so what if the engine runs? I see +100 MPG for each of the 1-minute segments on the consumption-screen while cruising at that speed. The benefit comes from the engine running at extremely low RPM (varying between 992 and 1024). That rate consumes very little gas, hence the high efficiency. Having the engine run is a big deal in Canada and the northern states too; it allows the heater to take advantage of hot coolant.
- 9-08-2012** **Sonata Hybrids.** I sure have been seeing a lot of them around here lately. Minnesota has many Prius, which can be attributed to a number of supportive factors. So, it really isn't a surprise that is happening with this newcomer. It makes me more curious than ever what will happen with C-Max when it becomes available in a few months. Following that, both the Ford & Toyota plug-in hybrids will debut here. I can't wait... though, I'll have to. It would be rather strange rolling them out until Winter is well away. That's a long time from now. We're just seeing the first signs of Summer ending now. Anywho, I doubt many people notice those hybrids as I do. To them, it's most likely just another Sonata. Sadly, they probably aren't even aware a hybrid model is available.
- 9-08-2012** **Politics.** It doesn't matter what the topic is. The same old rhetoric can be found. I closely follow the claims about hybrids. So, I'm quite familiar with the circumstances of how those hoping to undermine progress function, like raising doubt. No matter how much information you provide, it's never enough. They mislead ordinary people to take a counter-productive stance themselves too. For hybrids, it was always the "save money" argument. Since when isn't just breaking even the goal? Why must you somehow come out ahead instead? And how will that raised standard actually be measured? The devil is always in the details. Don't allow vague sound-bites to dictate outcome. Without specifics, they can basically say anything they want and just later claim their statement meant something else or was misunderstood. Sadly, the examples of this with hybrids are plentiful. Setting of unrealistic expectations is another that comes to mind. It's all quite frustrating... which is why there are so many who simply avoid politics. They know how insincere the comments they hear can be. Oh well. Stand true and continue to provide lots of real-world. That speaks for itself, allowing consumers to make their own decision rather than be told what to think.

- 9-09-2012** **No Charging.** Today was my first ordinary day (not vacation) when I didn't recharge at all. There were 4 separate drives... one to the coffeeshop... one to the grocery store... one to the lake for a walk... and one to do family stuff at mom's. 25 miles was the total distance traveled. The result was 57 MPG. There isn't much else to say. The efficiency is outstanding even when you don't plug in. The hybrid system shines even without extra electricity. I don't plan on ever doing this particular test this often, it just worked out to be a nice opportunity to observe what happens. After all, there will be circumstances where it simply isn't realistic. In this case, I couldn't reach my garage since there was work to be done on the driveway.
- 9-09-2012** **Keeping it real.** That's very important. It's why I've refrained from filming my commutes until the weather cools down. In the depth of Summer, the battery-pack delivers above average capacity. Showing that would establish unrealistic expectations, especially on those days with really warm morning commutes. It's the same reason why each post includes an on-going average with values measured at the pump. The real-world data speaks for itself. No cherry picking, just an all-inclusive summary of my usual activities. Over the years we've seen others set themselves up for failure through misrepresentation, portraying a technology in a way that the everyday person will not experience. It's hard to believe they cannot see how poor of a choice that is. They get hung up in the excitement and cling to the group-think of enthusiasts. With my 6-month anniversary rapidly approaching, I'm really looking forward to creating a document that provides summaries & detail along with a story of what I've experienced so far with the plug-in. It's like the next level to blogging, where you look back and reflect upon those events.
- 9-10-2012** **\$3.89 Per Gallon.** The price of gas is climbing. That doesn't surprise anyone, especially with hurricane shutdowns influencing oil supply. We're boiling the frog though. That old cliché fits the situation well. As temperature rises, the frog doesn't notice. Eventually, that point of being too late is reached. The frog simply dies. We're seeing exactly the same thing with how much people are willing to pay for gas. They just tolerate it to the point where all of sudden the guzzler vanishes. \$4 seems to be the limit for many. I delight in seeing the shiny new replacement in their driveway, something much more efficient than previously. In fact, I cannot recall when I last saw a new guzzler. Some of the purchases are even Prius. More will be hybrids over time. After all, the misconceptions of the past are long since disproven. How could anyone argue them with so many on the road now? Well, Prius is plentiful. Slowly, the economy is recovering too. Not seeing people flock back to the old ways of disregarding MPG is satisfying too. Just look at the television commercials. What do they highlight now? Priorities have change. The price of gas is clearly having an influence.

9-10-2012 **Getting Worse.** Long story short, GM faces a serious dilemma. The explosive commentary online today about cost verses price draws attention to that. The situation we feared is now a reality. We were led to believe Volt would take the industry by storm in 2010, a design which would "*leap frog*" Prius in every respect... because it was a "*vastly superior*" technology. That obviously didn't happen. Now here comes a number of automakers offering plug-in hybrids, including Toyota, Ford, and Honda. It's exposing the difference between want & need. GM's heavy dependence upon financial incentives to sell the only high-efficiency vehicle they have to offer makes the bad situation even worse. What are we waiting for? Who will actually benefit from it? How will the next generation solve the long list of needs to fulfill? It's an ugly problem that's quickly growing worse.

9-10-2012 **6-Month Report.** Here's the real-world data I've collected so far with my 2012 Prius PHV:

9,316 = Total Miles

184 = Days (6 months)

85.1 = Lifetime MPG

109.4 = Total Gallons (measured at the pump)

909.2 = Total kWh (including charging losses)

3,596 = EV Miles (displayed amount)

5,713 = HV Miles (displayed amount)

794 = Total kWh (displayed amount)

293.3 = Recharges (based on capacity replenished)

assumption: one full recharge, including charging losses = 3.1 kWh

9-11-2012 **Pressure.** GM's campaign against hybrids a number of years ago was unbelievable. Now, the situation and circumstances are quite different, yet some keep trying to portray it as if it's still the same. That's not constructive. Toyota delivered a product designed for middle-market. GM clearly didn't... could have... but chose not to. The decision was to make an attention-getter instead. Remember the "*halo*" statements? The results of that choice are now making themselves apparent. The pressure to deliver a configuration suited for mainstream consumers is building. When will it become so blatant we'll get some type of actual plan? That doesn't seem likely yet, especially with enthusiast responses like this: "*It must kill them that the Volt is the number one selling plug-in vehicle in the world.*" That old trophy-mentality is undermining Volt's own success. Notice how there hasn't been any television or radio advertisements for the plug-in Prius? I'm continuously hearing & seeing them for Volt. Spending a lot on promotion along with dealer discounts is an acceptable way of introducing a new product, but that's not sustainable and it's been nearly 2 years. Pressure is building.

- 9-12-2012 Cannibalization.** That is indeed a big concern. Seeing how much Volt enthusiasts celebrate conquest sales, it's pretty obvious how "*alternative*" perspective is still a barrier. Yesterday, I was interviewed about my plug-in. The guy was somewhat surprised when I stated the choice to purchase a hybrid was "no brainer". After having driven them for over a decade, why wouldn't that be the norm at this point? The push of traditional vehicles instead was inevitable. Automakers have been resisting change. Thankfully, the introduction of plug-in hybrids will help to push regular hybrids (the full type anyway) even deeper into the mainstream. I'm thrilled by the quantity of 2012 Prius that I encounter on the road now around here. Hopefully, that hints at the potential PHV has when it finally becomes available. Nonetheless, we'll still see lots of promoting that portrays MPG in the 30's as "*highly efficient*". Unfortunately, I cannot sight any information source as to what motivates purchases now either. We see efficiency rising in priority, but the factors which compel consumers to purchase a traditional vehicle instead elude me. My guess is lack of real-world data. With all the greenwashing effort at play, it's easy to see how confused they could be about what to actually expect. In other words, I see 2013 shaping up to be a pivotal year and owners playing a major role to increase marketshare. We cannot just watch the flat trend continue. Growth is a must, especially with fallout from GM's efforts working against the hybrid market.
- 9-12-2012 Other Plug-Ins.** Discussions of a constructive nature simply don't exist anymore. The groups in direct support of Volt just plain don't want anything to do with the Toyota or Ford plug-in hybrids, and we certainly are getting antagonist posts on the big Prius forum now. It more confirmation of change. Another was the attention brought to the Honda today. That upcoming Accord will be the first with two electric-motors. So, some of the operation will mimic what we recognize with the FULL hybrids, but it will utilize clutching more like Volt. The design blurs the line for EREV even more, further emphasizing the importance of actual outcome rather than advantages assumed on paper. Anywho, this was my contribution to the madness: Efficiency increased significantly from a battery-pack small enough to conceal is key. It keeps cost in check while at the same time keeps the plug from interfering with interior layout. 85.1 MPG is my average from 6 months of Prius PHV driving 9,316 miles. I plug in each evening and usually at work. I've taken a few +100 mile trips as well. That's a significant improvement over my 2010 and dramatically higher than what any traditional vehicle can offer. The goal is to deliver something for mainstream consumers. That means a balance of priorities, like other mainstream vehicles, not pushing for maximums.

- 9-12-2012 New Commercial.** The first with the plug-in model is now being shown on television. It carry a catching tune and simple lyrics: *"This is a car that loves to have fun. Mile after mile, to and from. Now there are four for all to use. Tell the neighbors, your friends, everyone the news. Let's Hum Hum Hum Hum, Let's Hummm, A Prius for everyone. Now there's a bigger one if you want more space. A small one if the city's your place. And even one you can plug in. So hop on in and give one a spin. Let's Hum Hum Hum Hum, Let's Hummm, A Prius for everyone."* The liftback (regular model) drives by the v (wagon), then drives by the c (compact), then by the PHV (plug-in). You see an animated man plug it in too. This is followed by all 4 of them driving along a scenic road. It's one of those carefree advertisements with an obvious message. Toyota wants consumers to be aware that there are now 4 distinct models available. It's a basic introduction which should serve well. You're obviously not going to make a purchase decision with so little information. But then again, what in the world were promoters thinking in the past when showing you how their vehicle performed while sliding sideways on dirt? When would you ever actually do that? I enjoyed seeing that. I think it will effectively spread the word too.
- 9-13-2012 Refrigerator.** A large electronics retailer is closing a nearby location. That meant clearance hunting. Little did I know the compact refrigerator I've had my eyes on for awhile would jump out at me. But with such a huge discount, how could I resist? So, I pounced on the opportunity. It shocked the employee sent out to load that into my car though. She had assumed Prius was a small hatchback. The refrigerator, though technically having a "compact" label, offers dual doors and 4.5 cubic foot of interior space. That makes it mighty big in a box. I smiled, then lifted the 95-pound beast... slipping it effortlessly into the cargo area. When I shut the hatch and turned around, I was greeted with a dropped jaw and wide eyes. She had no idea a Prius could so easily swallow up such a large purchase. It was really sweet getting such a reaction. People fall into the trap of assuming. I definitely got her with that. Then I pointed out it was a plug-in and silently drove away. What a great experience!
- 9-13-2012 Promotion.** Have you noticed how Toyota's first television commercial with the Prius PHV didn't actually feature it? There was simply just a mention that a plug-in model was available. There really wasn't any fanfare at all. In fact, this is the first. It took 6 months to hear just a peep. That's a drastic difference from what GM has been doing with Volt. It was advertised heavily even before rollout and I hear & see commercials on radio & television everyday. This is one of the many reason I was constantly frustrated with the enthusiasts. They'd claim GM was following in the very same steps as Toyota, doing the same thing with Volt as had been done with Prius, but turn a blind eye when evidence like this was presented. They'd also claim GM was starting from scratch, pretending no knowledge or experience whatsoever was gained from EV1 or Two-Mode or BAS. It amazed me that they'd see only what they wanted to... and claim that's what you were doing. Thankfully, the promotion difference paves the way for other opportunity. The most effective means of "advertisement" for Prius has always been owner endorsement. That continues with the Prius family. All Toyota is doing is simply point out the availability of other Prius models. Owners themselves spread the detail. They allow us to influence demand. It's like allowing people to walk wherever they desire. Eventually, a path will form. That's the best place to pour the cement for a sidewalk. Don't tell people what they want. Provide the opportunity to choose. Long story short, one size does not fit all and a good product shouldn't need a lot of advertising.

- 9-14-2012** **Game-Changer.** It's quite remarkable when those passionately supporting Volt actually agree with what you've been saying for years. They won't admit it, but their actions speak for themselves. The forums & blogs plainly confirm the situation. The statements have been quite terse, though surprisingly long-winded despite the clarity. Volt is a platform for the future, not the game-changer in had been hyped to be. It's not going to draw interest from those considering the purchase of a Cruze or Malibu. Cost won't come down for a number of years still. Just like with Two-Mode, expectations for what would come next have been totally absent. They really get upset when you draw attention to the parallel circumstances too. Seeking acknowledgement of need has been the point, to push a shift away from the trophy-mentality for the embracing of feature middle-market demonstrates as priorities instead. With both Ford & Toyota poised to offer their plug-in hybrids as mainstream choices next year, the most recent exchange of online posts was quite predictable. It's what happens when pressure builds from \$4 gas.
- 9-15-2012** **Changing History.** Fallout reaction never ceases to amaze. Changing history is the latest attempt. That's pretty desperate. We all know how different things appear looking back a decade later than they do at the moment they are unfolding. Countless details are left out and the outcome back then was quite uncertain. But since things are proceeding so much slower for Volt than supporters ever imagined, they now have nothing else to try. Heck, even shooting the messenger didn't work. Yet, they persist, still trying to paint a rosy picture. Reality is, conditions are very different. Time isn't a luxury as it was all those years ago. Gas is \$4 and there won't be something cost-effective for many years still. It's an ugly situation. Effort is being wasted on defense rather than offense. That's very unfortunate. Reacting instead of being proactive is what we tried to prevent. Of course, they don't want to acknowledge that particular history. We're stuck with rhetoric, nothing actually constructive... just pointless arguing.
- 9-16-2012** **Potential.** GM's choice to place all it's eggs in one basket with Volt continues to be a problem. There is no hybrid equivalent to help it advance design quickly, bring production costs down, and assist with reliability reputation building. Remember, supporters of Prius were stressing the advantage of the power-split approach way back, since the very beginning. We pointed out how plug augmentation later would allow the same system to deliver much higher efficiency simply through the use of more battery power... which is precisely what ended up happening. From another perspective, Volt reverts back to tradition vehicle efficiency after depletion. Prius doesn't. Prius remains a high-efficiency vehicle even when depleted. That means a model without a plug is very realistic... which is quite obvious now, but was highly debated ages ago. The one-size-fits-all promotion is another problem. Look at Camry. That hybrid system offers much more power. Consider the size of Prius v. Think what would happen if those two vehicles got merged. Think what would happen with a plug were added. Think about the all-wheel drive that the Highlander & Estima hybrids already offer. The potential is very easy to see. With Volt, what's going to happen? This topic of production temporarily being halted should have stirred that type of discussion; instead, we get spinning about history & purpose. That's clearly not a good sign.

- 9-16-2012** **As Winter Approaches.** That rhetoric from others is almost entirely gone now. Focus has clearly shifted over to Prius, specifically how the plug-in operates as the temperature drops. The question which really stirred specifically addressed the heater. I was happy to jump in with: Heat from the engine does not defeat the purpose of having a plug. You still get an extremely efficient system even when the engine runs. Just look at what happens when you accelerate onto a highway when the system is cold. The result is MPG above 50 during warm-up. That's a fantastic worst case scenario. Heat comes from warmed coolant. Once warm, the engine will shut off. It will remain that way until the coolant temperature drops below a threshold (which is 114°F in ECO mode and 145°F in Normal & Power). The engine will then start up and run. It doesn't take long for that threshold to be reached at the engine shut off again. So while driving in EV, the engine will cycle on & off. That's actually the same as what happens with the regular model Prius, only you have much more power available when driving with the engine off. For me, with heavy commute congestion caused by snow, I remember being shut in hopelessly slow traffic watching the engine start up every 8 minutes. That seems like a surprisingly long time to have the heater running without the engine providing any warmth to the coolant... until you witness it firsthand and think about how Prius was designed specifically with heat creation & retention as a priority. Remember, heat is also needed for cleansing emissions. So generating it quickly is very important.
- 9-16-2012** **\$3.99 Per Gallon.** Last week closed with oil at \$99 per barrel. That pushed the price of gas here to \$3.99 per gallon. Normally, we're on the lower side. Now, we're somewhere in the middle. Living on either coast would be more expensive... hence many of those states targeted first for plug-in rollout. Of course, that may be one reason why we adopt rather quickly here. Out wait is longer. Anticipation can be an effective attracter. Anywho, seeing gas hit the \$4 more often is clearly having an effect. There's a push for small traditional vehicles. That puts pressure on the plug-in offerings, making it the priority of cost even more important. This is a critical time, when opportunity should not be disregarded. Unfortunately, that's exactly what's happening. The downplay continues.
- 9-17-2012** **Auto Start-Stop.** 12 years ago, Ford boasted about delivering this ability. It took until now for it to finally happen. Needless to say, hope differed significantly from reality. What will consumers think? If most of your driving is non-stop, benefit of having the engine shut off when not needed won't account for much. There's the problem of still needing to run the cooling-pump and A/C system too. Fusion will be the debut vehicle to offer the feature. It adds \$295 to the purchase price. How will MPG even be interpreted? The savings is likely less than the margin-of-error a computer estimate could provide. It's a strange option to sell on a 2013 vehicle, now that plug-in hybrids are available. It reminds me of FFV sales. Getting people to spend extra (in that case, the ability to use E85 fuel) on something that should really be standard didn't work well. Demand was so low, the promotion just fizzled away. It never became standard either. The idea just basically died. This probably will too. I certainly haven't heard any consumers or even consumer-groups wanting it.

- 9-18-2012** **Temperature Dropping.** The days of morning commutes with the temperature in the mid-70's are gone. That means EV capacity will be somewhat reduced and the engine will run for heat from time to time. Yesterday's temperature on the way to work was 54°F. First impression was that I could already see a change. But then again, I was driving a bit faster than usual. I don't expect to see results above 200 MPG anymore on the fast route. That was quite normal for the 70 mph route. In this case, I pulled into the parked spot seeing 168 MPG for the average on the display. Early this morning I had to run an errand, so I won't have full capacity available for the drive to work in a few minutes. The temperature was 45°F. It certainly isn't Summer anymore. Fall has arrived. Fortunately, EV power isn't diminished. My climb up that steep residential hill didn't require the engine. 40 mph uphill with electricity is no big deal with battery-pack delivering 38 kW (51 hp). That's why cruising at 62 mph without the engine is also routine. Anywho, it's getting colder. Discussions about Winter are growing.
- 9-18-2012** **Roadway Recognition.** It finally happened. Hooray! I was at an intersection. The woman starred over with a look of disbelief, then excitement. She rolled open her window, pointed to the "Plug-In Hybrid" emblem, then yelled: "*I even like the color!*" That was my first roadway recognition. I wasn't expecting it. So, the surprise was extra exciting. Next year, when you can actually purchase a Prius PHV in Minnesota, the story will be different. Having to buy one now and have it shipped over or flying out to drive it back is highly unlikely... hence her disbelief seeing mine. Not being alone is what I'm looking forward to. With so many Prius on the road, mine blends in. Other owners will notice the subtle differences though. In the meantime, I'm preparing for the big freeze. The approaching cold-season brings new opportunity... stuff I'll experience firsthand, but won't be able to share with anyone else in person. Oh well. There will be some from other northern states online posting their experiences. Mine will be about long exposure to very cold conditions. Other will be more about snowy driving. They'll have even less of a chance of getting recognized. Roadway encounters will be quite limited. I'll relish this first one. It's a good memory.
- 9-19-2012** **Overkill.** The chapter having closed is obvious. Even the offense effort on the big Prius forum has fizzled. We've moved on. What started as subtle downplay amplified as the time progressed, turned into some rather intense exchanges. At this point, it's very easy to see that Volt is overkill, the same over-engineering problem we've seen with other consumer products. A good analogy is trying to sell a SLR camera to someone who is simply looking for a point & shot. Arguments about value are valid, but they don't actually fit requirements and are more than the budget can afford. Toyota's priority focus differs significantly from GM, which Volt enthusiasts now see... hence so much of the old propaganda falling on deaf ears. The mainstream audience simply isn't looking what had been given so much attention. Reality has set in.

- 9-19-2012** **New Behavior?** It's difficult to answer questions about Prius operation, now that there's a smaller model that uses a different engine & motors. Assuming behavior isn't new seems reasonable. Why would tolerances like temperature differ? And if they did, it wouldn't be but a large amount. Though, there are modes to choose from. Fortunately, observations so far have matched postulations. So, now that daily temperatures are dropping, new questions have been relatively straight-forward to answer. Asking about the heater is what I can see as a very popular post topic. Winter performance is often what convinces those toying with the idea of a Prius purchase to take the plunge. It's nice knowing aspects like reliability and battery-life are no longer top concerns. In fact, we rarely hear about them anymore. Simple things like heat availability are the focus now. Cool. (pun intended) Anywho, my response to one of those questions today was this short & sweet reply: ECO mode reduces the temperature tolerance of the engine coolant in the regular Prius from 145°F to 114°F, meaning the engine will shut off sooner. I suspect Prius c has the same shut off point. It's one of the benefits of ECO not realized until the cold season arrives.
- 9-19-2012** **0.1 EV Miles.** Several times this week alone, I've ended up pulling into the driveway with just 0.1 miles of EV remaining. It's quite clear that you become familiar with your surroundings after awhile. I take advantage of that HV/EV button, toggling the engine on when electricity alone is not the most efficient choice. That is pretty much always when on the highway. But there are a few times when driving home I see that a long suburb stretch would be better driven in hybrid mode. It takes surprisingly little thought about when to do that too. It's to the point of almost being automatic. I figured that would happen eventually. This soon was a nice treat. With the screen right there in front of you, that really doesn't take much effort to contemplate need. It's like how you estimate arrival time getting home so you don't miss the start of a television show. No matter where you are, the guestimate is remarkably accurate despite all the factors of influence to consider.
- 9-20-2012** **Middle-Market.** I ultimately asked this in response to the endless spin about target & goals: "*What is Volt attempting to achieve now?*" It's an attempt to look ahead, moving beyond those still spinning the past and shooting the messenger. My question followed yet another attempt to redefine middle-market, which I replied to with this: No matter how many times I answer the question, it keeps getting asked. The reason why is simple. The answer wasn't liked and raising doubt is an effective way to prevent conclusions from being drawn. That report about plug-in electric vehicles just published highlights the painfully slow progress anticipated for them. Fortunately, Toyota took the priority of affordability very serious, designing a plug-in system that would significantly improve efficiency without requiring a large battery-pack. That targets it squarely at mainstream consumers, those who have considered the regular Prius but would like more from the system. The simplicity of a full recharge from an ordinary household outlet in just 2.5 hours and getting a big MPG boost regardless of driving is compelling. The fact that the system can be augmented even further simply by increasing battery-capacity makes it a competitive platform. Unfortunately, that's not what GM delivered. They're trapped with an inflexible design and the consequences are becoming apparent.

- 9-21-2012** **Done.** The sure sign that discussions are done is when there's nothing constructive posted anymore, when it degenerates to nothing by stirring old history and shooting the messenger. That's what happened with Volt. The enthusiasts cherry-pick data, then accuse you of being hypocritical & vague. It's the same pattern of spin we've seen for years, nothing new. The response to expectations not being met is textbook, quite familiar & predictable. It does get messy though, since some of the information they present is misleading due to it not having happened when they imply it did. That's what makes fact checking so difficult. Few people have detailed blogs as I do, allowing them to search for a very specific mention of something. It allows me to ensure the attacks, simply allowing them to fizzle out due to lack of substance. That made this particular quote an especially appropriate one nice to conclude with: *"You have become just as bad as the anti-hybrid anti-prius folks in the early 2000's. Blowing hard with nothing behind your statements."* And I did: For that to be the case, I'd have to be against plug-in vehicles entirely, just as those opposing hybrids were against any use of battery & motor. The proper comparison is being just like those who opposed Two-Mode, seeing it as an expensive approach without the ability to reach a wide audience quickly. And sure enough, that's exactly what became of it. I see the market for plug-in hybrids being embraced soon, not having to wait for a next generation design or being dependent on tax-credits. I also own one already, with lots of real-world data to back my statements.
- 9-21-2012** **Battery Questions.** Some do come up still, from time to time. Fortunately, most are easily answered... like this one: *"I have a few cordless tools that the batteries need to be replaced every few years. I guess it is a different technology."* That's quite difference from many years ago, when there were fierce undermining assaults launched by very determined antagonists. Nowadays, there are innocents queries from those hoping to become Prius owners. Thank goodness. The information I posted from seeing that particular comment was: The hybrid doesn't allow deep discharges, which is what shortens the life of rechargeable batteries. There isn't any protective mechanism to prevent that on your cordless tools. They cannot just fire up an engine to continue operating; instead, the battery gets stressed. After all, think about how often people ignore low indicators... using their phone until the very last moment of electricity is squeezed out. That just plain won't happen with a regular or plug-in hybrid, since the system automatically controls that for you.
- 9-21-2012** **On Paper.** When all else fails, that's how a vehicle is promoted. Calculations derive from assumptions & generalizations. The numbers shown are idealizations, not what you should actually expect. Real-World driving isn't like that. There are no patterns when it comes to the everyday needs of ordinary consumers. They don't adhere to any type of routine. Quite of a bit of variety occurs. Just between food & entertainment, it doesn't take much to imagine the lack of anything predictable. Add a child to the equation. What happens? You end up running all over the place. From day to day, results will vary dramatically. It's simply not realistic to read a review and hope the results are what you'll get. That's why the rhetoric is able to persist for so long. Those hoping to undermine just feed you fragments of information that's out of context and not in sequence. They confuse & mislead. It's the same old greenwashing we've seen over and over again. The only difference now is that effort is focused on plug-in vehicles rather than regular hybrids. It's really unfortunate, but quite predictable. Avoid on-paper calculations from others. Watch for detail from owners.

- 9-21-2012** **Explosive Reactions.** The topic of Volt sales sure is creating a lot of buzz online. Last week focused on cost. This week, the focus has shifted to leases. How does an automaker make money when it offers a lease at a price clearly undervalued? Last month, the deal was \$250 down and \$199 per month for 2 years. That doesn't make sense for a vehicle so expensive, especially considering it had been \$299 per month for 3 years. Again, to stimulate the market is one thing, but initial rollout is long since complete. In fact, the mid-cycle upgrade is now available. So, finding out that roughly two-thirds of the "sales" last month weren't actually sales is quite unexpected. Having a bunch of lease returns to sell on the eve of a next-generation debut sounds like a formula for large losses. How can that be a good thing? The resulting higher numbers we see now give the impression all is well though. Reading through the comments posted, you hope for the best. Sadly, there wasn't much. I did find a rebuttal article though. It took the downplay perspective, calling this Volt one for early adopters and telling us to be patient for the next generation. That brings us back to the source of the explosive reactions, hype. Having called Volt a "*game changer*" for so long and claiming it would "*leap frog*" the competition set expectations too high. Now, enthusiasts are in damage-control mode dealing with all the fallout resulting from the hope they themselves had contributed to.
- 9-22-2012** **Newbie Observations.** It's always fun confirming the observations of a new owner. Their posts are filled with excitement detailing their own personal discovery. My contribution to that today was: Yup, you nailed it. Slowing down can be rewarding. I discovered that years ago, even before getting a Prius. Back then, it was less about efficiency and more about simply keeping a steady pace. A fast speed-limit gives the impression of better, but that often doesn't work out that way. Turns out, going slower is much more appealing than the ever-changing variety you encounter from big highway congestion during commutes. Having a display in Prius clues you into the MPG benefit from exploring alternative routes, even when there's a few stoplights thrown into the mix. It's worthwhile to try other roads. Efficiency gain can sometimes be counter-intuitive. And yes, with a plug you notice the same type of efficiency bump. Of course, the advantage of an electric motor becomes more pronounced at higher speeds with that extra electricity available. But the gain from drives through the suburbs is obvious regardless of Prius model. Have fun continuing to discover the advantages the hybrid system has to offer.

9-23-2012 **10,000 Miles.** It only took 6.5 months to drive that distance. Almost all of it was "warm" weather. True, it spent a number of days near the freezing mark and even got snowed on overnight. But that was brief. Only now is the temperature dropping again. Two days ago, it 52°F on my morning commute. Yesterday, it had dropped to 46°F. This morning, there was frost on the windows. I didn't recharge either, giving myself a firsthand experience with cold engine warm-up again. It was basically like with my 2010 Prius, but could have been ever so slightly faster. It's hard to tell with just casual observation. Anywho, the next 6 months and 10,000 miles won't be the same as the first. My average was 85.0 MPG, measured at the pump. That's 117.637 gallons of E10. The calculated total (using 3.1 kWh per full recharge) for electricity was 973.1 kWh. I'm looking forward to the discovery process a new Prius always brings. I suspect recharging the pack just prior to departing will offer the advantage of warmth from the exchange of electricity. I have a feeling the EV will be more handy than anyone has anticipated, since most tend to forget how awful stop & slow traffic is from snow. Who wants to remember that? Having 3 years of real-world data collected from the 2010, it positions me well for PHV comparisons... especially living here in Minnesota.

9-23-2012 **10,000-Mile Report.** Here's the real-world data I've collected so far with my 2012 Prius PHV:

10,002 = Total Miles

197 = Days (6.5 months)

85.0 = Lifetime MPG

117.6 = Total Gallons (measured at the pump)

941.7 = Total kWh (including charging losses)

3,824 = EV Miles (displayed amount)

6,171 = HV Miles (displayed amount)

851 = Total kWh (displayed amount)

313.9 = Recharges (based on capacity replenished)

assumption: one full recharge, including charging losses = 3.0 kWh

- 9-24-2012 Diesel Returns.** I couldn't believe what was be posted today. It was a repeat of the same old stuff, literally nothing new. It was as if I was reading an old thread from the past. Only, I wasn't. This was about the upcoming diesel version of Cruze, which requires AdBlue to cleanse emissions. Remember than nonsense? You needed about 7 gallons of the stuff for every 15,000 miles of driving. It is sprayed on the exhaust to chemically treat it to be cleaner. Problem is, the result is barely clean enough to pass the minimum. Prius is on the opposite end of the emissions spectrum, without even needing an additive. I posted the following in response and still in disbelief: Reading the very same responses to the very same topic now as several years ago suggests the outcome will be the same too. How will this diesel & urea attempt be different? We now have a greater choice of hybrids, some offering significantly higher efficiency. The smooth & quiet from battery & motor is quite a contrast to the mild clatter of a turbo diesel. Many hybrids offer significantly cleaner emission ratings as well. And reliability has already been proven. Heck, even resale value remains high. So if anything, it will be an even greater challenge to attract diesel buyers. The added cost and higher fuel price doesn't seem to make it competitive either. What's the point, especially with eAssist being spread to other vehicles?
- 9-25-2012 Lease Comparison.** I stumbled across a deal for the advanced model plug-in Prius. It was for the New York City area. \$2,399 due at signing and \$269 per month for 3 years, plus an acquisition fee of \$650. There's also a \$350 disposition fee when the lease ends. That's far more realistic than what GM is currently offering for Volt, just \$250 down and \$199 per month for 2 years. Those offers represent quite a difference. Comparing them doesn't even require a calculator. One is realistic, something you'd expect to see anyway. The other is unusually low. Makes you wonder how long the offer from GM will last. I'd expect some type of change after month end. But then again, maybe not. There's so much emphasis on monthly sales, the hope is the low lease gamble will pay off later. You never really know how things are going to play out.
- 9-25-2012 Sales Reality.** This is what I was greeted with this morning: *"So let's stack the Volt against cars in its own category – plug-in electric – the Volt is the runaway winner. In August, at 2,800 sold the Volt was on its way to tripling the Toyota Prius PHV's 1,047 sales"*. Such blatant greenwashing is vindicating. It was frustrating in the past, but now I see it as competition desperation. Why would you mislead like that? Anywho, I responded with: Since Volt is available in triple the number of states, that statement is clearly not constructive. How about this? *"TMC expects global sales of its hybrid vehicles to well surpass 1 million units in 2012. With its plan to launch 21 new hybrid models between now and the end of 2015, TMC expects to maintain this level of sales, forecasting global sales of its hybrid vehicles to be at least 1 million units a year from 2013 to 2015."* What are the plans for Volt? The mixed messages we are getting from GM leaves us wondering what to expect. There's no competitive hybrid, just eAssist and diesel. Two-Mode appears to be discontinued. And the volume for Volt is far short of mainstream minimum. What will middle-market be purchasing in high-volume?

- 9-26-2012** **Chrysler Testing.** The small fleet of plug-in hybrids Chrysler had been testing (109 trucks and 23 minivans) have been showing signs of trouble. Some battery-packs have been overheating. That's a real problem when a vehicle depends exclusively upon electricity without an engine for propulsion. Unfortunately, detail about the design itself has been all but silent. Supposedly, these hybrids utilize the Two-Mode system, but simply have a larger battery-pack. Due to the clutches, it can easily disconnect from the engine for electric-only travel. That sounds nice, but puts more burden on the electric draw than an air-cooled battery could reasonably allow. This is why Toyota, Ford, Honda, and Hyundai have all decided the maximum speed for electric-only will be 100 km/h (62.1 mph) and set a maximum draw rate. Beyond that could result in too much heat... hence having engine join in when a tolerance is exceeded. This is why Toyota tested their plug-in Prius for 2 years using ordinary consumers. They needed real-world data to confirm the design was a sensible balance. Chrysler was smart enough to try the same thing. Fortunately, that revealed a problem which could be dealt with prior to rollout. This gives them the opportunity to alter the way the system behaves as well as try other battery types & configurations, then try again.
- 9-27-2012** **What's Left?** It's somewhat bizarre seeing Volt enthusiasts provoke and get virtually nothing in return. People simply aren't interested anymore. They've moved on. With 2 years of fading attention, there really isn't anything remaining. You really do have to ask what's left? The newest attempt to justify the slow pace is more downplay. Rather than actually acknowledge the original plan of 5,000 per month or even the revised expectation of 3,750 per month, the entire industry production is now being taken into consideration. Mainstream minimum is a dream long gone. They are counting all luxury, sports, and exotic vehicles. Including the rare is a bit desperate. But when you do that, it places Volt somewhere in the middle. How does that make any sense at all for a technology that intended to become the next standard in automotive design? The downplay has become such a routine, they abandon their own push for progress. When you begin undermining your own goals, something is clearly not working out. All they have to do for confirmation of that is read their own posts from 2 years ago.
- 9-29-2012** **BRAKE!** Quite unexpectedly, I discovered another Prius safety feature. The previous was having the system sound an alert and flash a warning (an image of a vehicle) on the screen when you do nothing to acknowledge the presence of a vehicle you are approaching. It knows when see it when you either lift your foot from the accelerator or press the brake. I hadn't considered what it would do when the radar (part of the dynamic cruise-control which is always active) detects a vehicle but you already have your foot off the accelerator. The system recognizes that as danger too. But rather than providing a generic do something alert, it's flashes "**BRAKE!**" on the screen. Seeing that was sweet! I was quite impressed; however, it left me scratching my head wondering how I'd ever be able to actually catch that event on photo or video. That's too much of a risk to trigger intentionally. Darn. Oh well. At least I know the safety feature exists. That most definitely isn't common. Too bad. Maybe some day.

- 9-29-2012 Road Trip.** We jumped in the Prius, stuffed with cargo and 2 bikes on back. 168 miles later, all of which were in HV mode, the result was 48 MPG. No complaints about that. In fact, that's rather remarkable. Compromising the aerodynamics of the car with so little sacrifice to the resulting efficiency is fantastic. That was a great endorsement to the technology. Unfortunately, that will reduce my lifetime average, since returning home likely won't be on a warm windless day like it was today. That point of simply having fun and getting to escape on a road trip won't be lost. I still have a big chunk of the EV range remaining too. Don't forget that regular hybrid driving depletes it, just not at the rate electric-only driving does. It's a Prius after all, seeking out efficiency opportunities for the best utilization of battery power. The consumption of EV capacity was 2.5 miles, dropping from the original 12.9 estimate to 10.4 miles. Stay tuned for the report of the drive back home.
- 10-01-2012 No Driving.** Today was one of those rare ones, when I didn't drive anywhere. That sure makes data collecting easy. Fall colors beckoned. It was beautiful weather. We went for a hike around a local lake, took lots of photos, and didn't use any gas or electricity. The Prius sat there parked in its spot, unmoved, unused. We had fun without it. There's always tomorrow!
- 10-02-2012 1,652 Sold.** What can be said about seeing that number? It's a clear gain from Prius PHV sales the month before. September showed an obvious improvement. I'd say that's good news, especially since the plug-in model is still only available in the initial 15 rollout states. Growth should continue... regardless of how those supporting other hybrids spin the situation. Next year will be different anyway. National availability will be a welcome change. And as with the precedent Volt established, we await the second-year results prior to making judgment. I doubt supporters will actually abide by their own request, since the hypocritical nature of the situation is difficult to deny. They'll likely try anyway. Thankfully, other choices from other automakers will become available. That diversity will help settle down the polarization we are currently still having to deal with.
- 10-02-2012 969 Sold.** That's an impressive number for the debut sales-month of C-Max hybrid. It's well short of Ford's direct competition though, the v model of Prius. There were 3,088 of them purchased here in September. But that's ok. Toyota has more of an ally than a competitor anyway. Many of us with Prius already see it as a friendly rivalry, helping to accelerate the acceptance of hybrids as the standard market choice. In short, it's a very good start. Hopefully, the situation won't get spun into some pointless flag-waving exchange. That's often the case when it comes to GM. Thankfully, that usually doesn't happen with Ford. So, the outlook is a positive one. This represents genuine progress. It's what the mainstream needs.

- 10-03-2012 Efficiency Chatting.** Talk of engine improvement coming from Toyota has stirred again. Direct-Injection will be introduced next year, first deployed in a hybrid. Specifically, the Crown hybrid will get it. In Japan, that's the equivalent of our Camry hybrid here. What a great way to start. New engines for the traditional vehicles will shortly follow, using direct-injection as well. This obviously translates to what we've been hoping for all along, the next generation Prius offering even greater efficiency. The hints given so far seem to indicate an overall increase of 10 percent. Talk of even higher MPG from other advances will add to that. Other automakers have already demonstrated the gains to be achieved. Toyota's focus on other priorities left them playing a bit of catch up. Though, the timing now nicely coincides with the usual upgrade cycle anyway. That certainly gives us something to look forward to.
- 10-03-2012 61 MPG.** We took a side-trip today, driving even further north. There were no bikes this time. Specifically, we went all the way to the very start of the Mississippi River, the headwaters where it is nothing but a tiny stream emerging from Lake Itasca. That was a unique experience. There just happened to be a forest fire in the distance then, which filled the state park with smoke. That resulted in photos quite unlike what countless others have taken at that same popular location... a strange twist of good fortune. It was a bit on the cold side. There was very little wind on the way up, hence the smoke settling. Later on, it turned into a substantial crosswind... which ended up clearing up the sky, providing a great view of Fall colors. We drove to and climbed up the (now rather ironic) fire tower. That consumed 7 miles of EV, which was a true delight. I thoroughly enjoyed the scenic vista using nothing but electricity. The drive back home was pleasant, despite the wind. With a maximum travel speed of 60 mph and use of some plug-supplied electricity, the resulting average from that 198-mile journey was 61 MPG. I'd say that was great efficiency.
- 10-04-2012 Fall.** It has arrived. There was much to learn about the plug-in during Summer. I would have liked to document it more with video. But I it took all the resources I had available just to get a good jump on discovering what PHV has to offer. Sadly, the warm-season is all too short here in Minnesota. Fall is nice, but accepting the transition can be a challenge. There's a bit of denial that certain outdoor activities just plain aren't realistic now. Anywho, the dropping temperatures will bring about additional discovery. The most obvious is the pressing question of blocking the front grille. Fortunately, the answer is simple. Yes, I will. The routine won't change because this Prius has a plug. The lower part of the grille will be blocked entirely. The upper part will be exposed entirely. That worked well in the 2010 model for the past 3 Winters. The engine still gets the air it needs to operate, but the cooling of the coolant is greatly reduced in favor of retaining that precious heat. I wait until the daily high no longer exceeds 55°F degrees. That's when first notice warm-up taking longer. It's also when you fire up the heater... since morning temperatures routinely are below freezing. Enjoying Fall colors has been the hope, but the leaves are falling remarkably fast this year. There aren't any vibrant reds or oranges either. It's not as exciting as other years. That's why focus is more on what having a plug is like instead.

- 10-04-2012** **Leader?** Taking some time to enjoy Fall colors, checking the stir from monthly sales have been a low priority. But now that the weather is blustery (cold, rainy, windy, and overcast), peaking into the online world is actually a nice change of pace. Kick back and be amused, eh? Yup. Volt supporters are up to the same old spin... avoiding mainstream comparisons and failing to mention the plug-in Prius is still only available in 15 states. Whatever. The rest of us see what's really happening. I especially looked forward to reading the comments from Detroit. With sales of Volt steady, the headline saying "*Volt expands its lead among rechargeable cars.*" had me wondering. Sales of Volt only increased by 20, from 2,831 to 2,851. Sales for PHV increased from 1,047 to 1,652. That's 605 more for Prius, reducing the gap not expanding it. Turns out, there was almost nothing said online. People have grown tired of the nonsense. Even this on the big GM forum didn't get much of a reaction: "*Volt is doing well in it's market but that doesn't make it a good car for GM.*" The progress is far slower than what's needed. It's obvious attention has moved elsewhere. I kept it simple: The competition for Volt has been and will continue to be GM's own product-line. Traditional vehicles hold a massive share of the production and clearly remain the business-sustaining revenue source.
- 10-04-2012** **Understanding Plug-In Hybrids.** The difference between Prius PHV and Volt became confusing when GM revealed thrust from the engine is used directly sometimes. The purity of electric-only was suppose to set Volt apart, but it ended up not delivering upon its own distinctiveness goal... making an understanding of approach & intent anything but clear. Soon, Ford will enter the mix. Their plug-in hybrid blurs the technology promotion further. That makes sense though. Each automaker must not impinge upon other patents and each has its own expertise. Honda makes that point a big one. The descriptions of their "*Hybrid*", "*Engine*", and "*EV*" drives are destined to be confused with the operational modes their plug-in hybrid will offer. Fortunately, that's actually a good thing. Rather than the looks-good-on-paper problem we've had to deal with so far, people will turn to actual real-world data instead. Yeah! The fact that Honda's plug-in hybrid doesn't rely on liquid cooling either will just be an important fact for those understanding production costs. Consumers won't care. Consumers will care about having a HOLD button though, which Honda offers. Of course, GM now offers that too. So, there is hope. I'm thrilled that those we had viciously fought against it now claim there was never any doubt of its benefit. PHV supporters remember though, since Toyota offered it from day one. Long story short, the industry making progress toward identifying standards & expectations for the masses. The rhetoric & propaganda is being replaced by feature & data. That sure is a nice change.
- 10-04-2012** **Jetta Hybrid.** It looks like it finally will actually happen. With so much being invested in diesel, it made everyone wonder how VW would ultimately compete. The hybrid will be available the end of this year. \$24,995, plus a \$795 destination charge, is the price for the base model. There will be a 27-horsepower electric motor combined with a 1.4 liter turbocharged gas engine. They will be connected to a 7-speed dual-clutch transmission. Maximum electric-only speed is expected to be 44 mph. The estimated efficiency is expected to be 45 MPG combined. Both the automatic & manual diesels only offer an estimate of 34 MPG combined... making the hybrid an obvious efficiency leader for their product-line. No one has any idea how VW customers will respond. The hybrid is quite a shift from their approach in the past. But with the price of both gas & diesel continuing to rise, something needed to happen.

- 10-04-2012 Wagon Sightings.** Spending a few days up north sure revealed a surprise. The wagon model of Prius (known as "v") certainly is popular. Away from the cities, that tends to make sense. I can easily see the need for more cargo room out in the country. There were plenty of regular models. But the lack of the smallest (known as "c") seemed to confirm that impression. Routinely sightings of that many of a new offering being chosen is great. Taping into another consumer demograph is exactly what was hoped for. Antagonists claimed the other models of Prius would take away sales from the regular liftback. Clearly, that didn't happen. Instead, sales have actually increased a little. Combine that with sales of the new, you've got confirmation of growing demand. 2012 is working out to be a really good year. That's quite a contrast to the multiple disasters in both 2011 and 2010. The competition should be pleased that the market itself is expanding. But in the short-run, I bet they're not feeling that way.
- 10-05-2012 Emergency Stop!** I had to hit the brakes really hard. It wasn't a case of slamming them and hoping for the best with the anti-locks. This was a stop as fast as possible while monitoring the obstacle in front and the vehicle following behind. A very large turkey had wandered onto the road, which I was traveling on at 60 mph. It took up about half the lane. That's a big bird. Hitting it with the Prius was obviously undesirable. Swerving into the opposing lane wasn't an option. I had no choice but hope a controlled stop would do the trick. It did. Phew! There was a strange sound though. Both me and my passenger got pulled tightly back into our seats. The sound coincided with that. It was the shoulder strap. I had no idea that in the event of an emergency, it would tighten up rather than just lock as with vehicles of the past. That's a new safety feature I was unaware of. Sweet! Discovering that made me really happy. The turkey was pretty happy too.
- 10-05-2012 Snow.** It snowed this evening. The heater was running on a low fan-setting & temperature the entire drive. Just like with the regular Prius, the plug-in kept the engine off until the coolant dropped below 114°F. Unfortunately, our journey was over 50 miles and the drive through town was really short. The rest was country highway cruising. So, I don't really have much else to report yet. Though, during the brief warm-up period, I did get an opportunity to try out the heated seats. The effect with the new synthetic leather felt nice. Anywho, it won't be long before I block the lower grille. Fall was way too short this year.

- 10-06-2012** **New Attack.** Hype about Volt is long gone. The silence about last month's sales is deafening. The big GM forum had virtually nothing to say. Several days later, on a new thread specifically about Volt sales and speculation about a Voltec product-line, a new attack emerged: *"Comparing the 2011 4cyl Buick Lacrosse to the 2012 version with eAssist yields an MPG improvement of 31.6% city and 20% highway based on EPA ratings. Not too shabby IHMO yet for whatever reason, the inexpensive and effective eAssist technology continues to get ridiculed and flogged by certain "hybrid snobs"... "* Among those listed as snobs, there was the big Prius forum, which was also called "anti-GM". There are obvious attempts to build up a new following, since the old has completely fallen apart. There are many names from the past gone now, enthusiasts disenchanted from the rollout not meeting expectations. So this outcome really isn't a surprise. It was inevitable something else would emerge to take the place of Volt's struggle. Anywho, I had to respond to such a blatant attempt: Whatever reason? 29 MPG combined is terrible! Taking about lowering our standards. Ford's hybrid Fusion delivers 47 MPG combined. Toyota's hybrid Camry delivers 41 MPG combined. In GM's own words, it is a "stop gap" technology. How can it compete? Unlike the Ford & Toyota designs, adding a higher capacity battery-pack and a plug isn't realistic either. What's the point? There's a massive product gap between eAssist & Voltec too. What more reason do you need?
- 10-06-2012** **Dang Good.** That was my assessment of the 168 miles of driving I did today. It started with an ice-scraper. With the outside temperature at just 34°F, snow from the night before wasn't melting quickly. There wasn't much, but it certainly was a taste of what's to come. You sometimes forget about the bliss the warmth of Summer brings. But then again, the cold-season can be fun too. It's quite different though. And with a plug-in hybrid now, it's bound to be exciting. Anywho, I was up in northern Minnesota without anywhere to plug in. So, I only had 1.2 miles of electricity available. With so little remaining, the entire trip would basically be just with the engine supplying the energy. I had a cargo area stuffed full, a passenger in front, and 2 bikes to carry on the back. It was a great scenario to see how the Li-Ion battery-pack would perform compared to the NiMH. Having done that same trip the same way in the past, I was expecting low 40's for the outcome. Instead, the result was 47 MPG. That's pretty dang good. Heck, some hybrids at their best cannot deliver that. This situation was far from ideal, yet the efficiency was still worthy of celebration. Yeah!
- 10-06-2012** **\$4.69 Per Gallon.** Why gas is currently that price in San Francisco is a bit of a mystery. Other cities in California have also seen a sharp rise in price. It is a bit odd. Reason isn't getting much attention though, timing is. There's a major political election rapidly approaching and hybrids are poised to benefit significantly from gas trouble. When consumer wallets & purses are squeezed, change happens. Embracing hybrids isn't a big deal anymore either... the affordable models, that is. But with the price so high, even the expensive ones may see a decent bump in sales. It's hard to predict how people will react. After all, the monster-size guzzlers used for commuting have pretty much vanished entirely. Now, we're seeing a steady growth in small cars and a drop in how much consumers are willing to spend. It's a thought-provoking new trend. What will happen? Some automakers will be well positioned. Some automakers will struggle to adapt.

- 10-07-2012** **Attack Escalation.** Sure enough, the effort to divert rapidly degenerated into a full blown attack. That was very easy to see coming. With so much being driven by emotion, you cannot expect a constructive response. Rather than just answer the "*What about the product gap?*" question asked, the focus shifted to Prius reliability, specifically the transaxle. That's quite desperate considering how well proven it is. Ford uses a similar approach too. But it's what happens when no other rebuttal is available. I found the remark quite telling, especially since product offering was the topic. There was a discussion about what GM's high-efficiency plans could be. Why not address the issue? That seems quite appropriate. Needless to say, I didn't fall for it. My response was to point out the situation and ask again: Red Herring responses to distract from the question being asked say a lot about the situation. There is nothing available or even planned between a 40 MPG traditional vehicle and a +100 MPG plug-in. We see the other automakers revealing their designs to address the need with both advanced hybrids and plug augmentation. From GM, there's eAssist and Voltec, nothing in between. The lack of choice is missed opportunity. Asking again, what will GM do about that product gap?
- 10-07-2012** **Backup Cameras.** It looks like NHTSA (National Highway Traffic Safety Administration) will be enforcing an improvement to passenger vehicles starting with 2014 model years. Comments about that have been mixed. I think it is a move long overdue. This is the comment I posted: Prius has had a dashboard screen since 2000. It seemed a no-brainer for other vehicles to also offer a visual interface, yet they didn't. There's a large variety of feature which could be offered. Why the heck has it taken so long? The fact that it took an act of Congress to finally issue a federal, mandate based on a safety benefit goes to show how painfully slow the automotive industry is to accept change... even something so obvious. Parking lots are filled with hazards a back-up camera could easily reveal. Why didn't this happen much sooner? Think about our younger generations. How many of them already carry a portable device with a screen, many with a camera too. It's absurd that vehicles don't have that standard. Heck, screens are ubiquitous with mp3-players and cell-phones. Look at how many aftermarket navigation systems were sold because there wasn't a screen available in the dashboard already to offer that option. But like other safety features of the past, it isn't much of a surprise that the automotive industry was finally pushed to deliver this. They resist right up to the bitter end rather than embracing improvement technology as it emerges.
- 10-07-2012** **Future Mandates.** I tossed this thought into the mix, quite curious what discussion it will invite: Pre-Collision will likely become a safety mandate someday too. Having a vehicle with short-range radar (a component of dynamic cruise-control) respond with an sound & visual alert when it detects danger in front of the vehicle is an obvious improvement. Mine has been triggered twice already over the past 6 months. In both cases, I saw the danger at that same moment. But the heads up was really nice to have. Another benefit is that it gives passengers, who are obviously less attentive, a notice... since the driver will be too preoccupied to do so. Envisioning delay in widespread offering of that feature is easy. Change for the better is usually met with lots of resistance. Fortunately, resistance is futile.

- 10-07-2012** **Repeating History.** We've heard this countless times before: "*When you are above 40mpg, you are using little enough gas that another 10mpg, or even 20mpg increase becomes insignificant.*" This part is new though, now that plug-ins are available: "*Above 40~50mpg, the next step is to just go gas free, ala the Volt.*" That's what the attack mutated into. It's hard to believe such an argument would even be attempted. But with so much pressure now, the willingness to try isn't a surprise. My feedback was: I went from 50 MPG to 85 MPG. That means my annual 20,000 miles of travel will use roughly 165 gallons less gas. At \$3.89 per gallons, that's \$642 each year. From 40 MPG, that would be around 265 gallons, about \$1,031. Who will be convinced that's insignificant? Consumers will see the difference, taking the cost of electricity and time to plug into account. They'll wonder why GM doesn't offer a "Volt lite" model, an affordable choice, then purchase one from another automaker. The next step is clearly not the current configuration of Volt.
- 10-08-2012** **Great Commute.** The morning drive to work today sure was exciting. I hadn't taken the route along the river for quite awhile... mostly due to road construction. That's over now. Yeah! I now had the opportunity to indulge, enjoying a maximum speed of 55 instead of 70 mph. The slower roads usually mean a more relaxing flow, rather than speed variance being all over the place. To my surprise, all but the final few lights were green too. It sure was nice. Too bad I wasn't filming that particular experience. Oh well. I did get photos. A stoplight caught me with just 0.8 miles of EV remaining. At that point, I had already traveled 15.5 miles using only electricity. The quality my new camera can deliver for screen captures is stunning too. A faster processor, extremely high resolution, and a very large sensor really make a difference. The engine didn't start until traveling 16.1 miles. When I finally parked, the total distance was 16.6 miles. The average displayed was 999 MPG. Is that a great commute or what?
- 10-08-2012** **Need verses Want, part 1.** The final page in the last chapter of a very long saga was presented today. The founder of that daily blog for Volt is selling his Volt. He'll be getting a C-Max Energi as a replacement. This upcoming plug-in hybrid from Ford shares many design aspects in common with Prius PHV. We saw many signs leading up to this, so there's no reason to dwell or even emphasize his particulars. It's frustrating to know antagonists will make the decision personal anyway. We all knew something would happen when his lease expired. But the assumption was that he'd simply upgrade to a newer model then, not get a different plug-in. Needless to say, I had thoughts to share on the big GM forum: I'm intrigued to see how the reaction to this plays out. Those once very passionate enthusiasts frustrated with the struggle of Volt are having their comments drown out by others now. They no longer have the voice they once enjoyed. Those others see what Toyota has delivered and what Ford is about to, wondering why Volt is supposedly "*vastly superior*" when evidence to the contrary is becoming easy to find. Each time new information about Volt came out that revealed another goal had not been achieved, they made up excuses. Who did they think would be convinced it was still a design with high-volume potential? Sales have confirmed their worse fears too. Acceptance is far slower than they even imagined. The demand isn't there to break out beyond a niche. Ordinary buyers simply aren't interested. And how does attacking Prius help? Geez! That's when you know things aren't going as planned.

- 10-08-2012** **Need verses Want, part 2.** This was my follow up, after reading some not-so-kind posts about the decision to sell: It's the classic want verses need situation. We've seen it before. We'll see it again. We'd all like more power & capacity. But in the real-world, there are other priorities. Volt enthusiasts were lured by the purity of EV and the belief it could be affordable. That didn't happen though. It turned out to be an ideal not realistic for the masses yet. The vehicle rolled out has disenchanted many. The technology will take time to adapt, straying from what had been hoped for to a more practical design. Mainstream consumers don't make purchases based on desire anymore. They did, but that world has faded away as lessons from the past are learned. The market is different now. This is the other shoe dropping. Gas is quickly getting very expensive and other automakers are beginning to offer their designs. Remember, traditional vehicles continue to be the true competitor. For a hybrid or plug-in hybrid to become a replacement for the masses, it must fulfill the requirements those traditional vehicles do as well as offer much improved emissions & efficiency.
- 10-09-2012** **Need verses Want, part 3.** When posts now contradict posts of the past, it's obvious something isn't going as planned. Consider what changed. Finding that Volt enthusiasts (those few remaining stubborn die-hards quoted many times here, not excited new owners) have become hypocritical leaves you in a difficult position. The ideal is to simply keep the discussion going in that direction. It sure is tempting though to point out how what you supported years ago is the same as what they are now saying. In fact, I even got a quote today to that effect: "*Why doesn't anyone at GM listen?*" It confirms the same thoughts are being shared. Of course, I wondered that 5 years ago when details of the Volt development didn't correspond with actual need. The executives & management were setting goals based on what they wanted to deliver, not what mainstream consumers had as purchase priorities. They weren't listening when we pointed the decision factors considered by middle-market. It was as if nothing at all had been learned from Two-Mode. Unfortunately, the enthusiasts liked what they were hearing and willingly accepted promises at face value, without merit or even bothering to ask for detail. It was terrible to watch. As it unfolded, more and more became disenchanted until there were only niche buyers remaining. They called themselves "*early adopters*" but didn't recognize how they differed from those who bought Prius in the early years. When rollout finally did happen, things were a mess and rapidly got worse. Within a month, the situation got really bad... so much so, that founder became curiously quiet. Then he sold the website and basically disappeared. This was a person held in high respect by many, including me. Then we got the news yesterday. That marked the end. Even those Volt enthusiasts are now seeing what's really needed, how different that is from what they wanted.

- 10-09-2012** **Steady Rain.** It was a uncommon event. Rain like that has been infrequent, especially on my daily morning commute. Conditions have been near the drought level, in fact. So today when rain fell steady onto the highway, we all slowed down and got trapped in our own congestion. It was a taste of what's to come this Winter, since even just a trace of snow will cause slow commutes. Needless to say, I was excited. That was an opportunity to observe a situation hypothesized countless times. How would the PHV handle it? There's much more battery-capacity available than the regular model Prius. Running out of electricity is quite typical when trapped in heavy traffic... especially when you have to run the defroster to keep condensation from building up on the windshield inside. Now, I had an ample supply available. The benefits of a plug were about to reveal themselves. Guess what? They did. I happily drove along in that stop & slow traffic without any worry of the engine starting from the demands of the morning mess. Heck, I could even be quite generous with the accelerator-pedal. There was still 4.2 miles of EV estimated. That was plenty to get be well beyond the chaos of those vehicles. In fact, that would likely be enough to get me all the way to my parking spot. Guess what? It did. The 16.7 mile journey ended with 0.3 EV miles remaining and an average of 166 MPG. With results like that in those conditions, you don't mind the traffic.
- 10-10-2012** **Misrepresentation.** Now that the situation & audiences changed, it was time to start a new thread on the big Prius forum. It could serve as a venue to share observations. The hope is to provide an opportunity to step back, no longer tying events of the past to anything or anyone specific... a stab at starting fresh. Titled "*Plug-In Prius misrepresentation*", I quite curious how members will respond. If nothing else, it is a constructive endeavor to raise awareness. This is what I posted to get things going: I started participating on other forums & blogs upon discovering incorrect information about the upcoming Prius PHV (plug-in model) was being posted. That activity still continues... even though owners are now providing real-world driving data to contradict their claims. Worse yet, attempts to clarify are perceived by some as an effort to undermine the competition. They use vague references to make your posts appear to portray PHV as superior... even though the detail provided was simply clarification to show misrepresentation. This thread was started to compile a list of common problems those particular enthusiasts of the competition refuse to be constructive about. Feel free to post your encounters.
- 10-10-2012** **Grille Blocking.** I started another new thread on the big Prius forum. That's something I normally don't do, since it's usually better to let the new owners take charge. Then owners with lots of experience & knowledge help by providing information for them. In this case, it wasn't realistic. There are too few plug-in Prius owners in the north to make that effective... and essentially, we're all basically new still. I'm aware of what to look for though. So, I got us going with this: The practice of grille-blocking for Prius dates back a number of years now. It is done to reduce warm-up time and to extend heat-retention time. Both result in the improvement of efficiency & emissions during the winter months. Lots of real-world data exists for the second & third generation liftback models of Prius, but there isn't anything yet for the first plug-in. This new thread was created to collect that information.

- 10-10-2012 Coolant Temperature.** This is the first of my observations, research prior to blocking the grille: My commute (fast route) to work is 3 blocks of suburb driving, 9 miles of 70 mph highway, then the remaining 6.5 miles at speeds below 60 mph. I trigger the engine at the second block by toggling the HV/EV button. Entry onto the highway and the entire distance in the fast section in EV-BOOST mode, which usually delivers an average of 115 MPG. At the slowdown point, I noted the coolant temperature had risen to 172°F with the outside temperature at 34°F and the grille not blocked yet. Unfortunately, I didn't note what the coolant high-temperature was back when it was still summer while driving that same route. Oh well. 34°F is quite warm for winter in Minnesota anyway. It will get much, much colder. Anywho, the next 5.5 miles of driving were all in EV mode, with the engine off. That meant the coolant would cool fairly quick without any of the grille blocked. To my delight, it didn't too much. When the engine did eventually start back up, the temperature was 118°F. While driving that final stretch, I watch the temperature rise to 132°F and the overall efficiency drop to 155 MPG.
- 10-10-2012 Sunset Photos.** I was running an errand after work, driving along the river valley. The sun was setting. With the ceiling of clouds opened up just enough on the horizon for the sun to peak out, I was starting to get excited... and a bit concerned. I had my new camera along with me. I had studied the settings and felt confident I could take sunset photos at a moment's notice. That time had arrived... but where? I needed an open area with nothing but trees in the background and enough length to allow the capture of a wide cloudscape. Could I find such a location within the next few minutes? There was a park down in the valley itself. I wondered... then took the chance. Yeah! It appeared to be a good choice. But dang, there was someone right behind me appearing to be concerned I had the same idea. Sure enough. Fortunately, she didn't want her vehicle in her photos and wanted close-ups instead. Stopping at the location I abruptly chose made us both quite happy. We both snapped up a bunch of photos. It just a few minutes, the dazzling array of rapidly changing colors was just a memory. Phew! I actually got a bunch of nice sunset photos, the first with my Prius PHV. And to my delight, the special LED lights on my advanced model look stunning in that particular situation. See... [photo album 178](#)
- 10-11-2012 Discredit Efforts.** They continue. That shouldn't be a surprise to anyone anymore. In fact, spin has become an expectation. At this point, we've basically heard it all too. You say something, they change it. They say something, they change it. Sticking to facts just plain doesn't happen; acknowledging goals doesn't either. Strangely, that's kind of a good thing. It confirms progress is being made. Rather than speculation as in the past, we now know. The denial of certain individuals makes it rather obvious: *"Every owner I know doesn't get the EPA in their Prius - or "massages" the data like John."* Statements like that will be amusing to read back again later, as a reminder once that person finally moves on. The antagonists do eventually give up. But they hold on until evidence contradicting them becomes overwhelming. Here's what I contributed: I set the cruise-control on my trip up north last week. In HV mode to preserve the EV for later and with 2 bikes on back, the 168-mile drive resulted in an average of 48 MPG. Despite that aerodynamic compromise and letting the car manage speed, I still came within 1 MPG of the EPA. The entire trip, driving up there without the bikes, then the return home came to a total of 701 miles. That distance had 2 recharges, using 6.2 kWh total, including charging losses. The displayed gas consumption was 10.24 gallons. That works out to an overall of 68.5 MPG. The real-world data speaks for itself. Attempts to spin & discredit won't undermine that.

- 10-11-2012** **6 Miles.** My most recent example of intention misrepresentation of the plug-in Prius was to spin the EPA sticker mention of "6 miles" as the only capacity available for EV. The troublemaker totally disregards detail of the measurement itself, pretending the reality of the engine shutting off after that high-demand moment at the 6-mile mark doesn't happen. They want you to believe the entire plug-in capacity is already depleted then and absolutely refuse to acknowledge you've actually got more than half remaining still. My personal highest is 17.5 miles. The other day, I got 16.1 miles. Neither was an effort to milk EV distance either. It just worked out that way. Most of the time it's close to 13 miles... which clearly higher than 6. In the past, I found those efforts to undermine frustrating. Now, the feeling has transformed to vindication. Such an obvious attempt to mislead confirms the real-world results Prius PHV delivers are better than they had hoped.
- 10-11-2012** **100 MPGe Combined.** That's the big news today. It's the official rating C-Max Energi just earned. (108 city and 92 highway are the other MPGe values.) This upcoming plug-in hybrid from Ford has a higher combined value than Volt, which gets 98 MPGe. So, you can imagine the stir online by tomorrow. Prius PHV delivers 95 MPGe. A smaller battery-pack (4.4 kWh compared to 7.5 kWh) made the outcome quite predictable. In fact, that's why Toyota & Ford are thought of more as allies rather than true competitors of each other. They share the goal of wanting to produce an affordable plug-in for the masses, soon. That's quite different from Volt, which has transformed into a long-term venture instead. Replacing traditional vehicles starts with delivering something realistic for high-volume sales right away. This is what we are seeing emerge now. The timing is great. The rating is great. The excitement is building.
- 10-11-2012** **C-Max Spin.** It only took a matter of hours. Rather than allow attention to focus on Volt, there's a clear effort to keep the spotlight on Prius instead... by demeaning it. That figures. Ironically, that's a great way to get people to abandon GM hope. A good old fashion rivalry between Ford & Toyota will be great. That will benefit both... leaving the Volt enthusiasts without an audience. Anywho, this was the first attempt that emerged: *"The c-max hybrid and plug-in versions are better versions of the Prius. I've heard that you can reasonably drive the c-max in all electric mode (unlike the Prius where if you sneeze the gas motor comes on)."* I found that rather amusing, since it's so easy to disprove. This is how I responded: How much longer can that misrepresentation of Prius continue? Currently, claiming the engine starts from anything but the lightest pedal touch is easy... since many people still assume behavior based on old reports. My guess is within 3 months of nationwide rollout that will end. The bigger battery-pack offers more electricity to draw. That translates directly to more propulsion power. A simple test-drive experience reveals a Prius that easily handles suburb driving without gas; however, that isn't the point of a plug-in hybrid. The point is to deliver a significant emission & consumption reduction. The message of *"all electric"* is promotional angle, not a goal. And when the engine does run, you still get over 100 MPG while electricity is available. What's wrong with that?

- 10-12-2012 More Data.** Here's yesterday's observations, without the grille blocked yet: It was 43°F outside. Traffic on the 70 mph stretch was pretty routine, except for the big trunk merging out at the 9-mile mark. That caused me to slow down a half-mile sooner, to 60 mph... which caused the engine to shut off. At that point, the coolant had warmed up to 175°F. I almost made it the 16-mile mark (specifically to 15.9) entirely in EV mode before running out of electricity. The coolant temperature had cooled down to 118°F by then. A few minutes later, arriving at my destination with coolant warmed back up to the point where the engine shut back off. The act of running brought the temperature up to 132°F and topped off the battery-pack enough to allow electric-only driving in HV mode. And I did, to the ramp and up to my usual parking spot without the engine. There, the display said I had traveled a total of 16.7 miles and had an overall average of 163 MPG.
- 10-12-2012 Still More Data.** Today's observations were intriguing. Starting out at 34°F outside, I thought it would closely resemble the first day's data collecting. Instead, the coolant temperature was a little cooler and the engine wasn't needed anymore once reaching the slowdown point. I drove along the 70 mph stretch with commute traffic, noting 163°F at the usual the 9.5-mile mark where it changes to 55 mph. Then the system automatically switched to EV from EV-BOOST, remaining like that all the way until I parked. There was enough electricity available to complete the journey without gas. That was unexpected. What a nice surprise. At that point (16.7 miles total), the coolant temperature had dropped to 107°F. That means if I would have desired warmth from the heater, the engine would have started specifically for that purpose, since the threshold is 114°F. Fortunately if it does run, some EV distance is replenished too. That's a nice side-benefit from the warming process. Anywho, the outcome was quite pleasing. The overall average was 192 MPG. Now, I'm more curious than ever about the effect grille-blocking will have.
- 10-12-2012 C & Classic.** As I was taking an afternoon stroll with my sweetheart to plug-in the Prius, I just happened to notice a very very exciting scene approaching. There in one lane was a c model Prius. Immediately next to it was a Classic model. What a remarkable sight! There was a decade difference between the two of them. Side by side, they got closer. We both watched as the two different yet rather similar Prius drove by. It was quite a rare event, one which I can foresee never happening again. After all, there weren't that many Classics in the first place. To see it in formation with its own successor several generations later made it a moment to remember... and cherish. You cannot get much better confirmation of success than something like that. It was very exciting to experience, especially with someone special.

- 10-12-2012** **No Gas.** What a bizarre experience. A good friend and I were making a run out to the recycler with a refrigerator. With his guzzler towing a trailer, seeing the price of gas at \$3.58 per gallon was quite a compelling sight. Why the heck was it so low? It's \$3.79 everywhere else. We decided to take advantage of the opportunity. As we were pulling up to a pump, I pointed out that particular one appeared to be out of service. There was a plastic bag on the handle to indicate that. Strangely, the next pump down had one as well. Looking over to the next row, those did too. What the heck? Others appeared to be at pumps, but something didn't seem right. We stopped. Grabbed the pump. Then there was an announcement over the loud-speaker... no gas. Huh? At that moment, a big tanker arrived. Things started to make sense. That must have been a clearing out of summer-formula gas. The low price was to empty the station. And it did! We didn't bother waiting. My gas was the winter-formula arrival would instantly bring a price increase. What an odd event to witness, especially since he and I both own Prius.
- 10-12-2012** **43 MPG.** Looking at the very first photo of the battery-pack in C-Max Energi, you quickly realize the unique circumstance Prius is in. Ford did what people envisioned a plug-in hybrid would be... a significant portion of the cargo area consumed by battery. It appears to be just under half the height of the space below the cover shade. So there's decent room still, but the loss of a flat floor-to-seat region for something like a bike is gone. That's something Toyota didn't want to sacrifice. Prius has everything squeezed underneath. The C-Max storage tradeoff is greater battery-capacity, which equates to further EV travel and more power. But it's not like Toyota won't offer that later anyway. Diversity is the key. And of course, the smaller pack in Prius means a lower price to pay and greater efficiency after depletion... which leads to the mention of 43 MPG. We just discovered today that the plug-in model of C-Max gets that rather than the 47 MPG the regular hybrid does. That's more of a difference than anyone expected. How will those considering the plug-in model see that? 43 is still pretty good.
- 10-13-2012** **Suburb Driving.** This is another one of those misrepresentations brought up countless times in the past that hopefully will finally just fizzle out. No matter how much I posted my observations (from the early model PHV back in 2010) that a light foot on the pedal wasn't needed in suburb driving to prevent the engine from starting back up, certain individuals absolutely refused to accept it. My hill climb out of the valley in EV was simply dismissed. Heck, quite a few times the response them saying it was impossible to start up the plug-in within the engine running. That was very frustrating, knowing they didn't care about actual facts. Saying whatever they wanted to undermine Prius was their intent... because there was so little data available to contest their statements. It's rapidly becoming easier to dispute. The feeling is a transformation to vindication. Phew! I really enjoy errand-running on weekends using nothing but electricity. The darting around town seemed like such a chore in the past. The smooth & silent is a refreshing experience. Of course, how fast the engine shuts off after having warmed up is nice too. It stops freaky fast after a hard acceleration.

- 10-13-2012 EV-BOOST.** The term itself was coined to identify the misrepresentation taking place... over and over again. So many times, I'd read the implication that once you exceed the 62.1 mph (100 km/h) speed threshold the benefit of having plug-supplied electricity was lost. Those with ill intent would vaguely state EV mode was no longer available at faster speeds, hoping readers would make the incorrect assumption that HV mode was the only alternative. EV-BOOST is an automatic extension of EV mode, resulting in much more electricity being drawn from the battery-pack than would happen in HV mode. This allows the engine to run at a much slower RPM, resulting in less gas being consumed. I really enjoy seeing 100 MPG displayed on the screen while cruising along at 70 mph. Who cares whether or not there is EV purity? How long would you be able to maintain that electric-only drive anyway? Why not take advantage of the gas engine sharing battery power? Isn't the goal to get the technology out to the masses soon?
- 10-13-2012 Answer To Volt.** That particular misrepresentation really got me going in the past. Of course, that was the purpose of antagonists. They knew that wasn't actually the case, but it gave the impression of Volt being "*vastly superior*" without any actually data to prove it. They'd claim Toyota was scrambling to deliver a plug-in to compete. In return, I'd asked "*Who is the market for Volt?*" We all knew one vehicle was intended for the masses and the other featured attributes appealing to a niche, but they'd refuse to acknowledge that. When would it ever make sense to compare a vehicle with an engine triple the capacity of another? Yet, that's exactly what they did. The plug-in Prius being real-world tested at the time had a 5.2 kWh battery-pack, the Volt had 16 kWh. (Now, it is just 4.4 kWh.) No one in middle-market was asking for that kind of range or power. Requests were for something offering much improved efficiency at an affordable price. Toyota delivered a system way back in 2003 that was capable of 100 km/h (62.1 mph) using only electricity. Problem was, the batteries of that time were very large, very heavy, low-capacity, and very expensive. A plug simply wasn't realistic. Lots of waiting was required for the battery technology to advance. Those antagonists didn't want you to know that history, so they'd spin it to make the upcoming plug-in appear to be an after-thought retrofit rather than the plan-ahead it actually was. Whether or not that effort to misrepresent will continue remains to be seen. Hopefully, simply raising awareness about it will help prevent that.

- 10-13-2012** **Clueless Conclusions.** How does one deal with such screwed up facts: "*The Prius Plug-In went on sale last fall and last spring was among the fastest-selling cars in the U.S. In some months, it even outpaced Volt. GM fought back with Volt leases...*" It didn't go on sale last fall. That's just when pre-orders were submitted. All you were doing was reserving one with your choice of options. The commitment to actually purchase didn't occur until after the car was delivered to the dealer in the spring. Some people chose not to. For those that did, that sale was counted then... having nothing to do with last fall. The concentration of pre-order deliveries gave a false impression of sudden demand. Did the writer have any clue about what really happened? You get the impression of strong growth, which wasn't the case. Of course, reading about GM fighting back is misleading anyway. With Volt approaching 2 years since rollout began and 1 year availability nationwide, how does that even compete with the plug-in Prius still being only available in 15 of the 48 states? We appear to be back to the filler reports again... stuff written without research about high-efficiency vehicles just to stimulate the publication. They draw whatever conclusion they want to keep readership active. Historical accuracy doesn't matter. Outcome doesn't either. Sadly, even goals are absent. It's a bit of a mess at the moment. Ugh.
- 10-13-2012** **Mile After Mile.** There's another commercial now promoting the Prius family. It's very similar to the other, the same animated world with the regular Prius driving by interesting & relevant scenery. Then, there's a clever camera angle change to reveal other models behind it. It's a great way to continue to raise awareness about more than just a single Prius being available now. You don't even need sound to understand what you're seeing. It's quite obvious. That does a great job of confirming Toyota's commitment to hybrids too. Even if you know nothing at all about Prius history, seeing there are 4 to choose from compels you to investigate... which works out fantastic for those of us sharing real-world experiences online. Also, the line "*a Prius for everyone*" hits competitors in a big way. Volt's lack of diversity is becoming much more apparent now. I was greeted with hostile responses prior to rollout, when I pointed out the one-size-fits-all approach would become a problem. Back then, they didn't expect a Prius family or for Ford to deliver choices so soon. We have automakers readying to deliver and Toyota already well positioned. Viable options for middle-market is very exciting.

- 10-14-2012** **Most Worrisome.** There are two topics which continually stir passionate response. When a discussion about Volt had been brought up in the past, the topic had been price. But since that is now overwhelmingly obvious, not much time is spent on it anymore. So, the question has become what makes a supporter worry the most now. It would appear to be the one-size-fits-all problem. Lack of diversity is a violation of basic business practice. You don't put all your eggs in one basket. Supporters were hoping there's enough time to delay that particular issue. Now, it has become difficult to conceal it as a shortcoming. The technology needs to be spread to offer choice. We get confirmation of that too. Threads often bring it up. A recent twist has changed that though. Ford's ability to deliver two hybrids offering 47 MPG makes the 37 from Volt stand out, especially when hearing reports of how often plug-in Prius owners get 50 MPG. Turns out, that stirs some intense reaction. Facts put the pressure on too, making them really worry. It's too bad they didn't want to acknowledge the concern 2.5 years ago, when that Freedom-Drive publicity stunt highlighted that as important to address. Some still don't. Instead, we got yet another one of those gross generalizations about driving patterns... which is very hard to believe at this point. Oh well. I was happy to contribute my real-world data: That statement of "The plug-in Prius delivers a solid 50 MPG after depletion." is very easy to confirm. This weekend provided the perfect example of deviation from any pattern. It's something quite normal which throws travel estimates into disarray. That's what real-world is all about. In this case, we had a family get together to celebrate a birthday. I didn't have an opportunity to recharge. All driving today was powered entirely with the gas engine, 85 miles total. The result was an average of 55 MPG.
- 10-15-2012** **Data Collecting.** I enjoy it. With the seasons changing, you really don't know for certain what will happen. My collecting of data is becoming a source of intrigue, since I know how cold it will get in 2 months. Then 3 months from now, it will be the dead of Winter here in Minnesota. That sure will be interesting with a plug-in Prius. The regular model certainly brings a new experience to those unfamiliar with the importance of keeping warm and still being efficient... especially when it comes to warm-up on short-trips. But since my morning commute is farther than battery-capacity and warmth for the heater comes from the engine, my interest is specifically on heat retention. Today, as usual, I fired up the engine prior to climbing up the ramp onto the 70 mph highway. It was 45°F outside. Traffic was flowing just under the speed limit. There was no need for the heater. At the 9-mark, traffic slowed and the engine shut off... automatically swapping the system to EV mode from EV-BOOST. The coolant temperature was 168°F. To my delight, it was another one of those commutes where the engine never restarted. In fact, I finished the 16.7-mile drive this time with 0.1 miles remaining. The result was a pleasing 192 MPG. Coolant had cooled to 100°F. Now, I'm more curious than ever what the results will be after blocking the lower-grille entirely.
- 10-15-2012** **Persona Special Edition.** Toyota announced a new package for the liftback Prius today. It's between 3 & 4 with some distinct changes to make it visually distinct. The most obvious uniqueness will be a color choice of Black Cherry Pearl. On the exterior, there will also be 17-inch alloy wheels. On the interior, there will be charcoal colored SofTex material with black accents and red stitching along with a few other differences to make it stand out. At \$27,130 for the MSRP, you can envision those wanting a Prius that has a little bit of character of its own seeking out this particular package. It's good to see the variety expanding.

- 10-15-2012** **Another Sunset.** This time, I was driving by a lake. I could see the sunset beginning to emerge, but was quite uncertain about where I'd actually be able to park. I wanted to someone see the lake through the line of trees, to show the reflection of pink on it rather than clouds only. This time, I only had about 2 minutes to decide what photos to take. It was quite fortunate I just happened to be in the area at the time. That opportunity could have easily been miss. Thankfully, I didn't. Settings for the new camera were now familiar too. I was well prepared this time. Hopefully, you can tell... [photo album 178](#)
- 10-16-2012** **5 Seconds.** Today was forecast to be the warmest day we'll see here in Minnesota for a long time. That equated to 57°F on the morning commute. I toggled the HV/EV button to start the engine. It shut off at the 9.5-mile mark. Coolant temperature got up to 168°F. The remainder of the trip wasn't the usual all EV though. Unlike my other days of data collection, switching from the 55 mph road to 50 mph included a hard acceleration. The engine ran for roughly 5 seconds. That caused coolant to rise from 136 to 139°F. The remainder of the 16.7-mile route was with just electricity. There was 0.5 miles of EV left upon parking. The average was 198 MPG. Coolant had dropped to 121°F. My curiosity about Winter is definitely rising.
- 10-16-2012** **Bailout & Gas.** The presidential debate brought up favorite topics of mine. Gas prices and the bailouts got a surprising amount of attention. I enjoyed seeing of how one particular candidate stated his goal was to have us become energy independent but then in the same breath mentioned approving an oil pipeline from Canada. Since when are those provinces to our north part of the United States? He also mislead about the price of gas, claiming it was only \$1.87 when the president first took office. Leaving out important details is how the "being vague" aspect of greenwashing works. Failing to mention that was when the economy collapsed and that gas was \$4 before that is one heck of a detail to omit. People fall for that type of misleading though. It's really unfortunate. The same is true with the bailout. They exclude to give a false impression. True, the initial loans were paid back, but our government still owns 500 million shares and their market value has already resulted in a loss of about \$9 each. There's spin about drilling permits too. It's all so frustrating to know reality doesn't match what's being claimed. Anywho, it's at least reassuring those topics are getting attention. In the past, we were actually encouraged to guzzle... because it was "*good for the economy*". Aren't politics fun?
- 10-17-2012** **HV Compare.** My data collection for grille-blocking had an unexpected opportunity. It was 55°F this morning, very close to yesterday's temperature at the same time along the same route. That meant a great chance to do a direct compare. I'd use regular HV mode instead of EV-BOOST. The result at the 9.5-mile mark was 188°F, warmer by 20 degrees. That was interesting. At that point, I switched over to EV mode, continuing the commute to my usual parking spot. There I observed 136°F as the final coolant temperature, 15 degrees warmer than yesterday. Losing more on the high end tends to make sense. Later with much colder conditions outside and the grille-blocked, the retention of heat will be of upmost intrigue. Of course, what got me on this particular drive was the end result. It was 108 MPG with a surprising 5.0 miles of EV still remaining. For having traveled 16.7 miles, that's pretty darn good. In other words, I could have easily went over 20 miles without any worry of dropping below 100 MPG. Gotta like that.

- 10-17-2012 Unplugged By Someone Else.** I needed to make an unexpected trip to the mall this evening, without any electricity available. There are plug-in stations there, something I wouldn't usually be able to take advantage of living so close. The price had been recently dropped, now \$0.49 per kWh. This happenstance was too good to pass up. There at the mall, I went about my business, checking charging status along the way. I suddenly got a text stating: "*Your vehicle has stopped charging at ... because the plug has been removed.*" With so few plug-in vehicles here, especially near closing. That wasn't a good message. Something was wrong. Sure enough, I spotted someone walking away from my Prius then getting into his to sit and observe. Laying down on the ground was the plug. He had absolutely no reason to be touching it. Were his actions just out curiosity or an ill-intent encounter? Needless to say, I silently drove away without doing anything other than returning the plug to its holster. Hopefully, that was a rare situation.
- 10-18-2012 Demand Spin.** It was interesting to read an article from Detroit with this title: "*Electric car market is badly in need of a charge.*" A graphic started out with this setting expectations: "*Problems for battery cars*". Seeing that in bold print above a chart with numbers and images of vehicles was a bad sign, especially before any wording. This is what followed: "*Sales of electric and plug-in hybrids cars have not lived up to expectations.*" The tone was pretty obvious. The expectations themselves were never explained either. For that matter, the count of Prius PHV didn't have a disclaimer pointing out that it was only available in 15 states. It was all quite vague... the same old spin we've come to expect. They paint a picture of demand by leaving out detail. This time though, GM had a featured vehicle. Volt was the dominant plug-in, which indeed has been struggling. Next came Nissan with Leaf, who's sale projections were much lower than Volt. But again, leaving out particulars leaves you to believe something else... especially when seeing the counts for Ford and Mitsubishi. Naturally, only the American sales were mentioned. Also, we know much will change by next year when C-Max Energi, Honda Accord plug-in, and Prius PHV all become available nationwide. But with politics so hot of a topic now and government bailouts & tax-credits along with gas prices getting so much attention, this view of demand is no surprise. 2013 seems so far away.

10-19-2012 **New Topic: Unplugged.** I has no idea how much attention my thread would draw. It's an entirely new topic no one has ever addressed, since the circumstances are so unique. Boldly going... Anywho, many are jumping in to contribute their thoughts. As for me, I'm glad my decision was to just quietly drive away. Who knows how a confrontation would have brought. This was my follow up: Basically, there's no reason to ever interrupt a charging session, regardless of who. Once a recharge is complete, then someone immediately plugging into their vehicle with that same plug is acceptable. That's why some chargers offer 2 parking spots. Nothing good comes from walking away after having laid the plug down on the ground... which is exactly what happened to me. We also face the reality of a plug-in spot being used by a traditional vehicle. The term we identify that situation by is saying the spot was ICED, since the vehicle parked there preventing you from using the charger has only an ICE (Internal Combustion Engine). Sometimes people just don't care. It's tempting to setup my GoPro camera to capture an unplug event on film. But hopefully, what I experienced will be quite rare. Then again, such occurrences would serve as a source for finally overcoming the belief that a cross-automaker alliance really is possible. Volt rhetoric of the past had strong roots in brand loyalty rather than the motive of high-volume sales. Moving beyond that by way of traditional-vehicle supporter backlash could happen. Reasons for bonding often come from unexpected sources.

10-19-2012 **Cold Start.** Those attempting to misrepresent PHV would claim the starting of a cold engine following plug-in capacity depletion would result in terrible emissions & consumption. That was a big antagonist topic prior to rollout, but not anymore. Proof quickly emerged from owners that the battery-pack had a reserve not included in the EV miles estimate, specifically set aside for the warm-up process. The system doesn't actually start a cold engine the way the rhetoric claimed it would. The RPM is kept under 1500, rather than revving high as people would assume. That provides the opportunity for warming without strain, preventing it from being dirty & inefficient. It's too bad they took advantage of the lack of real-world data rather than just considering system design and goals of the past. But with that other plug-in struggling to meet its own self-imposed sales goals, the misrepresentation was no surprise.

- 10-19-2012** **Change Happens.** The transition away from conflict of the past has been a welcome expectation. It's finally happening. And of all things, I just happened to contribute in a very unexpected way. The active thread resulted in more thoughts on the situation: Getting a heads up on my phone from both ChargePoint (the charger) & Entune (Toyota's service) about charging being interrupted is nice. ChargePoint's latest upgrade gives you notification when recharging is almost complete, detecting that rate is slowing. You automatically get the following text: "*Your vehicle plugged into ... is drawing very little power and my be fully charged.*" It also provides a phone number. If an unplug incident happens to me again, I won't hesitate to call. That way, ChargePoint will have it on record and will report to the owner that preventative measures may need to be taken. Heck, they might even have some handy suggestions available too. In the event of charger sharing (2 spots, 1 charger), knowing that your recharge is almost complete gives you the opportunity to offer the charger to the other vehicle as soon as it becomes available. It will be rather interesting as time proceeds. There was a lot of animosity about PHV from Volt enthusiasts in the past. Fortunately, that's faded away as those concerns sighted actually transpired. We are now looking at an upcoming year with plug-in hybrids from Toyota, Ford, and Honda. The diverse variety of choices repositions the approach to plug-in support.
- 10-19-2012** **EV Goal.** How many times does that come up in discussions? We continuously hear the misrepresentation of PHV stated in terms of an EV goal. In fact, that's by far the biggest argument used against it. Why? It's a plug-in hybrid. When has there ever been a statement made that its purpose to offer electric-only travel? For over a decade, the goal has been to significantly reduce emissions & consumption. Each generation has brought improvements to engine, motor, and battery. Who says that intent has now changed? What's wrong with getting 100 MPG on your daily commute? At what cost is the efficiency tradeoff too much? Remember, vehicles purchased in high volumes are those which offer a balance. So what if other vehicles favor more of a particular aspect. There are always going to be luxury, sport, and niche vehicles. Those aren't what middle-market buy though. Just like with computers, there's always something faster or with more capacity... but that doesn't make it the better choice... especially if it isn't necessary.
- 10-19-2012** **Maximum Capacity.** Did you know that hybrids don't drain their batteries entirely? Avoiding deep-discharges is how they achieve longevity to match the lifetime of the vehicle. People often allow their portable devices to exceed the safe tolerance. That reduces the battery's total capacity... eventually taking it to the point of basically being worthless... hence having to replace the battery. Hybrids prevent that by running their gas engine to power a generator for electricity when the battery gets low. The plug-in variety offers a plug to supplement that. Both types strive for the same goal, but not all automakers choose the same depletion point. They make assumptions about vehicle usage, environmental conditions, and battery chemistries. Toyota plays it safe, cutting off Prius PHV at 63%. That means the engine unconditionally fires up when reaching the point of only having 37% of the overall capacity remaining. You aren't allowed more. Stopping sooner means less electricity is available, but it helps to guarantee ample battery performance later in life. Is that too conservative? Ford seems to think so, stopping with their Energi system at 75% instead. Allowing a draw down to 25% may be fine or may turn out to be a damaging idea. We truly won't know for many years. The things people will do to their plug-in is still very much unknown. The market is quite diverse.

- 10-19-2012** **\$3.32 Per Gallon.** The price of oil is staying around \$90 per barrel now. Having settled there means the price of gas has dropped to where you'd expect, somewhere around \$3.29 per gallon. The recent spike sure caused some excitement. It's nice to see lower. A docile rollout of the plug-in hybrids is the preferred approach. I couldn't imagine how we'd handle a crazed demand crunch. That's when expectations get out of hand. People tend to panic rather easy. Of course, they fall for hype rather easy too. High ticket purchases aren't something you just want to jump into blindly. The real-world experiences early owners share really make a difference. We don't even have Winter data yet. It won't take long to get annual results though. Then we can begin to establish realistic expectations. I'm 7 months into ownership already. Gas prices staying relatively low in the meantime will help matters. After all, supply is quite limited and will remain that way for awhile.
- 10-20-2012** **New Fallout.** An article yesterday revealed the growing problem GM is facing, something few typical enthusiasts have considered... consequences supporters have been avoiding. So, I posted the following on the big GM forum, where Volt discussion has pretty much grow silent lately... likely due to the lack of good news and attention having shifted over to Ford's upcoming plug-in hybrid: Production goals are set for good reason. An automaker must match supply with demand. Underestimating means paying a premium for extra parts and overtime for the workers, which cuts into profit. Overestimating means having to slash prices to reduce inventory but continue to pay worker while production is idle, which cuts into profit. In other words, not meeting expectations has consequences. Decisions eventually must be made as a result. This thread celebrates Volt leading September sales among plug-in vehicles, but does not address supply/demand issues. In the past, we've heard every excuse imaginable. It didn't matter much though. There was time to resolve still. That time is running out now. An article published yesterday points out how the production of battery cells for Volt never transferred from South Korea to Michigan. What does that mean for Volt next year? In the case of plug-in hybrids like Prius PHV and C-Max Energi, the only real difference between them and the no-plug model is basically just the battery-pack. That design approach provides flexibility to sell more or less of the plug-in model, allowing it to adjust supply based on demand with less overhead than the one-size-fits-all Volt. Reducing exposure is very important for business-sustaining profit. Not having any alternative available, like a second model of Volt with a smaller battery-pack, leaves it very exposed. Every aspect of production relies entirely upon sales of a single configuration. What will GM do? We're seeing sales of Cruze (25,787), Sonic (7,525), and Spark (2,223) rise significantly. That puts the record high of 2,851 for Volt with heavy incentives (price discounts & tax-credits, plus lots of advertising) into perspective. So even without considering the plug-in choices from other automakers, the problem within GM itself should be clear. The monthly counts favor emphasis on traditional vehicles, not setting large production goals for Volt.

- 10-20-2012 **Rebuttal Material.**** That was requested today. It was nothing we haven't dealt with countless times already. I provided: Who is considered a hater? In the past, it was anyone who felt threaten that they'd somehow be forced out of their guzzler. Thankfully, it's not that bad anymore. Arguments focusing on the battery are dying fading too. Of course, the rebuttal to that is just pointing out what actually happens with the acquisition of oil. People really don't want to acknowledge that situation. My guess is those opposing hybrids stems from two sources. First, they really don't understand how the technology works. They make assumptions, which is easy to do considering how much incorrect, outdated, and misleading information there is still. Change is very difficult when there's uncertainty. Second, they have strong loyalty to an automaker or the domestic market. In that case, they'll say just about anything. Excuses are frequent & abundant. We've heard it all. Ultimately, the real-world data speaks for itself. Experiences shared by owners is what gets people to take another look, to overcome what they had previously thought or felt.
- 10-21-2012 **Standard Household Outlet.**** A plug-in sale was lost today. The cause was a salesperson misleading the person into thinking a charging-station was required to recharge the Prius PHV. We don't know whether or not that was unintentional or a misunderstanding. You could see how an informed salesperson would want to convey the steps required to have the high-speed recharge ability at home. But in that same process, it would be very easy to skip over the basics... failing to mention that the installation isn't necessary. Just an ordinary standard household outlet is all that's actually needed. The 120-volt connection already in your garage is what the included charger uses. Long story short, this person today ended purchasing a 2012 instead... not finding out he didn't have all the information he needed to properly make the decision until after it was too late. Needless to say, this will now be an important detail mentioned often when discussing the plug-in model. We don't want to hear of buyer's remorse caused by a salesperson's inattentiveness.
- 10-22-2012 **Software Updates.**** Remember when there was one for the 2004 Prius? There were cries of owner's lives being at risk. It was like the world was coming to an end. More recently, the word "*recall*" was given a stigma to represent something exclusively to deal with a serious problem and not include improvements & preventative measures. So now when there's a similar software update needed for Volt, what do you think happened? Nothing... a reaction like we should have had all along. It's too bad GM had invested in and depended upon guzzlers so heavily back then. The enthusiasts have transformed from favoring large SUVs to expensive plug-in hybrids. That's a definite change for the better.

- 10-23-2012 Ugh.** When they accuse you of being loyal, being paid, or just lying, you know all has been lost. There's no chance of constructive discussion at that point. Heck, you can't even get useful observations or opinions anymore. They stopped trying. We all knew the inability to grow sales would result in some type of fallout. Apparently, that's how the most hopeful of enthusiasts are expressing their assessment of the situation. Reaction manifesting in the form of unsupported & unrealistic claims is quite understandable, predictable even. Too bad it came to this. Needless to say, the topic is Volt. With the industry setting their sights on what the other automakers will be doing next year, lack of substance from GM just doesn't cut it. Change only comes from the market actually embracing something... not endless hope that someday something will be realistic. Think about what consumers currently shopping for a new vehicle will consider. They're not going to care either way about rhetoric online. What's important to them is what they'll be able to purchase.
- 10-24-2012 Outdated Surveys.** Sadly, the presumed latest & greatest information now being conveyed about the plug-in market is already outdated. The report I came across today didn't include the plug-in Prius, yet it gave the impression it was representative of all vehicles using plug-supplied electricity. How can they even attempt to provide credible data without providing a disclaimer about it not being representative of the current choices? There should be a concise statement about limited availability and the upcoming expansion of configurations. How are readers supposed to know about changes if they aren't explicitly stated? Leaving that out allows them to make assumptions. Surveys related to the vehicles can't possibly be accurate without a basic understanding. What kind of perspective comes from an unclear market.
- 10-24-2012 New Owners.** Avoiding full is for battery longevity. That's why the display typically hovers around 6 bars and the entire capacity isn't actually displayed. Assumptions about charge-level and EV driving are common... and growing, due to the number of older Prius becoming used purchases. You'll enjoy 100 MPG from time to time, but the point is to significantly improve emissions & efficiency... not electric only. In fact, that's true of even the plug-in model. The engine will run when it makes sense. The system seeks out opportunities for optimal conditions and takes advantage of them. New owners sometimes unknowingly fight the system, cancelling out the benefit. For example, as the system runs to warm the coolant, it is also recharging the battery-pack... a benefit very easy to overlook. Keep your eyes & ears attentive. You'll be impressed how well thought out the approach really is.
- 10-24-2012 Consumer Reaction.** Times are changing... by how much is the question now. Ford's plug-in choice is difficult to gauge. That 694-pound difference resembles what I see in my career as a software engineer. As time progresses, the application becomes more and more refined. Ford is well on its way, making a genuine effort to achieve a nice balance of priorities. Toyota has a lead of about 7 years and 2 large markets to work with though. It will be interesting to see how people react to the differences. Realistically, there is room for the diversity. Choice among shared goals helps all involved. Next year will be very interesting.

- 10-24-2012** **10,000-Mile Service.** It went well, though a bit late. My vacation, the lack of engine use, and me getting sick delayed the routine maintenance. I enjoyed getting to chat with the head mechanic there, as he was pleased to speak with one of the very few plug-in Prius owners in Minnesota. They basically just checked fluids & brakes, rotated tires, and changed the oil & filter. That's all quite routine. The not-so-routine part was connecting the car to their system for a complete status dump. Toyota benefits from collecting detail like that, as do owners. No software updates were needed. Of course, having an advanced model, I get them via bluetooth connection to my phone which downloads via Wi-Fi at home. It's totally automatic. What isn't automatic though is the darn oil-level check at the dealer. Arrgh! It's the same old problem countless thousands of owners have experienced around the country over the past decade. They overfill the oil by pumping it directly from bulk barrels. I should have complained then, despite the service itself being free. But I really wanted to know by how much. Turns out, I ended up draining 24 ounces out to get the level about 1/8 inch below the "full" mark. It had been 1/2 inch above. That's 2/3 quart too much! I'll end up sending a reply to their customer-satisfaction email about that. What a waste. Good thing oil is the only trouble I've ever experienced there. All else is great, especially the complimentary cookies & coffee.
- 10-24-2012** **\$4.29 Per Gallon.** That was the price for diesel today. The price of gas has dropped to \$3.37 per gallon. Needless to say, that positions VW well for the debut of their soon-to-be-rolled-out gas hybrid. It will deliver an undebatable efficiency benefit over the diesel, pretty much killing any argument we've had to deal with in the past. The fact that it will also cost more to fill the tank makes it a futile endeavor to do anything other than acknowledge the market acceptance of hybrids. For a diesel-favoring automaker to embrace change at a time when the choice seems so obvious, I cannot imagine constructive arguments against them.
- 10-25-2012** **Getting Colder.** It snowed over lunch today. By the time I left work this evening, the temperature had risen to a balmy 39°F but was windy as heck. I needed to use the heater at some point, since the windows would eventually fog up. With the weather front that had just passed through, the forecast for the next two weeks was for temperatures mostly in the 40's. Time to block the lower-grille. That meant this commute from work was my one opportunity to observe the system still exposed in action. As expected, it automatically bounced between the coolant levels we've become quite familiar with. The engine started, then ran until it hit 130°F. Driving proceeded as usual in EV, with the heater set to 76°F and the fan on low. I had the seat-warmer set to low too. When the coolant dropped below 114°F, the engine fired up again. That cycle happened 3 times along my 17.5 mile drive home. The end result was 127 MPG. That's quite good. I'm really curious about the heat-retention the lower-grille now blocked will provide, especially when the real cold arrives here in Minnesota.

- 10-25-2012** **Misrepresented Consequences.** They become obvious as time progresses. New owners posts threads about confusion you aren't certain how they could have such as impression. Regardless of source, you're stuck trying to figure out how to overcome that hurdle those wanting to undermine actually had some success in. Today, there was this attempt to clarify: Prius is a plug-in hybrid. The misdirection of purpose by focusing on EV rather than the resulting MPG is understandable. It's quite enjoyable driving through the suburbs using nothing but electricity... but all that is about to change. Last year's unusually mild Winter prevented the word from spreading about the realities of driving in the cold. This year could be quite different. Consumption of battery-capacity for the sake of cabin-warming is a rude awaking for EV drivers. Having a gas engine available means being able to save electricity for propulsion instead. It also means the act of running the engine for heat will recharge the battery a little too. In other words, beliefs & expectations of how the system operates were overly simplified... resulting in the discussions we are engaging in now, as aspects of it are revealed. It's complex. The interplay of HV and EV are difficult enough to understand even without buttons allowing you to toggle modes.
- 10-26-2012** **Grille Blocked.** It's the same routine for the plug-in I've been doing for the other Prius over the years. I block a majority of the radiator opening to reduce the amount of cold air being forced through the vehicle. It takes 20 minutes to do and costs \$2 to do it. The purpose is heat-retention. Though, there is a small aerodynamic benefit as well. When heat runs out sooner, the engine has to run more often. The temperature of the air used for combustion makes a difference too. Warmer results in more power. The actual difference made from the effort is difficult to quantify. But considering how little effort it takes for an entire season of efficiency gain, why not? After all, the new Ford hybrid actually includes motorized grille blocking. That's rather obvious automaker recognition. Anywho, I did it manually this evening. Taking half-inch foam pipe-insulation, I just squeezed strips of it between the openings in the lower grille, sealing it up completely until Spring. No maintenance of any kind is needed in the meantime. That simple step is all it takes. Now, I'm ready for the cold season.
- 10-27-2012** **Just Drive It.** Assumptions about efficiency and being mislead about how a hybrid should operate is nothing new. We've been dealing with incorrect beliefs for over a decade now. The advice for Prius is always the same. That is true for the plug-in model as well. Problem is, we'll have to repeat it over and over. But then again, first posts often come about as a result of that assuming. So, we end up with online participation which wouldn't of had come about otherwise. Some of those owners even become advocates due to their discovery from having learned about the clever design. This was today's example: There's a frustration pattern emerging. They all seem to disregard MPG. Why would you make the "worth it" comment without any reference to efficiency results? The point of a plug-in hybrid is to significantly improve efficiency. Even with the engine running, that's what you get. In other words, we're back the same old advice all new Prius owners are given: *Just Drive It*

- 10-28-2012** **Monthly Sales.** What happens in response to October's results is anyone's guess. Monthly sales don't tell the whole picture. It's just the outcome of a series of events with detail often forgotten or overlooked. Whatever the case, we know there will be much attention to the plug-in vehicles. Clearing out of 2012 inventory will be the first thing easy to neglect mentioning, though the discounts from that are likely to be sighted without including reason. Long story short, the objective has always been outcome for the year as a whole. Fluctuations from month to month is nothing new and usually don't represent a trend. Enthusiasts will spin numbers anyway. Watch for it. The obvious clue is the avoidance of goals. Not meeting expectations has consequences for the business and the market as a whole. In a few days, monthly sales counts will be available. Stay tuned.
- 10-30-2012** **Reliability.** It makes you wonder how a vehicle so new could be considered when it comes to reliability ranking. Somehow though, Prius *c* already earned the title of "*most*". That certainly was eye-catching to notice today. Most vehicles work flawlessly the first year or two. So, I am left scratching my head... despite knowing how well designed Prius *c* actually is. The system takes the Classic model to the next level. Just imagine if that refined of a smaller system would have been available a decade ago. The Classic has proven itself worthy of a very high reliability ranking itself. Years of improvement should make it even better. We'll certainly find out. They sell fairly well here and are extraordinarily popular in Japan. Toyota really did their homework. The test of time speaks for itself and reliability is something most listened for when it comes to new & used purchases.
- 10-30-2012** **EV Distance.** It's rapidly becoming the biggest understanding issue, an indication of a new misconception brewing. The purpose of a plug-in hybrid is to significantly reduce emissions & consumption. That's the same as a regular hybrid. It just raises the bar to a higher level. Adding a plug and increasing battery-pack capacity extends & enhances EV, an ability already available. People in general don't take the time to consider that though. They just assume "range" as the benefit of a plug, not MPG. Those asking about the plug-in and even new owners focus exclusively on distance. The efficiency outcome itself doesn't get any attention. The incorrect belief of intent could become a big problem... especially as the already complex effects of Winter become intertwined with PHV observations.

- 10-30-2012** **Panic.** The worry is growing. That EV value likely won't be understood for awhile. Some new owners watching it drop seem to panic. Here's another response to the situation: My estimated range dipped down into the 10's. At one point, it had returned to the 13's. Now it's back into the 12's. That EV value is based entirely upon your own particular driving conditions experienced. And now that it's getting cold out, the odds of seeing high numbers are more likely. In my case, the drop came from a trip up north. There was lots of inefficient driving (highway with bikes on the back) and no opportunity to recharge. The system adjusted accordingly to take that into account. New owners don't understand that, especially in this case when so few miles have been driven. They assume something is wrong. The advice we have to give to those new owners convinced that the system isn't working correctly is to have them focus on MPG results instead. After all, Prius PHV is a plug-in hybrid, not an EV. Even when the engine runs, you still get great efficiency. My lifetime after as of 11,500 miles is 81 MPG. What's wrong with that? So what if it isn't all electric? That isn't the goal.
- 10-30-2012** **Getting Colder.** 30°F for the morning commute. It was the usual 70 mph route, 3 blocks of suburb driving before hitting the highway. No heater yet, just cracked two passenger windows to the glass from fogging. 9.3 miles into the trip, the high-speed cruising in EV-BOOST mode came to an end and the engine shut off. At that point, the coolant had warmed to 166°F. Driving in EV all the way to the 16.5 mile mark, the battery-pack was depleted. The coolant temperature had dropped only to 105°F. That's not too bad considering the time & distance traveled without the engine. When it did start back at that moment, it only ran for 0.1 mile. As soon as the coolant hit 114°F, I was back to electric-only driving again... in STEALTH mode which doesn't offer as much power as EV mode. But that's ok, because all I had to do was climb up two floors to get to my parking spot in the ramp. Unexpectedly, I noticed the coolant temperature had continued to rise even though the engine was off. That actually makes sense now that I think about it too. The concentration of fresh heat from the pistons would take a little bit to circulate through the rest of the system. Anywho, the end result was a coolant temperature of 130°F and an overall average of 164 MPG.
- 11-01-2012** **Website Outage.** The horrific storm on the East Coast of the United States is somewhat surreal to contemplate from the perspective of the center of the country. The residents there now face an intense recovery period, many challenges & decisions. It was a combination of several bad things to make an even worse situation. Strangely, some businesses benefit from circumstances like this. There's the obvious hardware & contractor boom. There's also the less obvious burst of new vehicles into the market. Major discounts are offered for hail & wind damage. It also provides the opportunity, which we've seen taken advantage of in other forced times of change, to switch to a more efficient choice. I won't see any of that though, here in Minnesota. Instead for me, it's just a website outage due to infrastructure complications in 1,500 miles away. Good luck to those struggling to get their lives back to something normal.

- 11-01-2012** **YMMV.** No matter how many times that "Your Mileage May Vary" disclaimer is mentioned, the inevitable not-what-was-expected scenario plays out. This time, it's with Ford's new C-Max hybrid. The initial results reported are all over the place. MPG variances are quite wide, spanning from upper 30's to upper 40's. It sure would be nice if this results in a rapid spread of hybrid understanding. Ford's newest market entry being a hybrid-only model with an optional plug could be just the thing we need to stimulate the needed education. Unfortunately, some people are still unaware of efficiency influences... totally oblivious to things like winter-formula gas. Of course, if nothing else, it directs attention to MPG. The old obsession with size & power is thankfully turning into a bad nightmare of the past.
- 11-02-2012** **Climate Change.** For many years, we heard spin about Global Warming. It was quite clear those saying it didn't understand what climate change actually was. Who cares what the biggest contributor is. When there are lines at the gas station, you know there's a problem to be dealt with. When frequency & magnitude of storms increase, that's reason enough to take action... especially when solutions like FULL hybrids are already available. During the recent political debates and all the surrounding rhetoric, the topic wasn't actually addressed. Why is uncertain. My guess is there's been so much twisted of facts and misleading that it's pointless trying to have a constructive discussion about it... until a hurricane hits shore. Sandy could possibly be the worst ever recorded for our country. What a mess. Combine that with the recent drought, it's clear we shouldn't just accept our fate. We should use the intelligence we've been given. That makes so much more sense than just hoping to drill our way back to something normal. Geez!
- 11-03-2012** **Next Generation.** So much for taking the market by storm. We were told so many things about Volt. Most didn't turn out as hoped. This is what one of the enthusiasts said yesterday about the emerging status: *"I do think that next year, the PIP will be the leader and that the Volt early dominance is short lived... unfortunately."* Downplay until the next generation was the final stage, since that's exactly what happened with Two-Mode. There's not really much to say at this point. I simply posted: 60K annual domestic has been the standard to which new vehicle sustainability has been measured for over a decade. The point of the tax-credit is to help the automaker reach that level of sales quickly. So when it expires, sales will continue at that level. Each vehicles faces competition within its own automaker's offering. That's the reality of business & profit. We all see how that target continues to be moved, reducing former expectations. It's a bittersweet situation, knowing traditional vehicles still dominate. The goal of replacing them won't be accomplished by making excuses. How will sales be increased?

- 11-04-2012 Downplay & Double-Standards.** As the spin of October sales grew, I responded with: It's quite amazing to read the "*Nobody ever claimed...*" comment when my blogs are stuffed with quotes proving otherwise. Whatever. My purpose has always been: "*To significantly reduce emissions & consumption in a reliable & cost-effective manner.*" That means a technology with heavy dependency on tax-credits and no chance of achieving mainstream sales until a later generation doesn't fulfill the purpose. Just like we've seen with computer technology over the decades, the choice for the masses is a configuration realistically affordable. As costs are reduced, capabilities are increased. That's the way it works. The downplay we get from Volt supporters now is just a recite of what some of us were saying all along. Again, the blogs confirm that as well. As for claiming Toyota cannot continue to evolve but the technology GM uses can, that's a double-standard. We all know what's possible stepping up motor, battery, and power-carrier. It just isn't viable for high-volume sales yet.
- 11-05-2012 Natural Gas Vehicles.** It must certainly seem like I'm really hard on Volt. It doesn't take much digging for a reality-check though: "*The only electric vehicle brought to the mass market in America was General Motors' (GM) Chevy Volt. This car was a dud from the get-go simply based on its price of around \$40,000 before rebates.*" When the introduction starts with that and ends with this: "*Too big, too expensive, too many issues.*", you know trouble is brewing. With hybrids in the past, it was diesel vehicles. This time, it's natural gas vehicles. That's switching reliance to a different non-renewable fuel, compressed natural gas (CNG). What the heck? A plug-in hybrid can ultimately utilize electricity & ethanol for fuel, both of which are renewable from a variety of sources. Anywho, the article published this morning went about stating how NGV was the ultimate solution... yet never mentioned either the emission-rating or any efficiency estimate. Two vital pieces of information were missing entirely. There was no mention of the storage tank to hold the CNG either. In an odd twist, it did point out the opportunity of using CNG in hybrids rather than regular gas. But again, detail was absent. Long story short, there's always going to be pressure from some alternative, making downplay a poor choice if you want to build support for a technology.
- 11-06-2012 Forgot To Plug.** No, not the Prius. That was indeed plugged in, as usual. However, the routine was disrupted by the assembling of a new grill in my garage... the type you barbeque food with. I needed the 110-outlet to power both a heater and a light. So, as you could easily imagine, I forgot to plug the charger for the Prius back into the wall afterward. Darn it! Oh well. That first burger off the new grill was quite tasty. After all, being really cold outside is when grilling is especially enjoyable. It's more rewarding when you have to rush out into the cold to flip. Anywho, I looked at my phone when the alarm-clock sounded that next morning. That clued me into something not being right. Huh? There wasn't an email informing me that charging had begun. That's because it hadn't. Who knew that notify feature would come in so handy. Needless to say, I rushed out to start it then. At least some recharging could take place before I left for work.

- 11-06-2012 Hyundai & Kia.** Turns out, their values reported to the EPA and displayed on their window-stickers were inflated. Roughly 900,000 customers will now need to be reimbursed for having been misled about the efficiency estimate. With so much emphasis on delivering 40 MPG Highway, then finding out it wasn't actually true, you have to wonder how the market will react. For that matter, what will it do for resale values. It could be harmful to new sales as well. Hmm? It's an unusual & unfortunate situation. Those numbers not being accurate could become quite a problem. After all, even when they are some people take issue. Too bad this happened. But then again, it's better to find out before the number of owners affected became any larger.
- 11-06-2012 Cheap Gas.** When one of the biggest antagonists of Prius argues that gas is cheap, you know it's an attempt to stir trouble. With respect to inflation, that is true. But we now drive much further than we did decades ago. With annual distances higher, we're paying more. We also have other expenses now that we didn't back then. Think about how much you spend on cell & data usage per month, neither of which existed decades ago. We have gaming & videos systems too, neither of which were part of the household expenses either. What about cable or satellite services? What about portable electronic devices? What about the frequency in which we eat out? In other words, considering the big picture makes a huge difference. And even when you do take that into consideration, how is it suppose to portray Prius as a poor purchase choice? Long story short, his posts were intended to provoke. Fortunately, his trolling bait pretty much went unnoticed. Few want to engage in arguments like that anymore. With so many hybrids & plug-ins entering the market, the rhetoric of the past doesn't draw much attention anymore.
- 11-06-2012 691,281 Sold.** That's how many Prius were purchased worldwide from the start of 2012 through October. (1,028,900 is the total number for all hybrids from Toyota.) Seeing a quantity that high changes everything. There's simply no way to have a constructive argument against Prius at this point. That's a decent size chunk of annual production, even for a large automaker. The effort to make the technology viable as an everyday choice has clearly paid off. The technology has proven reliable & affordable. It represents a paradigm shift about to take place. Justifying the business decisions becomes a sensible one, rather than the risk it had been perceived of in the past. We need to reduce emissions & consumption. Hybrids deliver that... the FULL type, anyway. I'm especially excited to be driving the proof that the transition to using plug-supplied electricity is no big deal. All the nonsense of the past is rapidly fading away. Consumers have embraced change. Yeah!

- 11-06-2012 Coldest Yet.** I captured another drive last week, but didn't get time to type up my notes... there was this election distraction, you know. This data was my coldest collected so far, still quite warm by Minnesota standards though. It was 29°F outside. At the 9.3 mile mark from the 17.2 mile morning commute, the engine shut off slowing down from 70 mph. The coolant temperature had got up to 166°F from that drive with EV-BOOST. That's plenty to provide heat for cabin warmth, which I wasn't actually using then. Heck, I haven't even started wearing my winter coat yet. Anywho, what I'm most interested in is the retention of heat while driving in EV mode. From 60 to 45 mph, with a variety of traffic & stops while the speed limit drops in 5 mph increments along the way, I drove along in smooth & silent bliss. At the 16.0 mile mark, the battery-pack was depleted and the engine started back up. The coolant temperature had dropped to 109°F. The engine only ran briefly, settling at 130°F as I pulled up to the usual spot in the parking ramp using only electricity (EV in HV, also known as Stealth mode). The final result was 153 MPG. That's still pretty darn good. When the real cold arrives, then things will get interesting.
- 11-07-2012 With Heater.** Today's drive took on a different approach. Even though it's still to warm for the heater yet (40°F this morning), I wanted to see how much of an influence it would have on coolant temperature in the mild conditions. So, I turned it on with a setting of 75°F and the fan on low with blower settings for window & foot. At the usual 9.3 mile mark, upon switching from EV-BOOST to EV mode, the engine had heated up the coolant to 157°F. That's a little below the 166°F expected without the heater on. At the 13.4 mile mark, the coolant temperature was just about to drop to 114°F degrees. Since I was quite warm, didn't want the engine to start up, and there was still 3.1 miles of EV remaining, I shut off the heater. To my delight, I arrived at the usual parking spot with 0.1 EV still. That was sweet! At a total distance of 16.7 miles, the coolant had dropped to 100°F. The result was an average of 184 MPG. Now I'm well prepared for seeing what happens when the daily high is well under the freezing point. Of course, the basis of comparison will be difficult... since driving conditions can change dramatically. I've seen MPG climb when up due to heavily snow congested traffic with my 2010. Now having plugged-supplied electricity available, Winter results will be very exciting to witness and a fascinating comparison with the 2010 data I collected along that same commute, also with grille blocking.

- 11-09-2012** **Fast Commute, But Cold.** Having documented many aspects of plug-in Prius driving on paper, it's now time to get share some info in video format... complete with both dashboard & scenery. Colder temperatures bring lower efficiency, for all vehicles. Prius is no exception to that. Air & Tire resistance increase. Gas is switched to winter formula. Combustion itself produces less power. You've got a variety of easily overlooked influencing factors easily overlooked. And that's just Fall. When Winter arrives, traffic is slowed by snow & ice to make your MPG drop even more. This particular commute with my plug-in Prius nicely shows how my drive to work in Summer, which had resulted in the low 200's for MPG, now only gets around 150. It gives you an interesting dose of perspective. That's still quite remarkable. Watch the video closely. Notice how that even at 70 mph, most of the time MPG stays over 100 once the engine is warmed up. That's what owners have termed as EV-BOOST mode. Even though gas is consumed, the quantity is much less than from a hybrid without plug-supplied electricity. At the conclusion of the commute, you can see the average resulting from the 16.7 miles of driving on that 37°F morning was 143 MPG. You can watch the video here: [Prius PHV - Fast Commute To](#)
- 11-10-2012** **Questions Like This.** The introduction of a model with a plug has really stirred curiosity. Some researching Prius PHV have no idea what to expect. This particular question today got me: *"Do I need to drive below 62 to get the benefit of the PIP? Or can I set the cruise at 70 and still get some value out of it?"* I just happened to film a recent video providing the answer to exactly that. So, I was especially excited to respond. I provided a link along with: I sure am glad that only comes up as a random question, rather than becoming a chronic misconception. Phew! Watching that video I captured of a random commute last week, you can clearly see the benefit at 70 mph. That mode is what we've coined EV-BOOST, where there is an obvious benefit from the plug-supplied electricity even though you are traveling faster than the electric-only limit.
- 11-11-2012** **Growing Interest.** Colder weather sure is stirring discussions online. We're all quite curious how the plug-in model will respond to the conditions. Getting countless posts from new c and v owners experiencing low temperatures for the first time makes patient a challenge. We look forward to owners sharing their experiences. Anywho, this was my contribution to the growing interest today: The cold season is quickly becoming a fascinating topic for me. Today started with the Prius sitting outside all night, in temperatures below freezing and no plug. It warmed up a little, so the precipitation was rain rather than snow. Good thing too; otherwise, it would have been several inches. As the temperature dropped, it did indeed change to the white fluffy stuff. Fortunately, that was short lived. My morning drive was just ordinary HV mode. After lunch, I got a chance to recharge. With the temperature at 27°F, running around town was a mix of EV and HV. Being able to choose when, is nice. You have to remember to shut off the heater when you park though. Otherwise, you only have 7 seconds after starting to. If you don't, the engine fires up. But then again, it's cold enough to need the heater anyway. The total distance today was 45 miles. The resulting average was 59 MPG. To my delight, the EV distance was 12 miles. When the engine runs, excess power is directed to the generator. The result is more electricity available when driving. So, it looks like the loss of capacity due to the cold is made up for by the need to run the engine. I'm quite pleased with the results. Now I'm especially curious to find out what my commute brings in the winter. Being able to recharge at work will deliver remarkable efficiency, despite the cold.

11-12-2012 Real Winter Driving. I started a new thread on the big Prius forum. This was the past: For those of you where the daily high doesn't get above freezing (32°F, 0°C), this is the thread to share your plug-in experiences. That's real winter, especially since the chemistry of lithium batteries reacts different than it does when temperatures are above freezing. 22°F was what I was greeted with this morning, along with a fresh blanket of snow concealing a slippery layer of fresh ice. It was the first true taste of winter for me with the Prius PHV. Jumping onto the 70 mph highway was as expected. When I pushed the button to start up the blower on the windshield, the engine fired up. Naturally, it took longer to warm up. But the speed of which was very similar to my 2010, but with much higher MPG. At the 9-mile mark just before the speed limit drops to 55 mph, the traffic had come to a crawl. The Prius simply switched to EV mode as I approached. To my surprise, the engine fired back up when the coolant dropped to 145°F from the 159°F it has been at 70 mph. My guess is the battery-pack was still wasn't fully warmed up yet. Normally, it stays off until 114°F when ECO is engaged. I shut off the defroster, which caused the engine to immediately shut off. To my delight, the light warm blowing you get with the system "off" was plenty to prevent the need to use the heater itself. That was great, since I chose to get off the highway to take a back route the rest of the way. EV was available until I ran out of electricity, which I took full advantage of. The windshield stayed clear for about 15 minutes. When I got stuck in the next traffic back up, there was only 0.4 mile of EV remaining. So, I pressed the HV/EV button to warm the coolant and recharge the battery-pack a bit. That worked out well. My commute that would normally take about 25 minutes was looking to take over an hour. Blah. Upon reaching the ramp and avoiding the slip & slide activity others around me had engaged in, I was delighted to see an outcome of 104 MPG. It was a very good first winter driving experience with the plug-in.

11-12-2012 The Drive Home. It was intriguing. Most of the snow & ice had melted, but the temperature had dropped to 27°F. I left the ramp and drove about 2 miles in EV mode. That totally defied what antagonists had claimed was possible, which I found quite pleasing. At the base of a very steep and very long hill, it was a great opportunity to take advantage of the engine. So, I did. When the coolant hit 119°F, the EV/HV button I had pressed to start the engine was pressed again to indicate I wanted to go back to EV as soon as warm-up was complete. The engine shut off immediately. Huh? I had expected the engine to continue running until the coolant hit 130°F. I'm not sure why it stopped sooner. No complaints about that though. The remaining drive was about 1.5 miles, all in EV with the seat-heater on high. My shopping was lengthy, around 35 minutes. The coolant had dropped to 71°F. The next destination was about 1 mile from there, including a steep uphill climb. This time, the decision was to see what the EV would deliver. Sure enough, got there using only electricity. The next destination was also with EV, the coolant temperature now at 64°F. Next at 58°F, it too was all EV. Now at 55°F, the hope to remain in EV was effortless. It drives very well in the cold. That was impressive to experience. I finished shopping. It was a long drive to the highway, wanting to travel with only EV until the battery-pack was depleted. Sure enough, I ended up getting over 10 miles of all EV driving. That was sweet, especially since the outside temperature had dropped to 25°F and the coolant only 31°F. It was a very nice introduction to real winter driving. The total journey was 40.5 miles. It consisted of 2 full recharges. The overall average came to 85 MPG.

11-13-2012 Heater Dance. I filmed another of my drives. This one was especially interesting. With the temperature at 24°F, resistance was futile. I couldn't let the opportunity slip away. I had to capture a drive on video that documented what happens when you start with a cold engine and drive the entire time with the heater on the generous side. The filming setup was a challenge, of course. I had to avoid blocking the vents to keep the windshield clear. I also had a new mount for the dashboard camera and a new Wi-Fi transmitter for the scenery camera. Both had problems along the way too. But there's no stopping once you start. You only get one chance and just hope for the best. Next time, I'll be better prepared. This time was intended to be practice. Luckily, the video turned out well enough to share anyway. Watch the instant MPG readout next to the speedometer. Once the system (heater & emission) is fully warmed, the engine shuts off and EV mode automatically engages. With the heater temperature set to 75°F and the blower set to medium for both windshield & feet, the ice cold coolant would take several minutes to warm. Following that, I was able to drive along in EV mode. Later, the system automatically switched to HV mode to produce more heat while also assisting with propulsion and generating some electricity. Watch for that; the MPG will drop below 100 briefly. Those engine on/off cycle happens several times throughout the drive to the coffeeshop and back. This is the same route I filmed several times with the 2010 Prius. Now using the plug-in, even under these terribly inefficient driving conditions you can easily see how the extra electricity really boosts efficiency. The 17.9-mile drive resulted in an overall average of 92 MPG, with 0.9 mile of EV still remaining. Normally, I wouldn't have the heater running as much and I'd take advantage of the heated seat. That will allow for higher efficiency, since the engine would run less often. But for the sake of demonstrating ordinary circumstances without any question of comfort, I didn't. After all, passengers in back don't have seat heating available. This is a link to the video: [Prius PHV - Heater Dance](#)

11-13-2012 C-Max Energi. Today, an article named it: "*Ford's High-Tech Prius Killer*". Coming from a financial publication rather than automotive, a title like that does make you curious what they had to say. Turns out, it was very little. Price of the vehicles and battery-capacities was all that was mentioned. You were given the impression Ford was somehow able to squeeze more miles out of the same physically sized pack. Leaving out vital information is called misleading. From what was printed, it would be extremely easy to believe there wasn't an interior difference. In person, you'd immediately notice they aren't even close. The larger battery-capacity comes from sacrificing a flat cargo area, a feature Prius PHV did not. The other blatant omission was the efficiency following depletion. There's a clear difference between 43 MPG and 50 MPG. C-Max Energi's value being some much lower comes from its extra 734 pounds, which obviously wasn't mentioned either. The writer stated just the particular facts he wanted to convey. In fact, only the tax-credit for Ford was included, without a peep about one for Toyota. It was quite frustrating to read. Oh well. Greenwashing about actual green vehicles is certainly better than in the past.

- 11-14-2012 Warm-Up Reminder.** Engine warm-up completes at 130°F when in EV mode. That's helpful to know after a hard acceleration. It seems like forever when having done that with a cold engine. But with the gauge, you can see exactly when it will shut off. It's just a matter of observing the coolant temperature. With a hot engine, you take advantage of the fact that it will shut off immediately upon completing a hard acceleration. Without seeing that value, it's easy to imagine new owners being really mystified as to what the system is actually doing... especially when heater demands in the Winter add to the demand for heat. The elegantly simple complexity of the design seems like an oxymoron, until someone points out what is actually happening. But even then, sometimes you need a reminder of the detail. After all, following depletion, the heater threshold changes from 145°F to 114°F depending upon whether or not you use ECO mode. That button makes a difference in the cold season. Forgetting to use it means more engine warm-up.
- 11-15-2012 Repeating History.** As the third year of Two-Mode sales began, it was quite obvious the affordability goal had been forfeited by other aspects of the design which exceeded actual need. That's how the "*trophy mentality*" originated. We saw the same obsession with awards misguide the intentions with Volt... which is now about to begin its third year of sales. Needless to say, that isn't going as planned. So, we get a new set of priorities from GM. This includes a completely different attitude toward the EV and a very confusing message about the future of eAssist (the second generation of BAS). It doesn't tell us anything about Two-Mode either. In fact, it was the same old lack of detail as in the past... the very same approach that led to all the unfounded hope and following disenchantment with Volt. No clarity. What a mess. After 5 pages of observation on the big GM forum, I finally chimed in with this: Notice how references are quite vague, using labels that identify a specific characteristic but don't actually take real-world driving into account? That's been the trap for many years. We place attention on marketing an idea rather than address need. Even the title of the article itself does that: "*GM will focus on plug-ins and EVs, but not hybrids.*" With so many different varieties of hybrid, what does that really mean? In the most generic sense, you could just say that indicates the only high-efficient GM will offer will include a plug. That doesn't make sense when you consider what Ford & Toyota offer though. There's obviously more at play than just a plug, but no detail is provided. It's the same old lack of clarity as in the past. Reading that GM expects to sell 500,000 vehicles with a battery-pack annually by 2017 makes you wonder what the strategy really is. It seems in conflict with the focus statement. What should we be expecting?

11-16-2012 **Understanding EV.** When the engine runs for power or heat, it confuses those trying to understand how the EV works. I filmed again. The result was over 13 miles of EV. But that wasn't the point, hence providing detail on video... It was my morning commute taking the route along the river, starting with a cold engine and a battery-pack near full. The temperature was 25°F outside, but in true Minnesota style I saw no need for the heater. My winter jacket did the trick, even with the windows cracked to prevent fogging. There wasn't a need to turn on the heated seat either. I was comfortable, gloveless and driving an iced coffee. The engine stayed off until I wanted it to start. Toggling the HV/EV button when turning onto the 50 mph section works best. With a 17.3 mile drive that route, there isn't enough battery to travel entirely EV anyway. And of course, there's the nice benefit of EV replenish resulting from the engine running to produce thrust & heat. Anywho, you get familiar with you commute after awhile, so the what to do when becomes rather mindless. So, pushing the button again while on the ramp to merge onto the 55 mph is a rather routine thing to do too. And I did, saving electricity for when it could be better utilized. I ran out of EV as I entered the parking ramp. That was perfect, since power demand was low enough for Stealth mode to get me to my spot, still driving with only electricity. You can see it automatically switch in the video too. Despite the cold temperature, the resulting average was 204 MPG. Using the heater, efficiency still would have been in the 100's. No complaints about that. The plug is delivering a significant boost, exactly as it was designed to. Here's a link to see it: [Prius PHV - Along The River \(25F\)](#)

11-16-2012 **Failure.** With so much hype, propaganda, and spin online, there won't be anything new labeled as "*failure*" anymore. Instead, attention is simply focused on the next best thing. Two-Mode is the great recent example. When sales were so bad no one even wanted to talk about the situation anymore, Volt ended up getting the spotlight from GM supporters. From those just wanting to support domestic automakers, they stopped caring about Volt... hence all the attention C-Max Energi is now getting. It's an ugly reality watching goals be missed. We all know the goal is to replace traditional vehicle production. Sadly though, lots of bragging about capacity & speed still happens along with providing countless excuses. Addressing want rather than need is a fundamental problem contributing to the mess. In the day of Edsel, the industry and world market was very different. We can no longer afford massive investments to not provide a substantial return.

- 11-17-2012** **Same Old Nonsense, part 1.** Want verses need has been the problem for many, many years. When someone supporting a solution for the masses states a model is required to fulfill minimums, enthusiasts panic in fear that somehow the model they support which exceeds those minimums will be taken away. It's the same old response every time. They make vague references to goals and limit scope to draw conclusions. That's why history keeps repeating. The reality of the situation is that middle-market consumers don't always buy the high-end model. Given the choice, they tend to purchase the one offering a balance of priorities for an affordable price. Knowing that, the one-size-fits-all approach from GM limits sales. The only configuration of Two-Mode we got was one that focused on requirements in excess of the mainstream. Plans were made to offer choice, but nothing was ever delivered. So, focus has shifted over to Voltec instead. Same problem. Why aren't we given any choices, like battery-capacity or engine & motor sizes? Both Ford & Toyota offer that. Product diversity is a key component to business success. Why is there so much resistance to that from enthusiasts? They keep telling us the absolute of electric-only is essential. That doesn't make sense when the intent is to reduce gas consumption, not eliminate it. You offer the choice to consumers... which brings us back to asking what the topic of "*not hybrid*" actually means.
- 11-17-2012** **Same Old Nonsense, part 2.** It's quite eye-opening to confirm someone really doesn't know the difference between want and need, after all these years. That's greenwashing at its best, when they have no idea they've been mislead. Anywho, pushing for detail is how to find out. Supposedly, the 0 to 60 acceleration requirement is 8 seconds. According to who? All those vehicles taking longer certainly aren't causing accidents. If so, the slower acceleration wouldn't be fulfilling a necessity. Clearly, the rate is fine. The enthusiast wants more. It isn't a need. The same thing happened years ago when 10 seconds was supposedly required. Then when the new Prius delivered that, they changed the requirement... even though there was nothing to prove faster was essential. Fear often contributes to the nonsense. Popularity of a new vehicle that's slower threatens the loss of what they desire. They can still have what they want, as long as they are willing to pay. You can still buy a guzzler. The choice hasn't been eliminated, it was expanded. That's what we want from a vehicle like Volt. Where's the model that's actually affordable? One with a smaller battery-pack to lower cost while also offering more space in back makes sense. Yet, they deny it.
- 11-19-2012** **New Photos.** I'm finally starting to get caught up on publishing photos. With the temperature dropping, having a basis of comparison available to refer back to will be helpful. A few days ago, the temperature on my morning commute was down to 25°F. That's a sign of undeniable change. Efficiency dropped to 204 MPG. Eek! Fortunately, the stimulus for working on photos came today. With the temperature back up 48°F, results of that same drive were considerably better: 328 MPG. That's still way off from what I was getting excited about seeing routinely throughout Summer, but there's certainly nothing to complain about. Winter lowers efficiency of all vehicles. Prius PHV is no exception. You sure develop a heightened level of anticipation for Spring having a plug though, elevated more so than with a regular Prius. In the meantime, I'll be watching it get colder and colder. There's much to stir excitement about that too. Being among the first to witness how the system copes with temperatures well below freezing is rewarding. You get to participate in history rather than just reading about it later. In my case, I'll be contributing photos to document those observations. See... [photo album 179](#)
[photo album 180](#)

- 11-20-2012 Observing EV.** Having missed summer opportunities to film my commute to work and it already snowed the week before, I jumped on the unusually warm fall day (48°F) to capture it with the plug-in Prius. This is the same route as many other videos. With the 2010, it was exclusively HV mode. With the 2012 PHV, there is the choice to switch to HV in the middle when it potentially could yield higher results. Instead, the plan was to take advantage of EV mode until it was depleted entirely. Remember, when in HV mode you still have electric-only drive available. It just isn't as powerful or as fast as when in EV mode. That means the slow part of your drive near the ending can still be without gas. Also, don't forget that the system is configured with maximum emission reduction as primary priority, not the highest efficiency. I was especially happy with the camera setup this time. The quality of the dashboard image has been improved. The soft lighting during most of the drive and the sun emerging at the ending just happened to be well timed too. Anywho, the 17.2 mile drive was 14 miles of EV with the remaining in HV. The result was an overall average of 328 MPG. That's about 3.0 kWh of electricity (including charging losses) and about 0.01 gallon of gas. Watch it here: [Prius PHV - Along The River \(EV\)](#)
- 11-21-2012 Failing.** Back when Volt was first rolled out, saying anything not complimentary was looked upon as a "fail" assessment. Enthusiasts were paranoid. Supporters replied with excuses. Since then, the enthusiasts have vanished. All that's left are supporters... who are still making excuses rather than adhering to their very own comments made this time last year. That's obviously hypocritical to disregard their own comments. But they twist it to make your own stick-to-the-same-priorities sound like inability to be flexible. Isn't it great how they find a way to spin just about everything? Anywho, I ended up stating this: That "*over promise, under deliver*" strikes again. It shouldn't have declared to be a "*game changer*". Expectations were set for mainstream sales volume in the second year. That wasn't realistic considering the state of the market and the production cost. There's also the 500 million shares of GM the federal government would like to sell back without a large loss. Looked upon as a niche, Volt is doing fine. There isn't a minimum required to become business-sustaining and using tax incentives are fine. It's that jump to middle-market consumers which presents the challenge still being faced. The heavy emphasis on monthly sales continues to contribute to the problem too. Enthusiasts don't really like to address what it takes to be profitable or actual need. The focus continues to be on want.
- 11-21-2012 103 F Degrees.** The engine didn't restart until coolant temperature dropped to 103°F. That was a bit of a surprise. Why? Normally in ECO mode the threshold is 114°F. But then again, this Prius is configured to work different anyway, to take advantage of electric-only opportunities. So now that it's Winter, I'll be keeping close attention to spot differences. It won't be long before the morning commute is routinely well below freezing. That's when the retention of heat, assisted by blocking the grille, makes a difference. When that coolant heat runs out, the engine needs to run temporarily warm coolant back up to keep you warm.

- 11-22-2012** **Leaf Sightings.** There's one in the neighborhood now. I just barely missed an encounter at the local gas station today. Ironically, that's a rather unlikely location for a meeting... since he'll never purchase any gas there. Someday, perhaps. Of course, the odds aren't good my PHV will get noticed. The visual clues about it being a Prius with a plug are quite subtle. But at some point, people will become aware and start looking. Leaf owners will probably develop a heightened awareness... since it's so lonely right now. Hopefully, that will change quite a bit next year. Then, I'll have to deal with charging-stations actually being full and actually try the "*ok to plug when complete*" sharing.
- 11-23-2012** **Forget The Past.** The purpose of participating in discussions on the unfriendly forums was to get information no other source could provide. In other words, it was the pursuit of argument points. Knowing their perceived shortcomings are quite valuable, since lack of substance is the downfall. They inevitably reveal weakness. So, you put up with their nonsense. Simple things like refusing to provide detail or answer questions are a dead giveaway of trouble... which is nice, since online participation is so much harder to determine intent compared to the articles with bias that's quite blatant. They avoid the obvious by doing things like asking questions of their own, diverting focus. Problem is, that's self-defeating. They can conveniently forget the past, but others won't. Repetition only works a few times before you lose the audience... which is precisely what we're seeing now. The antagonists are the only ones left. No more enthusiasts participate. The true supporters are long gone. They know the history of the topic itself as well as the history of those discussions. Debates have ended. Hype is gone. The next chapter has begun.
- 11-23-2012** **Keeping Warm.** The topic of heat and Winter efficiency certainly is stirring a lot of discussion. There's so much to cover and each new plug-in Prius owner has a different perspective, due to location and duration of ownership. So, it's difficult to know what to contribute. These were my ramblings today: Colder temperatures are definitely affecting my engine warm-up (as expected), but the EV driving is still as it was, down into the 40's anyway. Of course, up in the 80's it actually exceeded what I had experienced during normal morning commutes. We know that lithium chemistry responds differently in conditions below freezing. Resistance is quite a bit higher. So, there is no expectation of consistency then. 20% (of an overall capacity loss) seems fairly realistic. Of course, running the engine for cabin & emission warm-up results in battery warming in addition to battery charging... making it quite a challenge to quantify. Then there's the reality of headlight & seat-heater electricity consumption that wouldn't normally happen in warmer temperatures.
- 11-23-2012** **Cold Shopping.** My adventures into the holiday chaos started with lunch with my Sister, waiting was preferred. I simply wasn't interested in "Black Friday" craziness first thing in the morning. Fortunately, some bargains could be found later in the day anyway, which I did in fact do some shopping for. Driving from store to store in the cold would normally be unheard of, when an engine starts. Why would you move for such short distances? Since I could take advantage of the opportunities EV offers, that was different. All of my running around to eat & shop was entirely with electricity, despite temperatures in the low 20's. Having a heated seat helps. I wouldn't actually want to do that without. It was pretty sweet. That changes your attitude toward errands. Short trips into town to get this & that complimented by 999 MPG even in Winter sure is nice.

- 11-24-2012** **Fabricating Fiction.** Reading comments about articles on general audience publications stirs up lots of disturbing statements. This one caught my attention today: "*I talked with a tow truck driver and he said a lot of his calls are for the Prius which has a lot of failure of the main battery, which is an expensive thing.*" Funny how I've never encountered that, eh? You have no idea who any of the people involved are. You just know they felt compelled to post a negative comment without any data to actually support it. Fabricated fiction from the desire to undermine is nothing new. It happens all the time. Sadly, some very well known advocates of Volt do the same thing: "*Toyota hates the fact that battery plug-ins are catching on and they have to diversify away from their big hybrid only investments.*" The particular individual who posted that felt in was necessary to mislead, not liking the plug-in Prius. The hope is people will believe the model offering a plug is profoundly different, that Toyota hadn't planned ahead and incorporated everything into the regular Prius already. Only needing a larger capacity battery-pack and a charger confirms the investment was well thought out. Claims like these are what makes me feel good about the FULL hybrid approach. It has proven a wise choice.
- 11-25-2012** **Summer EV.** The seasonal effect is something EV drivers have been aware of for ages. The thought to point that out to the new audience we now have here was forgotten. I observed it firsthand many times throughout Summer. Now with Winter approaching, it's easy to see the difference. The increased capacity during the warm season was something I intentionally delayed getting on video, wanting to avoid giving a misleading impression of expected performance. That's a big reason I waited until the cold season returned to begin filming. If people are pleased with what they observe under demanding circumstances, they'll be thrilled later to discover it gets even better later. That's also a great way to endorse the technology. Way back in 2000, my Prius experienced the second coldest & snowiest December in Minnesota recorded history. Documenting details of those driving experiences proved quite valuable when rollout expanded. The hope is that very same thing will happen with the plug-in model. Having studied the design for over a decade and now driving it, there are particular normal behaviors that those new to plug-in technology could easily assume incorrectly about. We need to make sure to be explicit and routinely provide exposition to have prevent that. This is a perfect example of where that effort will be helpful.
- 11-25-2012** **Greenwashing.** The madness will go on and on. That's inevitable when it comes to being in a competitive market with much to be lost. This is the latest: "*GM is moving beyond hybrid technology as they already have with the Voltec system in a bit of a that-was-then this-is-now maneuver.*" That comment came from a staunch supporter who is well aware of the inability for GM to compete directly with hybrids from Ford & Toyota. Their hybrid system is too expensive and neither as efficient nor as clean. So, the decision was made to focus primarily on plug-in offerings instead. That's an interesting business risk. What do you sell to the many consumers who simply don't have access to a plug? It's a very real problem the lack of diversity doesn't address. I see the comment as effort to not tell the whole story, in other words, greenwashing. Here's how I responded: Having both an engine and at least one electric motor makes it a hybrid, period. The reality of the situation is how much that electric motor is utilized in contrast to the engine, which is being used in an increasingly efficient matter. It's not an absolute as marketing attempts to convey.

- 11-26-2012** **Agonizing.** In the old days, if you said anything that didn't shed a positive light on a competitor, the "*fanboy*" label was used. That's ancient history now. Under the same conditions, at least when discussing GM, you are given a "*hater*" label. It's quite disturbing how often that label gets used in forums and on article comments. Then of course, if you favor an automaker like Toyota, they start waving the flag. That's looked upon as "*bashing America*", even though the result is lots of employment here. Sadly, a certain few have even begun accusations of communism. It's all quite disturbing. But with Volt about to begin its third year of sales and volume still under the profitable level, the situation is increasing pressure on supporters. We all know numbers not meeting expectations results in losses. We all know the clock is ticking on the tax-credit too. To make matters worse, there's a wave of plug-in hybrids about to steal the spotlight. Ford's rollout is well on its way. Toyota will soon expand to nationwide availability. Sometime in the first half of next year, Honda will make its debut. All hybrid sellers already, they really stir emotion when compared to what GM has to offer. That ends up being agonizing for everyone. You either get labeled or you have to deal with the pressure.
- 11-26-2012** **25 MPG.** One strategy for dealing with the continued success of Prius is to force it into another perspective. With the plug-in model, certain people (you know who they are) always compare it to an EV. Why? That doesn't even make sense, nor was that ever the intention. The approach we've seen all along is to expand upon efficiency opportunities with an electric motor. That ability to drive alone through the suburbs with the engine off has been available since the very beginning. Back then, the distance & speed was limited. Over the years, both have increased. That wasn't the exclusive means of achieving high MPG results though. Running the engine at a lower RPM by having the motor provide propulsion power too was always a fundamental aspect of the design. Now that the engine RPM can be 0 more often, somehow that makes it a poor EV. Since when was that ever a goal? Never has an absolute of no gas ever been proclaimed. Reduction has been the intention, not elimination. This is especially important when you consider the means to which some electricity is derived. That source can be rather dirty. Continuing to improve upon engine efficiency as well as using renewable carbon-neutral low emission fuel makes sense. Anywho, the goal for the first plug-in Prius was to significantly improve efficiency without clean compromises. Seeing that achieved with the anticipated average of roughly 25 MPG better is quite vindicating... hence so much antagonistic response from those supporting other solutions... you know who they are.
- 11-27-2012** **Discovery.** This morning's commute appears to have revealed a correlation between the heater setting and coolant threshold. They seem to be tied directly, the lower the temperature on the heater, the lower the temperature on the coolant. In other words, a setting of "*HI*" will trigger the engine to startup when it drops to about 145°F but "*72*" not until around 121°F. I tested theory this by adjusting it to "*65*" and observed the engine staying off until 114°F. The end result of my 16.7 mile commute (taking the 70 mph route) today was 137 MPG with 1.8 mile of EV remaining. I'm looking forward to seeing what the commute will reveal when the heater is set to "*65*" for the entire drive. Note that on the regular model of Prius (my 2010), I never observed this. The threshold for engine startup was always 114°F in ECO mode and 145°F in Normal. It tends to make sense with EV that there's a sliding scale to make the heating smoother, since the duration between engine running could significantly longer than with a Prius only offering HV.

- 11-28-2012** **No Hybrids.** The endless debates continue. This was the latest contribution to that: There's a large product-gap between eAssist and Volt. No amount of rhetoric will change that. This thread is about GM's choice to not fill it. As we've seen with the plug-in Prius, it's feasible to significantly boost MPG through the use of a modest-sized air-cooled battery-pack hybrid efficiency even after depletion. That makes it a configuration capable of high-volume sales and business-sustaining profit. Reading the article, there's nothing mentioned about how the 500,000 per year goal will be achieved or even any expectation of what the distribution will be. With other automakers pursuing that gap, it seems quite a risk for GM to dismiss it. As the cost of lithium batteries drops and the tax-credit expires, the choice of a small & simple system with a plug for the masses won't be argued anymore. In the meantime, we still have to deal with those claiming the superiority of a system which didn't take the priority of being affordable seriously. That's really unfortunate.
- 11-29-2012** **Colder Operation.** The temperature continues to drop around the country. (It's actually been on the warm side here though.) So, online discussions about Prius operation in the cold are quite popular. With both owners of c and v experiencing Winter for the first time, there are quite a number of questions to address. It's all the same stuff we've heard countless times over the years. But to them, this is their first experience with a hybrid in the cold. The engine off behavior changes. Some is rather predicable. Some needs information to understand. All results in much improved MPG compared to what their previous vehicle would have delivered.
- 11-29-2012** **Accord Plug-In Hybrid.** Details were released today. This is Honda's first hybrid offering a second motor, making it more flexible than their ASSIST system with only one. Of course, we still don't know if it is a FULL hybrid though. That requires a power-split device, which allows a wide variety of energy flows that overcomes the limitation just a single motor/generator system can offer. Price was obviously the biggest curiosity. It will be available starting at \$39,780. Rollout will begin mid-January for 2 states, California and New York. National availability will be sometime later in the Summer. The EPA rating is 115 MPGe officially, which is the highest for any plug-in hybrid so far. As for depleted operation, the MPG estimate values are 47 city, 46 highway, and 46 combined. The EV range for the plug-in is rated at 13 miles, from the 6.7 kWh lithium battery-pack. It will feature a 137 hp 2.0 liter gas-engine connected to a 124 kW electric-motor. This will be the very first vehicle rated under the new LEV III standards too, earning a rating of SULEV20. The numerical part of that emission label represents the NMOG+NOx level. In this case, 0.020 gram/mile. Needless to say, the world of Volt having the spotlight exclusively is rapidly fading away.

- 11-30-2012** **Now Available.** It was quite a delight today to discover a dozen plug-in Prius delivered to a local dealer here in Minnesota. They're all 2012 models available for immediate purchase. I wasn't expecting them so early with the inevitable on set of Winter... which likely won't be a mild one here like last year. This being an area where Prius is quite popular year-round, endorsements from cold season driving go a long way too. So, it makes sense offering some here sooner. After all, some people have been waiting a very long time, not will to do an out-of-state then transport delivery as I did. Being available in December means they'd be able to claim the tax-credit right away. It provides a nice opportunity for a few lucky people to take advantage of. When Spring finally arrives, much of the rest of the country will hopefully have local availability too.
- 12-01-2012** **Buy Again.** Aren't surveys fun? Blah! Limited scope can give misleading impressions. That's why when the claim is vague... like when a percent is used rather than stating that actual count... you should be cautious. Don't accept claims at face value. Always do some research yourself to confirm. The recent example comes from a "*buy again*" ranking. Seeing that raised many questions from those of us wondering about the data itself. That's why I provide spreadsheets with raw numbers. You can draw conclusions on your own, rather than just accept the summaries as is. Anywho, this is how I responded to it on the big GM forum. Greenwashing through the use of percentages is why supporters back away when detail is requested. Volt sure as heck better score high. With such an audience (smaller and quite specific), how could it not? With a vehicle like the small model of Prius, it targets totally different consumers... those who spend far less, yet still have some high priorities... like emissions, efficiency, and high reliability. There are far more of them too. Also, I get a kick out of how the "*buy again*" question limits choice. What if a number of small Prius owners choose to purchase a larger Prius instead? That would count as a "*no*" even though all they did was decide upon a different model.

12-01-2012 **Endless Bashing.** We've seen it all before. Only now, it's playing out in actual sales rather than rhetoric about what could be. Today, it was: "*You are now just bashing GM. The Volt is an excellent vehicle and if it had a Toyota badge you would probably be praising it.*" My jumping was with this summary: Keep in mind that there really is a production level that isn't profitable. Schedules are setup with suppliers & workers for specific volumes. Coming short of that results in a penalty. True, the "*I drove a Volt today*" experience can be a very positive one. After all, we know what EV delivers. An expensive vehicle with impressive abilities will always score high reviews, but cost tradeoffs come with consequences. GM campaigned fiercely against hybrids for years. The only choice now, expressed in their very own words is to "*leapfrog*" the competition. Unfortunately, that requires all the necessary ingredients all at the correct time... now! In other words, battery cost must be low and consumer demand high. That just plain is not the case. Volt could be considered ahead of its time. But as supporters wait, the competition advances, narrowing the gap. Disregarding hype of the past and having fallen short of goals, what is there? The approach GM took with Volt doesn't offer the flexibility Toyota took with Prius. We have clear examples of how engine, motor, and battery can be varied. That isn't feasible with Volt. Reduction of battery results in a power & efficiency loss, both of which put it at a disadvantage. In other words, GM top the top-down approach and Toyota took bottom-up. That fundamental difference is now playing out, proving the one is not as effective as the other with middle-market consumers. Ford will help to confirm this, since they also took bottom-up. Say all you want about GM bashing. In fact, the feedback can be quite informative. But in the end, it boils down to achieving business-sustaining profit.

12-01-2012 **76 MPH.** Concern about stress on the plug-in Prius battery-pack when accelerating onto a highway with a cold engine generated this from me: Drop the pedal to the floor some time. I was surprised to discover the "protect" mode had somewhat of an override. The engine still won't redline, which in itself is rather low at 5500 RPM. Instead, it shoots past the 1500 RPM ceiling and you end up getting around 2750 RPM. I hadn't expected that to cause jump to 76 mph with a cold engine. The speed limit is only 70 mph on that ramp just 3 blocks from my house. It goes to show you how well thought out the design really is... and how infrequently you actually need maximum acceleration. As for shortening your EV range, it won't happen if you're driving beyond a short distance. The system is designed to restore that used during warm-up by taking advantage of the efficiency the power-split-device offers. Remember, heat is required for maximum emission cleansing. That extra engine load while warming up ends up being a win-win situation.

- 12-02-2012 Trophy Mentality.** It's all that seems to be left now. Nothing else to draw interest to Volt, as it is currently configured, is a sign of the next stage approaching. Ultimately, a model that's actually competitive will need to be delivered. Bragging rights about MPG don't attract middle-market consumers. We know this well, as Prius owners. The antagonists claimed the standout look of Prius was why people bought it, not the improvement to emissions & efficiency. Their mindset is having something compelling to flaunt will generate lots of sales. That's the "*trophy mentality*". Rather than something offering a nice balance of priorities, as Prius does, it was a focus on desire. Reality is, the shape of Prius is remarkably practical. There was no other midsize hatchback available back when it debuted in 2003. That's what it got noticed. Combine that with the benefits of the hybrid system, you got yourself a winner... as long as it's affordable. That's the catch. High-Volume sales don't come from a trophy. The profit-makers have to be so common, they end up becoming part of the crowd... as Prius has.
- 12-03-2012 Excuses, Incentives, Expectations.** What do I think there could be for penalties of heavy discounting in the extreme short term? Since we heard every excuse imaginable by Volt supporters for year #1, the response could be the same... wait until year #2. Of course, now some of those same people are saying the next generation. I'd say there may not be any, since there really needs to be some extra effort to get the upfront people familiar with the differences between the regular and plug-in model. It's not like Volt, where there's nothing direct to compare to or mix up with. The differences are so easy to accept (the sign of a well planned out upgrade), it takes hands on experience from salespeople to understand & convey the benefit. It's surprising easy to miss vitals of design, since attention is often focused on other aspects of the purchase. After all, in the past people new to hybrids often didn't know what to ask. Now that's the case with plug-in hybrids... and the education of sales staff often gets overlooked by critics. Think about how easy it is for a salesperson to sell a regular model of Prius instead. Selling more of the plug-in to customers specifically wanting to jump on the opportunity to own one will help change that. Remember the initial success of Prius? Toyota was able to seek out those buyers back then. They targeted highly interested consumers, rather than doing a nationwide launch initially. GM hoped to follow in those same footsteps too. Trouble is, the market is profoundly different now. For Prius, there's countless online references already, making detail about the plug-in model very difficult to find. For Volt, the opportunity to educate was instead used to flaunt awards and brag about performance. Toyota isn't going to follow that path. They are now seeking out those with strong interest in the plug-in. Seeing a dozen 2012 models now quietly be delivered to one dealership in Minnesota seems to confirm that. Watch closely. As we get closer to Earth Day, the excitement will build. Year #2 for the plug-in Prius, which starts then, will be one to capitalize upon... no hype about an expensive approach like Volt. What Toyota offers is configured for the masses. The incentive to increase sales as year #1 comes to a close should help confirm it... just by the simple matter of seeing who actually takes advantage of the chance to buy. To be a penalty, purchases would be limited to enthusiasts. To be a true gain, purchases will be dominated by those from middle-market who would have otherwise just bought a regular model instead.

- 12-04-2012 Third Place.** GM has built up a huge inventory of pickups. Currently, there are 245,853 available. Many are supposedly the much-hyped new Silverado. This makes you question what priorities are. With Volt having slipped to third place for plug-in hybrids, supposedly due to inventory shortage, how can you not? 1,766 Prius PHV. 1,539 Leafs. 1,519 Volts. 1,259 C-Max Energi. Those totals for last month are stirring emotion on posts. Discussions don't stand a chance of being constructive anymore. Trouble is brewing. Toyota's approach of offering a balance of priorities gives the plug-in Prius a strong chance of becoming a self-sustaining choice, selling just like the other models. But since it's a package upgrade, sharing the same platform as the regular (no plug) model, there's less risk. That's good when you see how volatile traditional inventory management can be. Of course, the underlying cause of the pickup surplus may simply just be the shift away from guzzlers. But then again, enticing those downsizing from trucks to choose a hybrid car rather than a traditional car is a win-win situation. Why not capitalize on it? After all, GM has been missing lots of opportunity lately. Betting the farm on Volt wasn't a good plan.
- 12-05-2012 NiMH versus Li-Ion.** Some are beginning to question Toyota's decision not to simply move to lithium batteries for all their hybrids. The lack of diversity they've become accustomed to makes understanding the move to diversify a confusing one. It gives the impression of indecisiveness. In reality, it's just an ordinary advancement step we take for granted in other industries. It's quite normal to see that hardware stores for rechargeable devices. Why not with hybrids too? I replied to the thread discussing this topic with: It makes sense sticking with NiMH for maximum optimization. How else are they going to penetrate deep into the challenging sub-\$20k market? The benefit of storage space is nice, as is the minor bump in HV efficiency. But cost is paramount. We'll see availability of Li-Ion expand over time. Having it in two models of Prius already is undeniable proof that Toyota is real-world validating for next generation rollout potential. As for calling NiMH obsolete, that doesn't make sense considering how common Lead-Acid batteries are still. For that matter, there are still some rechargeable devices being sold with NiCad batteries. It boils down to production & sales. That's the ultimate perspective check. Expanding the product-line is what's getting the most resources now... in a market heavily dominated by non-hybrid vehicles.
- 12-06-2012 Cold Soak.** Did you know it's better for battery longevity to let it rest before recharging? Most people don't. Hopefully, some plug-in Prius owners just naturally contribute to it. Setting the timer to not start until later in the evening (to take advantage of lower electricity rates) will automatically accommodate that. EV owners don't have as much flexibility. For that matter, plug-in hybrids with large capacity batteries don't either. Only taking 2.5 hours from a 110-volt connection and 1.5 from a 220-volt, you've got it with PHV. For me at home, I've been having the recharge start via the time at 4:50 am. If I ever recharge there in the evening, I wait at least 2 hours first. That works really well. I typically have several hours of things to do anyway. While downtown at work, there's always a 5 to 6 hour delay. I walk over to the car on my afternoon break to plug in. That works out really well too, especially since I'm not taking up a charging-spot the entire day then. Be able to help stretch the longest possible life out of the pack doesn't take much more than being aware of what ages them. Providing rest time while depleted, called a "*cold soak*", contributes to longevity.

- 12-07-2012 New Expectations.** For over 3 years, we had to endure the purist hype. Then it slipped that there would indeed be a direct engine connection. The eruption of semantic arguing which followed made it clear nothing would be straight forward about the rollout. Sure enough, we got every excuse imaginable about not meeting goals... most notably sales. The revised Volt sales estimate for 2012 here provided at the start of this year was 45,000. Obviously, that's not going to happen. What should we be expecting for next year? Currently, the promotion of Volt is focusing solely on "*gas saved*" numbers. Compared to driving what? And why is there no mention whatsoever of either the quantity of electricity consumed or the resulting smog-related emissions? Leaving out vital detail is rather blatant greenwashing. With plug-in Prius rolling out to the rest of the country now and plug offerings from other automakers, the draw factors to Volt become even more of challenge. Appealing to middle-market isn't what the trophy-mentality supports. Mainstream consumers have a balance of purchase priorities. Again, what should we expect? Keep in mind there's a \$7,500 price gap which must be overcome before the tax-credit expires, just to maintain status quo. To become more than just a niche within GM's production, sales must increase significantly. Remember, the point is to offer a product which delivers business-sustaining profit.
- 12-07-2012 How We Got Here.** Remember all the nonsense we had to deal with in the past? Most people cannot, because they weren't watching the hybrid market in the first place. Those who do remember, don't realize it was over a decade ago. The years get mixed up quite easily. It started way back in 2000. The "*payback*" and "*nickel*" arguments we among the initial greenwashing campaigns. The antagonists pushed a "*treehugger*" point of view, casting Prius supporters as extremes. They fought hard to prevent mainstream acceptance. That transformed to an effort to inflate costs. Remember the "*Dust to Dust*" debacle? When finally debunked, there was a rather blatant attempt to invoke fear. It was unbelievable how determined some were to undermine the advancement of Prius. They were very upset about the progress being made. Downplay is the theme now. Holding back the entire market for the sake of making time for the competition to catch up likely won't work either. With the growth we've already seen from the new larger & smaller model and the upcoming nationwide rollout of the plug-in, that hope to convince people that Prius is just a passing niche is long gone. Not only is Prius mainstream, it is now being recognized as an example of the entire industry shifting away from traditional vehicles.

- 12-08-2012** **Addressing Inefficiencies.** This quote speaks for itself: *"I am growing concerned that EV advocates may choose to ignore vehicle inefficiencies simply because the power comes from a plug."* The problem goes back to our roots, using MPG to represent efficiency rather than stating the amount of gas actually consumed. Most of the rest of the world states their efficiency in terms of *"liters/100km"*. That informs you precisely how much fuel it took to travel that distance. MPG certainly doesn't. Anywho, I joined the discussion with: Listing the amount of kWh consumed hasn't been happening. The attitude that electricity is free & unlimited is working its way into the mindset of those praising EV. There is genuine reason to be concerned that we could simply be switching from one fuel to another rather than actually reducing emissions & consumption. Supporters of Volt cringe whenever the topic of Two-Mode is brought up... since even though it was indeed a hybrid, it still consumed large quantities of gas. The large *"HYBRID"* labels it flaunted was a great example of having put lipstick on a pig. Watching for references to *"gas saved"* reveals a lot where GM's priorities actually are. When other automakers promote their plug-in vehicles. Comparing gas consumption between Prius & Prius PHV or C-Max & C-Max Energi doesn't have as much of an impact as comparing Volt to the industry average. The real winners are those who address efficiency candidly and don't place speed & power among the highest priorities. We can pretend to be green or actually be it. There's a difference, details of which some attempt to withhold.
- 12-08-2012** **EPA Estimates.** How are fuel economy results actually validated? It's winter here now. With temperatures below freezing and slower travel due to snow & ice, the outcome will vary quite a bit. EPA is for the sake of comparison anyway, not an expectation. The wording on the window-sticker states a range, pointing out the large numbers are only an average. And how are measurements performed on rollers suppose to represent the real-world knowing roads that aren't absolutely flat or traffic free. For that matter, how is the weight of the vehicle itself taken into account. My driving yesterday, most on freshly fallen snow, came to a total of 65 miles. Using 6 kWh of electricity, combined with the regular Prius gas engine, the end result was 83 MPG. How is that information suppose to be considered? What kind of analysis should be used to confirm the automaker delivered what the consumer has chosen to purchase? How close must results be to be acceptable? With MPG becoming a high priority, the shortcomings in estimates of traditional vehicles are finally gaining attention... after years of careless disregard. Who needs to educate the market about the wide variety of efficiency-influencing factors and the differences in the types of hybrids being offered? So many questions. So few answers.

- 12-08-2012** **Price Importance.** I like how some people forget to look at the big picture: "At \$32,000, the Prius PHV isn't serving your middle-market either. That's nearly \$8000 more than the base Prius..." They get so focused on Prius itself, they forget to look at other vehicles being offered and the situation automakers will be facing. I tried to point out those missing aspects: \$30,000 has been and continues to be the middle-market target. When the tax-credit expires, that goal of delivering a plug-in hybrid with a nice balance of priorities isn't in danger. Being able to shave off \$2,000 for 2015 is within reason. We see Toyota striving to keep cost in check. They aren't making sacrifices for the sake of offering more capacity. So what if there are other models of Prius available with lower prices. The point is to increase choice. None of them offer a plug. Market expansion is realistic when MSRP is at a level comparable to what mainstream purchases already are. High-Volume sales don't come from complicated justifications of price. It's quite simple to see how swapping in a larger battery and adding a plug offers a MPG boost.
- 12-09-2012** **Plug Pricing.** Sometimes, there is consideration of the rest of the market with disregard to the different models of Prius. It's the reverse of the other problem, where they are now only looking at the big picture. Needless to say, discussions get confusing. The problem comes down to price of the option itself. Focus solely on the vehicle as a whole overlooks the actual components involved. The smaller NiMH battery-pack is exchanged with a much larger Li-Ion battery-pack. A plug, charger, and adapter are added to. I responded to the on-going discussion based upon vehicle sticker-price: None of that addresses cost of the option itself. You want leather and a moonroof, that upgrade isn't free. You want HUD and a nicer stereo, that upgrade isn't free. You want larger wheels and LED lights, that upgrade isn't free. Toyota's goal was always looked upon as a premium, the price you would be willing to pay for the upgrade. You want a larger battery and a plug, you have to pay for it. The cost of that has a target of \$3,000 to \$5,000. How is that not realistic? I cannot envision someone making a purchase decision between a near-luxury guzzler and a plug-in mainstream hybrid. They are far too different.
- 12-09-2012** **Prius Sales.** For last month in the United States, they were: 8,925 for the regular model; 3,124 for the c model; 2,690 for the v model, and 1,766 for the plug-in model. The story in Japan is quite different. Last month there, the c model (known as "Aqua") has sales of 26,346. That nearly ten times more... so much, it was the top-selling vehicle there in November. The regular model wasn't as good, but still quite impressive with 22,039 purchased. The tally for v weren't available. There was a number cited for Corolla though, at 6,121. Stepping to look at the overall counts for the year so far, there were 246,170 for c and 301,102 for the regular model (along with 75,701 for Corolla) in Japan. That paints another impression of market demand. But the fact that Prius is popular in general is quite obvious. Here, it's 134,967 for the regular model, 37,677 for v, 32,582 for c, and 11,389 for the plug-in. Knowing that c and the plug-in weren't available until later in the year is good to know, but not essential. Seeing the total here for Camry hybrid at 41,213 provides an idea of the progress that's been made.

- 12-09-2012** **More Photos.** Although I only have one to share today, there's more photos on the way. It was extremely snowy. What a mess! The top highway speed on that drive was 42 mph. Most of the time, I was only going about 30. Sometimes, it was in the low 20's. We got several inches of the wet nasty stuff. I was driving through what remained after initial clean-up. There were quite a few accidents. Most come from people driving much too fast for the conditions. Slowing down is not rewarding for them like it is in a Prius. Today provided a fantastic example. I wasn't able to recharge before setting out on that adventure. It was 23.9 miles of very Wintery driving in a plug-in with a depleted battery-pack. That meant nothing but ordinary hybrid driving the entire way. The result was amazing, especially when you take into account the heater was running the entire time. 52 MPG is definitely worthy of a photo. I did indeed get one to document that event too. Here it is... [photo album 179](#)
- 12-10-2012** **Winter Arrived.** It is definitely here. We got about 8 inches of snow. Other parts of the cities saw as much as 14 inches. This morning's commute was a terribly slow one, with a temperature of 16°F outside. Traffic on the 70 mph highway was moving at around 35 mph. In the section where it slows down to 55 mph for the river crossing, vehicles were crawling along at just 9 mph. I was loving every minute of it. Upon encountering that stop & slow, there was 6.0 miles of EV remaining. I cracked the windows, reduced the fan speed, and opened the vent. With the interior already warmed up, the thought of turning on the heated-seat had even crossed my mind until 15 minutes into the electric-only bliss. To my delight, I made it all the way to the parking ramp without the engine starting up. I did have the seat on high for warmth though. I also wondered if the primary ingredient for keeping the windshield clear is a matter of air circulation, much more so than the humidity itself. A simple small fan should reveal that answer. Anywho, the result of that 16.8 mile snowy commute was 143 MPG with 0.1 mile of EV remaining.
- 12-10-2012** **Recharging In Snow.** Today was the first opportunity with more than just a dusting of snow. Since I had already recharged in the rain, this plugging in was no big deal. But like other events, documenting when is worth the effort. Those flurries turned into measurable accumulation too. The awning that was hoped to be installed at the ramp last month didn't happen yet. The 2 additional charging-stations weren't either. But now the plan is for 4 more. Cool! In the meantime, there's brushing involved. I have to sweep off the snow when I'm ready to leave work for home. This particular commute from work was going to be one quite worthy of documenting too. The uncertainty of how nasty the drive would actually be had everyone concerned. I was too. But not having the burden of wasting gas sitting there in hopelessly slow traffic is nice. It stops and you have no idea when it will begin again or how long it will actually take to travel even just a short span of road. For that matter, you don't know how easy it will be to drive along the road itself. There's usually not the fear of getting stuck, though sometimes that does happen at challenging junctions. The worry comes when the need arises for a sudden stop. Anywho, it all starts with a recharge. This time, it was while lots of new snow feel.

- 12-10-2012 Winter Extremes.** The commute home was a slow one. The temperature had dropped. The road to the highway was covered with an inch thick of ice. The city has a machine to cut notches in it to accelerate melting. That short-term result is a nasty washboard to drive over, riddled with large indentures. Everyone was going slow as a result. Of course, the slick spots on the highway were good reason to avoid speed as well. With the outside only at 5°F, use of the heater was constant the entire drive home. To my surprise, the climb out of the valley from the river was almost entirely with electricity. The coolant had warmed up enough for EV, but I had no idea how long it would last or if the battery was fully warmed up yet. Very close to the top, the engine started back up. It shut off fairly quick and traffic was only moving along at about 50 mph. So, I just let it stay that way until depletion. 90 MPG was the overall result of my 34 mile round-trip commute, with a recharge at work. That's truly remarkable for the those extreme conditions. Heck, that's considerably better any vehicle without a plug could deliver. Winter has taken on a whole new outlook. I'm quite happy, as you can see... [photo album 180](#)
- 12-11-2012 Different Perspectives.** Those new to hybrids are often oblivious to what happened a decade ago, to the point where they get frustrated. It often results in a reply which claims you are altering or distorting history... when in reality, they simply don't have all the facts. That's why I find the blogs so helpful. All you have to do is search for what was being thought & said back then, documented as it actually happened. Anywho, you get seemingly constructive comments like this without that knowledge of the past: *"Unfortunately cars like the Volt highlight that hybrids simply require a rethink, and a change in driving patterns if one is to truly expect notable fuel economy."* I replied with: The actual problem was that automakers failed to inform owners. They were kept in the dark. All you'd get was a crude analog speedometer. Then came Prius, with multi-information screen standard. It was a rude awakening. Factors like speed, acceleration, fuel-formula, air-temperature, tire-pressure, and oil-level all quickly surfaced as efficiency influences affecting all vehicles, but assumed to be Prius only. The rethink was long overdue. It stirred a movement which ultimately got the EPA to revise the way MPG estimates were measured. The fact that attention has now become so widespread is simply proof that concerns have penetrated into the mainstream. Plug-In hybrids introduce an additional variance. But since the complaints are engine efficiency (primarily MPG following depletion), the EV capacity really doesn't play a role in solving the problem at hand. It just helps to raise awareness about the complexity of estimates.

- 12-11-2012** **Air Circulation.** Blah. Driving was even worse today. The snow transformed into heavy dry masses mixed with stretches of chunky ice. It was an awful recipe for commuting. Traffic was nasty. Needless to say, I was able to test out my theory right away. On my morning commute, the slowdown area was after getting the interior nicely warmed up. I shut off the heater and fired up my tiny USB-powered fan. Sure enough, it kept the windshield clear, allowing me to drive from there on in EV without getting cold. On the way home, I simply turned on the heater and let it warm up the interior. Traffic was nasty from the start. Turns out though, there was plenty of EV anyway, even when the need to turn back on the heater came. Thankfully, we don't get storms that often and most aren't anywhere near that bad. This just happened to be an ideal opportunity to observe and interact with the extremes firsthand. The final results for those 35.6 miles of driving was 6 kWh of electricity (2 full recharges), 0.367 gallons of gas (97 MPG average), 17 miles of EV displayed, and 17 miles of HV displayed. I documented the results with my camera... [photo album 180](#)
- 12-12-2012** **Still Avoiding PHV.** You know progress isn't being made when the discussions don't change. If it's the same old rhetoric of the past, then there's no realistic way to claim advancement. How else can that be put? You read a new discussion thread about Volt, the comparisons continue to be about the regular model Prius. It's quite clear. After all this time, the supporters are still avoiding PHV. I find that so redeeming. To think that they finally recognize market Prius worked so hard to draw. The answer to my "who" question is mainstream consumers... those who couldn't care less about the reasons they state for purchasing a Volt instead. They are beginning to see that now. I wonder why. Is it sales? Is it real-world data? Is it a better understanding of the market? How come they don't mention the plug-in model when comparing Volt to Prius? Why hasn't that change?
- 12-12-2012** **Plug-In Spotted.** It's very exciting when you get greeted in the parking lot by someone happily yelling out to you: "*We have 9 Prius in our family.*" Then without a moment to determine intent, she's starts asking about the plug-in model. That was my first true PHV recognition, a random encounter totally unexpected but very welcome. That level of excitement is quite enthralling. I can't wait to do that when there isn't a snowy mess to deal with. Anywho, her determination to glean as much information from me as quickly as possible is something you have to witness to believe... which my sister did. We were out shopping, minding our own business. She got a kick out of the experience. Not having the plug-in available on most dealer's lots around here until Spring lowers expectations. That's also the case with the lack of charging-stations. I'm just collecting real-world data in the meantime. But it sure is nice responding to inquiries before that.

- 12-12-2012 Volt Discussions.** Stepping back to look at activity on the big GM forum, it's easy to see there isn't any Volt discussion anymore. Unless Prius is mentioned, the thread dies almost immediately. The content of posts themselves are nothing but comparison information. You can't actually find anything stand-alone anymore. That's drastically different from the big Prius forum. Discussions are abundant. Thread activity is dramatically more frequent. Mention of Volt is actually quite rare. 2013 is going to be rough for GM. With Ford ramping up for a good showing from C-Max & Fusion plug-in hybrids and Honda preparing to do the same with Accord, the road for Toyota is quite the opposite. It all comes down to audience. Who are those plug-in hybrids attempting to appeal to? At some point, something from GM will be announced. I can't imagine rollout of the Cadillac version of Volt being the only activity the entire third year of production. But then again, the past is loaded with unfulfilled goals. Remaining silent would be the lesser of two evils.
- 12-12-2012 Heater Variance.** I've observed that heater temperature is tied directly to coolant temperature. That's a new parameter for us driving Prius. No longer is there a specific temperature at which the engine starts back up for cabin warming. With the regular model, it was always 114°F when in ECO mode and 145°F when the other modes. With the plug-in, it varies. In other words, while driving EV with ECO, then engine will start up for the heater when the coolant is 125°F if set to "HI" but not if set to "65". While driving HV with ECO, that wouldn't happen. The engine would stay off. It sounds somewhat complicated, until you consider outside conditions and why you requested it to be warmer. More heat means running the engine longer. Taking extra time while sitting in the cold would be uncomfortable. So, it starts sooner and runs for a shorter duration instead. There's always a tradeoff when it comes to situations like that. With the regular Prius, electric-only driving doesn't last anywhere near as long as with the plug-in. Why sacrifice comfort when you can get great efficiency anyway? After all, even when the engine runs for heat, you still get a MPG boost.
- 12-12-2012 Winter Roads.** Commute traffic this evening... Ugh. I avoided the side roads, since they were still a mess despite the temperature climbing above freezing. That meant some pretty heavy congestion on the main highway. That also meant my first ever opportunity to drive EV entirely to depletion on the 70 mph route. 29 minutes of electric-only bliss. I was quite pleased how far I got, even climbing out of the river valley without the engine starting. The downfalls of Winter are turning out to be quite enjoyable having a plug. The screen that's display when you shut off the Prius is quite informative. Seeing 150 MPG for the drive was quite satisfying, certainly not what anyone else on that road was getting. It makes the cold season less stressful.

- 12-13-2012 Energi Report.** When the founder of that daily blog for Volt returned to share his report on the new C-Max plug-in (called "*Energi*") he traded it for, the response was a civil as you could expect... the topic was quickly diverted to a tangent and attention was lost. Those still there simply didn't want to address Ford's plug-in offering. For that matter, they still only make references to the regular Prius and avoid the plug-in model. Fortunately, it was quite unlike that on the big GM forum. There, they are hostile and don't even try to be honest. Oddly though, that still remains the better source for argument points. You actually get some type of feedback. Anywho, we have witnessed the hopes of mainstream fade away to niche for Volt and are now seeing plug-in hybrids capable of high-volume sales from middle-market. They never wanted to be realistic about the situation. The reaction continues to be the "*head in the sand*" attitude. All they care about is not getting a "*fail*" stigma. Oh well. It's not like we didn't see that coming. Meanwhile, the reports on C-Max Energi are beginning to emerge.
- 12-14-2012 \$2.99 Per Gallon.** A major argument point for Volt was the expectation of higher gas prices, much higher. Supporters hoped routinely paying over \$4 per gallon would contribute heavily to sales. They didn't want to acknowledge that the fuel industry has resources & incentive to prevent that. The assumption was prices would remain \$3 something. Seeing it now at \$2.99 was quite unexpected. That's a very big problem for an expensive hybrid like Volt. For an affordable one like Prius, the story is quite different. Even without the tax-credit, it is still within reach of ordinary consumers. We know that simply by observing models purchased in the past. There was a steady stream of 4 & 5 packages, whose price was relatively close. They sold well even when gas was at \$3. There was no dependency. Looking 2 years from now, no change in gas-price and the tax-credit expiration offset by the next generation improvements will be just fine for Prius. What happens with Volt, especially taking into consideration the pressure competition from Ford will create from both plug-in and regular hybrids. Other automakers will be joining the party too. Maybe 2013 will bring the long overdue acknowledgement of need. Thankfully, the blind hope of the past was finally abandoned.

12-14-2012 **Estimate Value Concern.** This was my response to a concern new PHV owner: We saw this coming... the same questions getting asked over and over and over again. It becomes annoying quick, when there's nothing actually wrong and it stems from not being well versed in how the system works. But that's what happens when a new technology is so well designed and so unintimidating middle-market consumers embrace it. To best explain the situation, you have to first recognize that the value presented isn't an EV range expectation. Prius is a plug-in hybrid. Its purpose is to significantly reduce emissions consumption, not to offer a pure electric-only driving experience. The larger battery-pack and plug simply expand upon efficiency seeking opportunities the system has been taking advantage for 15 years now. True, you will have plenty of EV driving, but that value is only an estimate based upon your own personal driving data. Reset the computer, the original value you saw will immediately return. Mine progressively got lower due to more blend driving rather than electric-only. The resulting MPG should be outstanding, since the plug-supplied electricity is still being used. Seeing a value much lower now than when you first bought the car is an understandable sign of concern though. But then again, some of the best advocates for the technology over the years have come from owners with a first-post convinced something is wrong. They learn how the system actually works, then becomes very excited upon learning how well it copes with such a seemingly simple situation that is really quite complex. Long story short, it's working fine and welcome to the forum. There are quite a number of threads on this topic already. Do some searches. Then if you'd like to learn a lot more, consider purchasing an aftermarket gauge to allow you to observe aspects of operation not revealed via the dashboard displays.

12-15-2012 **Blend Mode.** I've been playing with it, wondering if there's a simple way of conveying intent & benefit. The plug-in Prius will run the engine from time to time for heating the interior. Heat is also needed for cleansing emissions. Winter can be cruel to efficiency for all vehicle. But taking advantage of the engine running isn't a big deal with the PHV. When accelerating from a stop, why not push the pedal hard or press the HV/EV button to startup the engine? If it has to run anyway, why not use it for providing power to the wheels at the same time? Turns out, that's a rather efficient approach when the temperature outside is well below freezing. It keeps coolant (the source of warmth for the heater) above the threshold, allowing more opportunity for driving in EV. That may seem somewhat counter-intuitive, running the engine for the sake of using it less, but the outcome speaks for itself. I've found that approach worthwhile. Accelerating briskly does the trick. That's the very same advice we give new owners of the regular Prius anyway. Giving it to those with a plug too makes matters of education easy. After all, not giving any advice tends to allow assumptions to take over. People end up fighting the system, thinking they are achieving higher efficiency, when really they are not. In other words, don't be afraid of letting the engine run. Of course, I still don't know what to call it. Blend mode is rather generic, but it does make it clear that engine use is expected.

- 12-16-2012 Blatant Greenwashing.** How do you respond to an article that starts with this: *"Ford introduced its two C-MAX hybrid models last December, and just one year later the U.S. car maker is already nudging out Toyota for sales of electric hybrid and plug-in hybrid electric vehicles."* That's an outright lie. C-Max was introduced to this market in October, just 2 months ago. There's no possible way the writer could have made a mistake. The claim is blatant greenwashing. Sadly, the sentence that followed clarified motive: *"Ford introduced its two C-MAX hybrid models last December, and just one year later the U.S. car maker is already nudging out Toyota for sales of electric hybrid and plug-in hybrid electric vehicles."* People typically believe what they read. So, this was especially disturbing. The article later goes on to describe the two models as *"EV hybrid"* and *"plug-in EV hybrid"*, both of which are obviously misleading since the industry been using *"hybrid"* and *"plug-in hybrid"* as identifiers for years. Then to make matters even worse: *"...combined sales in November for the C-MAX Hybrid and C-MAX Energi plug-in hybrid totaled 4,848 in November, compared to a total of 4,456 for Toyota's Prius plug-in and Prius V hybrids."* How is drawing that conclusion by excluding the 8,925 sales of the regular model even the slightest bit honest? What about omitting 3,124 sales of the smaller model? Needless to say, some people aren't even trying to be constructive.
- 12-16-2012 Same Old Story.** Toyota & GM took fundamentally different approaches, yet claims are made that they didn't. So no matter what is stated afterward, it makes no difference. It's the stereotypical gearhead verses accountant type exchanges that go nowhere. We all know what sustains the business. Some just plain are not interested though. TOYOTA = deliver a vehicle configured to be profitable & affordable, then later introduce enhancements as cost warrants. GM = deliver a vehicle a highly appealing configuration, then focus on cost-reduction for future generation rollouts. The latter contributes heavily to threads just like this, where the prize is bragging rights and competitiveness with traditional vehicle purchases is of no concern. Fortunately, the new player to join in is stirring the topic, preventing the old rhetoric from getting much traction anymore. FORD = straddle the approaches TOYOTA and GM took, hoping to capture the best of both words.
- 12-16-2012 Balance.** When I posted the content of that previous entry on the big GM forum, I actually got a few regulars to express agreement with those observations. Sadly, there were still some rather hostile responses as well. They came from the die-hard enthusiasts who still believe a 40-mile EV capacity and \$40,000 cost is a well balanced approach for middle-market. That baffles me. It's not worth stating what should be obvious though: Toyota set a much lower cost goal and requested their engineers to deliver the best they could with it right away. GM didn't set a specific cost limitation for the engineers to stay under. True, there was the goal of *"nicely under \$30,000"*, but not achieving that by 2010 was obvious to everyone except enthusiasts. The plug-in hybrids from Toyota & Ford strive to deliver a clear benefit from plug-supplied electricity without requiring a large premium to be paid. You get a larger seating interior too. In other words, there was a pronounced effort to make it competitive with this generation. GM didn't do that. We suspect GM will with the next generation though... sacrificing some aspects of the design to make it capable of being purchased profitably without tax-credit assistance with high-volume production & sales. Enthusiasts won't be happy... which is typical of mainstream vehicles anyway, since most are well-balanced rather than standing out for lots of attention.

- 12-16-2012 Lower Threshold.** The coolant temperature threshold with the plug-in model is lower. 114°F is well proven for regular model. I was finally able to confirm that discovery late at night driving my PHV. It went all the way down to 94°F before the engine fired up again. Think about that for a moment. If it were 94°F outside, would you feel warm? We know that Toyota found a way to physically heat up the emission system faster with this model anyway. So, why not change the software too? I went out to run an errand. I pushed the defrost button with the temp already set at "LO". The engine fired up anyway. Fortunately, I had just come to a lonely stop. So, I shut the defrost off, then powered down the Prius and back up again. Using the head & foot option instead, no engine. That continued for about 1.5 mile until finally needed heat. So, I bumped the temperature to "HI" and allowed the warm-up cycle to run its course. When the engine shut off, I set the temperature to "65" and lowered the blower to 2 bars. The interior stayed comfortable and the windshield clear the rest of the drive. The engine did the usual cycling, starting up at 114°F and shutting off at 130°F. After a few cycles, I noticed a drop below 114°F. That peaked my interest. Without any interruption to heat, it went all the way down to 94°F before the engine started up. My theory is some other component was warm at that point, no longer immediately dependent upon coolant to sustain anymore. Long story short, setting the heater to "65" and the blower to 2 bars following warm-up appears to be a simple & efficient choice when you're driving in sub-freezing temperatures.
- 12-17-2012 Rose-Colored Glasses.** It boggles the mind. Supposedly, there's a shortfall of Volt due to the retooling that was done for Malibu. Now we find out that GM grossly over-produced Malibu. There's an inventory of 78,200 waiting to be sold. Clearly, the focus has not been on keeping sales of Volt steady. All those arguments I had about traditional vehicles being the true concern fell on deaf ears. They only cared about bragging rights. That fear about consequences of the trophy-mentality are now playing out. 2 years after rollout, Volt is still very much a niche. All that hype about it becoming part of the mainstream quickly has turned into "*wait for the next generation*" rhetoric. They are still wearing rose-colored glasses. Prius is constantly being called out as the enemy, not traditional vehicles. Yet the evidence obviously points out that's not the case. The business effort continues to be production & sales of traditional vehicles. Let's not forget that there are also 245,853 unsold GM pickups. Selling around 2,000 Volt per month so long after debut in a market with the choices of plug-in expanding, the outlook isn't good. Yet, the supporters still don't want to see it... which means there's not going to be any pressure from them on GM to alter priorities. Not saying anything is a sign of acceptance. Making excuses for the painfully slow progress is an endorsement for more of the same. When will they learn?

- 12-18-2012** **\$4 Gas.** We are seeing more and more small traditional cars on the road. They replace those nasty guzzling SUVs of the past. That's overwhelming clear evidence that \$4 gas really did make an impression on consumer priorities. Hearing about inventory of pickups and some midsize cars piling up makes you wonder what will happen. Production can only be halted for so long. While it is, workers still get paid. That's money lost. Nothing to profit from sets up a really bad situation. What decisions will be made as a result? Needless to say, at some point the rose-colored glasses must be taken off. The expiration of tax-credits is an obvious deadline. That's the case for CAFE requirements too. A trophy only takes you so far. Selling vehicles to mainstream consumers is major challenge not being taken seriously by some. Simply downsizing to tiny vehicles isn't a solution. Seeing gas now down to \$2.95 means opportunity to penetrate the market without pressure. Solutions can be introduced to the masses as the next natural step on automotive evolution. That's why the plug-in Prius is so well positioned. It doesn't look like a desperate attempt to solve a crisis already in progress. When people panic about gas prices, we've seen that they flock to small traditional cars. Having an assortment of Prius to choose from already common on the road when \$4 does return is a good plan.
- 12-19-2012** **Lack of Concern.** Remember the motto back when Two-Mode was being developed? It was "*Better than Prius*". When the technology didn't deliver, focus was simply diverted elsewhere. Now that there won't be any Two-Mode pickups produced anymore, we can see pressure building again. It doesn't take long reading comments from Volt enthusiasts to confirm that. There are plenty of comparisons to Prius that use words like "*superior*", "*idiotic*", "*inferior*", and "*pathetic*". As for the shift now, there's a huge effort to downplay expectations. Rather than acknowledging GM's extensive experience with motors & batteries, it's pushing the mindset of first generation and early adopter. It's lack of concern for the big picture that worries the most. Surging sales of small traditional vehicles don't matter to supporters. GM can sell all the Malibu, Cruze, and Sonic they way. As long as more Volt are purchased than plug-in Prius, they just plain don't care about anything else.
- 12-19-2012** **200 Million Shares.** That's how many of the 500 million government owned shares GM said it would buy back. The original purchase price was \$33 each. They will now be sold at \$27.50 each. That's a loss of \$1.1 billion and much later than had been hoped. The other 300 million will remain outstanding up to 15 more months. The plan was to make a modest profit to cover expenses, like a loan to the automaker with an unspecified interest-rate or duration. It didn't work out that way. And that's just in the United States. The government in Canada is still holding quite a number of shares too. The intent of buying so much public stock was to flood GM with capital to help the automaker with bankruptcy recovery efforts, to quickly establish long-term viability. That's why those pushing Volt to become more realistic for the mainstream quickly were so concerned. The "*too little, too slowly*" was indeed becoming the status of the situation. Today's announcement to buy back those shares is a step toward achieving that. It forces important financial decisions to be made sooner, rather than later.

- 12-19-2012** **Speed of Recovery.** That's been a major problem with GM on several fronts. We all know the hopes for Volt to reach mainstream volume (5,000 per month) in the second year didn't work out. That in itself puts GM in a position without a clear next step. Ending uncertainty with Two-Mode pickups helps. As for Two-Mode SUVs, selling less than 2,000 per year is far from what had been expected at this point. It's not returning enough to justify major investment anymore. eAssist doesn't seem to be making much progress either. Then there's the 500 million shares of government owned stock. Was it a good idea to provide the assistance? Most likely. But not recovering fast enough could allow the some problems to return though... which is exactly what we're seeing signs of now. How long should we continue to wait and for what?
- 12-20-2012** **Halo Vehicle.** It was a term coined by GM to insult Prius. It meant the vehicle was really just used to draw in customers from other automakers to get them to purchase their traditional vehicles... a kind of technology bait & switch. In other words, there was no intent to actually sell a lot of the hybrid itself. It was basically just a technology showcase to improve automaker reputation. Strangely, all the downplay of Volt by its own enthusiasts to deal with sales falling way short of expectations was to redefine it as a "*halo*" vehicle. Huh? Their thought behind that was that if Prius ended up thriving afterward, Volt could too. The catch is, Prius never was a "*halo*" vehicle. When it was given that label, sales were already above the mainstream minimum (5,000 per month). Prius wasn't a niche in any respect at that point. In fact, it was being purchased more than many other Toyota cars... often the third best seller here. The label was an attempt to greenwash. Needless to say, no Volt enthusiast would ever admit that. The only way to get any type of acknowledge was to trick them into unintentionally revealing the true situation... which was exactly what I did. Taking about a great way to end the second year. After endlessly asking the "*Who is the market for Volt?*" question, I asked this instead: "*What is the purpose of Volt?*" Following the anticipated wave of insults, I posted: "*The purpose of this generation of Volt is to be a halo vehicle. In fact, that is why there is this very [discussion] topic. Someday there will be a variant of Volt that sells in high-volume replacing traditional vehicles like Malibu & Cruze.*" They went nuts, rejoicing that I finally understood what they had been saying all along. In reality, I had just been presented with confessions that goals were not being met and those expectations have been shifted to several years from now. Admitting that, though indirect, was long overdue. Some of us clearly remember what expectations were 2.5 years ago. The hype was so unrealistic. The actual outcome was quite different. The advice given about challenges to be faced were dismissed and now the consequences are obvious. There are far more aspects at play beyond just battery-capacity and motor-horsepower. Volt didn't turn out to be vastly superior. The need was not fulfilled.

12-20-2012 **Early Adopter.** Remember how all the hype about GM being able to produce up to 120,000 for the second year of sales? Enthusiasts were so excited about Volt talking the market by storm, they had concerns about supply being able to keep up with demand. About 9 months before rollout began, things started to change. Information was learned out about aspects of the design that soured appeal. They began to panic, fearing anyone pointing out the detail was trying to kill Volt. They didn't believe a constructive effort to make it more likely to be embraced by middle-market consumers was possible. Instead, there was an effort to reframe attitude. Rather than being a product for mainstream now, it would be an advanced technology for the future. We saw it as an admission of the sales struggle to come. And sure enough, that's exactly what happened. Here's how I described an early observation of the situation: "*The ongoing downplay of Volt from a "Prius killer" and a "game changer" to a vehicle which needs a chance for early adopters to discover got ugly.*" It was obvious way back then that the goals would not be met. Who knew it would take this long for that reality to finally sink in? Now we can finally get to business. With nationwide availability by Summer, we should see its perception quite a bit different from Volt. The approach for Prius is to simply offer the larger battery and plug as an upgrade, looked upon as a premium package rather than an entirely new technology to adopt. The cliché of "*biting off more than you can chew*" comes to mind for Volt. Far too much was expected in such a short amount of time. Enthusiasts found out the hard way it will take as long as the Prius supporters said. They weren't trying to kill Volt after all. They were only trying to share experience about setting realistic expectations.

12-20-2012 **Moisture Inside.** Winter has stirred up lots of new discussion related to cold temperature operation of the plug-in model. With all the feedback about moisture on the inside of the windshield due to some owners not wanting to run the engine for warm defrosting, today's opportunity was a real treat. I would drive to work with the heater running the entire time. The blower direction was set to window & foot, the fan on 2 bars, and the temperature set to "65". We got about 1.5 inches of new snow and the temperature was 25°F. That made for a messy morning commute on the along-the-river route. In other words, plenty of moisture. After driving the usual 3 blocks in EV to get out into traffic, I fired up the heater. Consequently, the engine started. It ran to warm-up completion (a coolant temp of 130°F) then shut off. EV automatically engaged and I drove that way for a few miles. When the coolant dropped to 96°F, the engine fired up again and then shut back off shortly afterward. Back in EV, the system was now entirely warmed. To my surprise, the coolant temperature dropped all the way to 87°F before the engine started again. That was great! My drive continued, moisture free the entire time. Upon arriving at the parking ramp, with the electricity all used up, the final distance tally was 17.3 miles and the average 120 MPG. Set it, then forget it. No need to mess with the heater. Just drive it.

- 12-22-2012 Cold Shopping.** Running around doing Christmas shopping in the cold is much less of an annoyance when there's no gas involved. I always felt bad starting the engine to drive just to the other side of the strip mall or a few blocks to the next store. Yet, that's what had to be done... until now. I stopped at a half-dozen different places, then got just 1.5 miles shy of reaching home before running out of electricity. That was pretty sweet. Almost my entire outing powered by the plug. I was actually quite pleased it lasted that long. In Summer, it's easier to go further. Winter cold increases electrical resistance within the battery-pack, which lowers efficiency. You normally need to run the defroster too. But with all that in and out, the interior stayed dry. It all worked out quite nice. The gifts I ended up purchasing were nice too. Perhaps I was in a better shopping mood due to the Prius. You think?
- 12-23-2012 Heater Drain.** Living in Minnesota, what it does to battery-capacity is among my favorite plug-in topics. A year before Volt was rolled out, the winter data was always extremely vague. I pointed out how Leaf's range estimator took climate-control into account, even including a photo in some posts. Those enthusiasts got angry, claiming my actual intent was to undermine to make the plug-in Prius appear better. They knew even back then taking advantage of the engine for heat would be an overall benefit. Sure enough, today's running around (starting with a stop at the coffee-shop) provided the proof they didn't want to acknowledge. 14°F outside. 9.0 miles. 55 mph maximum. I certainly wasn't going to be cold. The heater was turned on the moment I left the driveway. It took 9 minutes for the coolant to reach the initial shutoff point for the 75°F setting. With all the up & down from hills and stoplights to contend with, seeing 53 MPG for the average at that point was quite redeeming. I was at precisely the halfway point. From there on would be mostly EV. The engine only briefly came on then. I accelerated briskly to trigger it, since the result in replenishing of both heat & electricity. Upon reaching the coffee-shop, there was still 5.9 estimated miles of EV range remaining. The overall average displayed was 86 MPG. Long story short, they apparently were right. That does indeed cast a better light on Prius. But then again, the intent was always full disclosure. Leaving out detail is not constructive. They were providing annual consumption estimates not taking effects of the heater into account. Prius PHV is a plug-in hybrid. The purpose is to boost MPG, not to be an EV. With my efficiency averaging in the 70's here in Minnesota, that most definitely is a MPG boost from the 40's I saw with the 2010. So what if the engine runs from time to time for heat. Purpose fulfilled.
- 12-24-2012 Darn Good.** Today's driving was more of a "normal" circumstance than the chaos recently with weather issues and running around to shop. I drove to mom's, back home, to work, then home again. The total distance was 45 miles. The resulting average was 63 MPG. Considering that included 3 cold starts (18°F from mom's, 10°F from work) and just a single charge, I'd say it was darn good. The outcome of that same situation with my 2010 would have been about 20 MPG less. The plug is definitely providing an unmistakable boost. Having real-world data available makes greenwashing considerably harder. It's difficult to mislead when examples become easier to find. That's darn good too.

- 12-24-2012 Warm-Up MPG-Boost.** There are a few PHV owners who really get worked up when the engine runs. They want the most EV possible, rather than focusing on the overall efficiency results. That's understandable. But when they don't mention the MPG boost during warm-up, you have to wonder if they are seeing that big picture. When the engine starts up for the primary purpose of generating heat, electricity is used to minimize the impact. Gasoline consumption is kept to a minimum by using the motor to allow the engine run at a much lower RPM. That's more efficiency. Waste comes from high demand. The hybrid system makes sure it stays low. A resulting benefit of that is the engine is able to run at an optimum speed. That results in electricity being generated. Some is used to feed the motor, rather than drawing from the battery-pack. Excess is used to replenish the battery-pack, of which was drawn from originally to help with the initial warm-up process. It's a wild dance. You can witness it too. The multi-display offers a screen showing energy flow. Arrows branch and change direction every few seconds. Managing electricity and the speed at which the carriers in the power-split-device spin is what Toyota refined many years ago. Now they take advantage of the mini opportunities that emerge while encountering real-world conditions. You can see that too. The dynamic nature of the system delivers MPG surprisingly high, an accomplishment other automakers have struggled to also achieve. Long story short, the boost is really nice but often overlooked.
- 12-26-2012 Coiled Recharger Cord.** What a pain. I'm sure the person thought they were doing the right thing. Clearly, they hadn't considered the consequences though. With small cords, like adapters for portable rechargeable devices, it was never wise to tightly coil them after use. Eventually, the braided wires within twist, resulting in a permanently tangled cord. Sadly, people continue to do. Apparently, some don't figure out they are the cause of the problem. They must just assume that's a normal part of cord aging. It's not. That can easily be prevented by loosely draping the cord instead. I wonder if the same thing will happen with charging-stations. The cords there are in near perfect condition still. What happens in a few years? Will they routinely be replaced, like hoses & nozzles at gas stations? Anywho, there's an added complication. Maybe that will help. The cords get very stiff in the extreme cold. When temperatures are well below zero, a tightly coiled cord poses a difficult challenge. The one I had to deal with today required rather serious pulling to straighten out. Fortunately, the reach needed is short for Prius, since the port is located in the back corner of the vehicle. For those with the port near the driver's door, good luck. That may pose to be a problem at times during Winter. The cold season can be cruel. Thank goodness we still see a substantial benefit from the electricity even in those conditions.

12-27-2012 Disaster Recognized. This was the start of the new thread on the big GM forum that marked the beginning of the end: *"GM got bailed out in 2009, they reorganized, got rid of toxic assets, they were afforded bankruptcy procedures no other business in over 200 years of bankruptcy precedent was afforded, all in the name of saving the General. At the time we were told the money being "given" to GM was not a gift but a loan and would be paid back and most likely Treasury would come out ahead getting more from GM than they were given. 2013, where are we at? Sure GM is buying back stock, but by the time it is all done and GM is a private company again Treasury will have lost between \$12-20 billion dollars. Far from that profit we were practically assured. What has GM learned from all this, apparently not much..."* To prevent a repeat of the recent outcry that happened when the stock buyback was announced, those who had spoken out with discontent then were prevented from doing it again, banned from posting (including me). I found that very telling of the situation, especially since many of the posts had nothing to do with Prius or even hybrids. In other words, the loyalists saw the unsold inventory piling up and saw some major objectives not being achieved. That same post also included this: *"On top of that, where is the profit from the Volt, you know the car that was going to save GM? A product so good they were going to sell 40,000 a year..."* It's pretty obvious at this point, the upcoming disaster is being recognized. There's going to be an onslaught of fallout when the year comes to a close. Goals were not met. Recovery was indeed *"too little, too slowly"*. Expectations for 2013 certainly won't be filled with hype, which was the purpose of the posts in the first place... being realistic, what a concept.

12-27-2012 Last December. Remember all the nonsense back then? When the excuses were exhausted, it turned to personal attacks. They'd just make stuff up too, attempting to invite & provoke. Then when things didn't go their way, the thread would simply be closed. That year didn't end well. This year appears to be much worse. Instead of just Volt struggling, all of GM is. But rather than just being able to use Toyota & Prius as a scapegoat, there's the advancement made by Ford with both C-Max & Fusion. The hope had been that the needed steps to recover had already been taken and it was only a matter of patience. With the growing economy, it would be business as usual resuming. Trouble was, that trimming of excess & overhead alone wouldn't be enough... but they didn't want to hear that. They didn't want to acknowledge how much the market itself was changing. They didn't want to recognize history in other industries. Now they know. Now they cannot deny. That's why the rhetoric is much more intense. This December doesn't offer a hopeful outlook. 2013 will bring some serious decisions. Supporters don't want to discuss expectations. There's a clear effort to ignore matters related to sales. Hype allowed them to be unrealistic. This is why we worried.

- 12-28-2012 They Could Win.** That was the thought. It's why debates were allowed to get so intense, why forum members were allowed to so blatantly drop bait. With the belief of victory just beyond the horizon, added attention was welcomed. That all just changed. The attitude of hope abruptly transmuted to hopelessness. GM's own words are coming back to haunt. There are so many goals still not achieved... and time has run out. Volt was one of many coming up short. By the time the third year began, the "*little system that could*" was supposed to have been squashed. Winning has become a matter of survival instead. The lesson about Two-Mode is only now being taken seriously. They finally recognize the pattern those labeled as "*Prius trolls*" had pointed out ages ago. It didn't win. The owners of Prius really were trying to help. Admitting that isn't an option though... not after what they said. Their own words are already making them look hypocritical. They wanted to be "*vastly superior*" rather than being part of the effort to replace traditional vehicles. Instead, the very "*failure*" they feared is unfolding right before their eyes.
- 12-28-2012 Realistic Expectations.** Vehicles for middle-market are rarely thought of as exciting. Choices for the masses rarely are. That's why there are car enthusiasts. They are the ones seeking something that stands out. It's also why Prius constantly gets mocked by them. They want no association with a hybrid configured specifically for mainstream consumers. It's the very reason "*Volt*" was doomed from the start... since it targeted those enthusiasts, not everyday drivers. But rather than consider realistic expectations, what the market actually needs, they focused on want instead. Prius constantly reminded them of the difference. That's why it became such an irritant. Hearing owners find it rewarding is the last thing they wanted to hear. To make matters worse, it was just awarded the "*best value*" title by Consumer Reports. Winter driving with the plug-in is proving worthwhile too... not amazing, just a decent MPG boost... none of the "*purity*" nonsense. We had realistic expectations. GM will obviously have to scramble to redefine "*Volt*" now, giving the next generation design a configuration that's actually capable of high-volume profitable sales.
- 12-28-2012 Now That It's Over.** Uncertainty isn't helpful to anyone. GM's belief that simply getting rid of legacy financial obligations and consolidating resources would be enough was a lesson in blind hope. Not dealing with all the issues, thinking enough money will somehow solve the rest, was futile. But what else could be done with such an unreceptive set of executives? Old habits die hard. Recent news that Toyota is again the world leader really hurts. In fact, you cannot even report it as a Prius owner without sounding smug. Of course, no matter how much praise I gave Ford, the Volt enthusiasts didn't hear that anyway. It was always looked upon as an endorsement for Prius. But the ultimate was being unwilling to address the buildup of traditional vehicle inventory. Pretending the rest of GM was doing fine was a red flag, a clear warning that further development of Volt would be a difficult investment to fund. Fortunately, those questions will soon be asked... now that it's over. No more excuses. The end of the year brings the opportunity to set more proper goals for the next.

- 12-29-2012** **Hold Button.** One of the earliest efforts to educate labeled as "*propaganda*" was the benefit of having a hold button, a feature allowing a plug-in hybrid driver to specify when to heavily draw electricity from the battery-pack. Since Prius offered it and Volt didn't, all comments were perceived as an attempt to undermine... instead of the overall purpose of persuading GM to offer it too. For some bizarre reason, Volt enthusiasts didn't follow the example Toyota provided: enhancements to Prius based on owner feedback. Needless to say, the arguments against a hold button seriously backfired. Those enthusiasts proclaimed there was no benefit, it was just a ploy to make Prius appear better. Then came the 2013 model, which included a hold button... and owners started to praise it. You could imagine how that made those of the past feel now. They became extremely frustrated. Some denied ever arguing against it. Some worked hard to discredit the Prius owners who originally suggested GM offer it too. Some new Volt owners kept making it worse by pointing out the benefits. It turned into a messy situation with no chance of resolution. Apologies rarely happen online.
- 12-29-2012** **Predictions.** We know how unrealistic those for Volt were. It was as if there was no consideration of the rest of the market at all. Those supporting it figured the engineering alone would stimulate sales. Now, we know even with the tax-credit that didn't happen. There are many other aspects of appeal. Ford, Honda, and Toyota are all choosing to rollout plug-in hybrids with smaller battery- capacities. You still get a substantial MPG boost, but don't have to sacrifice interior-space, production-cost, or HV-efficiency to such an extent. Toyota strived hard with Prius to offer a plug-in that offered the same cargo area and great MPG after depletion. The similarity to the regular hybrid is quite obvious. Ford's approach was to make a tradeoff with C-Max, hoping it would be minor enough to easily justify. As for Ford's Fusion and Honda's Accord, we simply don't know yet. Both setups appear to be well thought out, with the exception of the small trunks. Time will tell. 2013 is the year for that. I predict a slow & steady growth for Prius PHV and C-Max Energi as rollout continues (once Spring arrives). For the sedan plug-in hybrids, we have no idea what market potential there is. For Volt, the struggle for sales will become even more difficult.
- 12-29-2012** **Heater Struggle.** Just like with the regular Prius, the plug-in has a similar new owner struggle... they want maximum EV but don't acknowledge/understand/support the tradeoff. We'd constantly be hearing reports of people attempting to keep the engine off as long as possible, then complaining about the results. They'd fight the system, rather than "*Just Drive It*". Addressing the same questions & comments over and over and over again is a test of patience. We're trying though. In this case, there's a phobia about heater use. Triggering the engine to start is bad, period. That absolute is frustrating. Prius is a plug-in hybrid, not an EV. There isn't battery-capacity to support an electric-heater anyway. We hear requests to allow just the defroster to use that heat for keeping the window clear, but it's difficult to claim there won't be complaints about that not being used to warm the cabin too. You still get outstanding overall efficiency. Winter doesn't last that long anyway. What other vehicle provides over 50 MPG during its warm-up cycle?

12-29-2012 **Fire Spin.** One of the most annoying things about Volt in 2012 was the about reputation. The supporters were continuously spinning the fire report from 2011 into a conspiracy to cause harm. A great example was from an article published yesterday, with this opening paragraph: "Try typing "Chevy Volt" into Google, and chances are that the word "fire" will *appear near the top of the suggestion list*." I did exactly that. In the news section, only the word "sales" appeared. That's it. Nothing else. So, I tried the general web section instead. It came back with the following choices: "Review, MPG, Lease, Sales, Range, Specs, Gas-Mileage, Tax-Credit, Forum". There was no mention about "fire" or anything even related. It's a good example of greenwashing easily accepted. People just believe what they read, without actually checking. I did. The hope was that I wouldn't. What the writer claimed was quickly proven false. How many reader will do the same thing? My guess is very few, if any. The article itself was how Volt became a target for "*political discourse*". Ironically, it was the enthusiasts themselves who fed that particular fire. (Yes, pun intended.) Rather than focusing on real-world data, they chose to fight those battles instead. What would winning the arguments even accomplish? Wasn't the point to draw attention to "*saved gas*"? Why didn't they keep that goal in the spotlight? Why did they allow pundit bait to be bitten? For that matter, why are they still doing it? What a massive waste of time staying focused on something everyone else moved beyond an entire year ago.

12-29-2012 **Test-Drives.** A new thread was recently started on the big Prius forum. The person wanted information to make a purchase decision with, having a very open mind to a variety of different cars and understanding potential bias a source like the forum could provide. We went through the usual definitions of what people find fun & rewarding. If you've owned the same vehicle for a decade, you tend to overlook new pleasures technology improvements offer. Think about the driving experience without a multi-display or digital readout. That's all most people know. So, they have no idea what having them offers. It's even more difficult describing the experience of having the engine shut off while driving. That's why we encourage taking a test-drive. I put it this way: "*The test-drive experience was what captured interest of those sitting on the fence in the past.*" Many concur. They are intrigued by the idea of a hybrid, but really have no idea what to actually expect. Most of what they've heard focuses on old-school measure, like 0-60 times... of which we exceeded the ceiling on ages ago. Notice how computer buyers are no longer placing heavy priority on processor-speed anymore? That diversification of preferences in the computer industry was a painful transition. We're seeing something similar playing out in the automotive industry now. The test-drive proves it. Comments following one from the prospective person are often that of surprise & excitement.

12-30-2012 **Fusion Energi.** That's the plug-in model of Ford's hybrid Fusion. Reading comments on the big GM forum about the 100 MPGe rated it earned certainly is interesting. That particular group is becoming quite vocal about the need for Volt to diversify. Better late than never? Some of us have been saying that for years. In fact, my references in the past to GM's current *"one size fits all"* approach really upset some Volt enthusiasts... who now think a variety of models is a good idea. All they heard in the past was *"Prius"*. Now that Ford is becoming competitive too, their attitude is more receptive. However, some of it is still just a matter of pride: *"In case you haven't noticed, C-max is starting to kick Prius in the butt big time, and it's only been two months."* That's a good example of cherry-picking, giving a impression of all Prius when in reality it is only the larger v model. The actual counts are 6,627 for C-Max, 5,459 for Prius v, and 6,452 for Prius c. Notice how misleading that is knowing the detail? Then when you consider the 17,713 also purchased during those same 2 months, it's easy to declare that a greenwashing statement. Anywho, the particular comment I liked was: *"MPGe means nothing to the average person. People buying plug-ins are more concerned with pure electric range, than anything else. If they wanted a repeatable mpg average, the get a regular hybrid."* Some are still attempting to conceal the MPG boost benefit the plug offers. I'm not concerned with pure electric range. I'm getting a repeatable mpg average. That's why they got extremely frustrated with my posts there. They knew I had lots of evidence available to disprove their claims. Of course, what I found most amusing was the re-emergence of the plug-in Cruze, especially since 2014 models of GM vehicles are being announced without eAssist as many had expected. With Cruze offering a smaller motor & battery configuration, it will preserve the name of Volt. They like that idea... especially now that Ford is racing past GM by offering 2 different hybrids with plugs, both targeting middle-market and both delivering a higher MPGe rating.

12-30-2012 **Leaving GM Behind.** Countless warnings about this coming fell on deaf ears. The supporters of GM just plain did not want anything to do with the thought that Ford & Toyota could be establishing an intense rivalry. This is the good type, the kind of battles both sides enjoy engaging in. There's nothing hostile or anything with ill intent, just good old-fashion one-upping each other. We've been looking forward to this for many, many years. Now it has begun. GM will be left behind, simply due to not having a product available for middle-market. This comment from a Ford executive summarized the situation: *"The Fusion Energi plug-in hybrid is the exclamation point for Ford's transformed lineup of fuel-efficiency leaders that now beats Toyota across the board."* They are proud of having achieved higher MPGe ratings for both C-Max Energi (100) & Fusion Energi (100) than Prius PHV (95) in addition to directly comparing Camry-hybrid and Prius v. It's the first compelling evidence that GM simply isn't going to get attention anymore. Lack of a spotlight is a serious problem. Consumers had so little interest in Two-Mode, there wasn't really anything GM could do to draw sales. So many mixed messages left the mainstream wondering when GM would finally settle down and seriously invest in a particular technology. In other words, all the *"early adopter"* labeling backfired... which is exactly what we are seeing with Volt now too. The enthusiasts kept saying *"wait for the next generation"*. They contributed to their own demise. They didn't listen to the advice. They didn't learn from the past. Now, they are being left behind. Oh well. Their loss.

- 12-30-2012** **First Impressions.** With the interest in Ford's plug-in offerings rapidly stealing away the last bits of attention for Volt, we also get some of the rhetoric. It started with downvoting of real-world data. Volt enthusiasts use to do that with fact posting. That was easier to get away with back then, since there was nothing else to provide. That's not the case now though. Results from actual owners are difficult to ignore. In fact, that's what contributed to the recent panic by GM supporters. The numbers speak for themselves, rather loudly too. There's not even any need for any explanation anymore. The idea of adding a plug to a hybrid is proving quite easy to convey. People readily embrace the idea. So, I suspect the fears of "*shilling and bashing*", as the reply so eloquently labeled it, won't last long. When has attacking the messenger ever actually worked? You stop posting data, someone else just does it instead. That kind of information is too compelling to resist. Nothing stirs interest quite like first impressions either. It sure is nice witnessing this change. There's lots to look forward to in 2013. We can see it beginning to nicely unfold already.
- 12-30-2012** **Garage Sweep.** My garage is attached to the house. It's not heated, but the insulated door does help prevent things from getting too cold. That's enough to retain ground-heat enough to prevent the ground-freeze which happens directly outside those doors. The result is lots of standing water from the snow & ice carried in on the Prius. Radiant melting from the sun allows water to pool at the base of the black door and dribble in too. Sweeping that out was always a pain. I really didn't want to pull the Prius out onto the driveway and let it run without benefit while I pushed that water out. What would you do for a procedure that took 30 to 45 seconds on a regular basis? It was a routine I tried to avoid or delayed until coming home, since the Prius could sit in the driveway with the engine off due to being all warmed up. That isn't necessary anymore. First thing in the morning, I can just back the Prius out and let it sit there... still on, but not consuming any gas. It's a benefit of having the plug I didn't anticipate... especially with the morning sun shining in, a pleasant experience compared to doing that in the dark late in the evening. That allows it to dry during the day too. It would pretty always remain wet otherwise. The choice of using electricity when you want sure is nice.
- 12-31-2012** **Financial Obligations.** The federal government "*fiscal cliff*" is the big news now. The tax-cuts that were suppose to have been temporary were instead extended. Tomorrow, those extensions will expire. Allowing them to continue is a terrible idea. We'll never get out of debt if we don't find ways to pay for our financial obligations. After several attempts, it comes to outright ending. Some argue this is a bad time. When is it ever good? In the automotive industry, we watched GM go through a modern bankruptcy... a lesson not learned from errors of the past. Do we allow it to happen again? Hoping for the best and just implementing modest change hasn't been successful. We continue to see executive choices being made that are not competitive. The final day of sales for the year is today. The end of this week, we should have annual sales counts. Volt became a lightning-rod political choices and a textbook example of over-engineering. It was promoted as an upcoming solution, but then rolled out as a long-term product. What will profit come from in the meantime? How will GM payback debt and continue daily business? When will a competitive (affordable & high-volume) hybrid be available? At some point, a significant decision must be made. As with the tax related cliff, there's one with GM too... which year-end results will provoke. Something new needs to happen.

- 12-31-2012** **Looking Forward.** The usual technique for avoiding discussion of a current situation is to focus on the future instead. That daily blog for Volt doesn't have much activity related to Volt anymore. There is much less participation and most of the topics are just about the industry in general. Even so, the topic today reflects an effort to prevent a major eruption due to annual sales coming up way short of the estimate from the beginning of the year. Needless to say, it closely resembled hype of the past. I sounded off with: The target mentioned often by GM initially, now frequently by other automakers, is delivering a profitable plug-in for \$30,000. The tax-credit difference must be offset before it expires. That will only be enough to maintain status-quo... which is far from business-sustaining profit, a necessity to continue the investment. To complicate matters, the competition will not be standing still. They too will benefit from battery advancements and technology refinements. I see the growing variety of plug-in choices as a mixed blessing. Some will be helped. Some will be harmed. The winner will be decided by middle-market consumers, of which Volt currently does not target. What aspects of Volt will be modified to appeal more to buyers whose priorities for speed/power & efficiency aren't at the top of the list? Replacing high-volume traditional sellers is the ultimate goal. The next generation of plug-in vehicles must directly address that. They will be competing on the same dealer lots for the same group of people. No longer will there be just competition from outside. It will come from inside and with increasing pressure. GM will be competing with itself. Long story short, painting a rosy picture for 2015 without ways of supporting it brings about haunting memories of 2010 with added complications. Intent must be very clear. The opportunity for delay will be gone. Remember the previous goals?
- 1-01-2013** **Hypermiling.** I was amused how one of the final attacks from a Volt antagonist came in the form of trying to discredit my real-world data. He said I was "*hypermiling*" to get those results, careful to not state what that actually meant. It was the usual greenwashing technique, being vague with the hope people will assume an extreme. He knew I didn't do any of the nonsense associated with the stereotype. He knew I was a strong supporter of "*Just Drive It*". From watching my videos, he knew my approach was simply following the flow of traffic. In fact, that's the very reason I can so heavily endorse. I'm not doing anything special. But how would a casual reader know that? The term itself becomes quite confusing when you look into it too. With the plug-in Prius, you have the option of specifying when not to draw heavily from the battery-pack. The act of pushing that button could be considered hypermiling, since it is an effort to increase efficiency. But now that Volt also offers that feature, he cannot point it out anymore. It is yet another example of being vague. Watch for that. Those desperate to retain relevance will avoid providing detail.

1-02-2013 **No Audience.** It's fascinating to watch efforts to continue battles of the past in 2013. The most intense exchanges have been continued attempts to downplay. Turns out, there simply is no audience anymore. That old rhetoric isn't stirring interest. This is a new year. We all know what happened and what didn't happen. It's time to move on. Remember greenwashing long ago? There was a tremendous amount of resources expended just for the sake of preventing conclusions from being drawn. The hope has been to repeat that now. It isn't working. I asked: "*What are expectations for 2013?*" An answer was provided. The antagonists must have been quite frustrated. No one is showing interest in his bait, despite those very same arguments having result in quite a bit of nonsense previously. It's not worth wasting time on that now. When sales for the year are announcement, that chapter of the book comes to a close. The new year reigns in a very different market, one quite unlike before. It's very exciting to think about. Change is happening right before our eyes.

1-03-2013 **Downplay Backlash.** The enthusiasts of Volt continue to label the current sales as the "*early adopter*" phase. It seems to be a realistic reason for the lagging tallies, falling well short of what had been expected. They sight the rollout of Prius as an appropriate comparison, even though back then Toyota had no experience with motors or batteries and there was no particular rush since gas was so cheap back then. With GM, that most definitely is the situation. They already have extensive experience. And with gas hitting \$4 from time to time, fuel efficiency has become a purchase priority. Remember back when Prius had to compete directly with Hummer? We no longer have consumers in favor of guzzling. The SUV craze provided substantial barriers for hybrids. The situation is profoundly different now. Each automaker is trying to deliver worthwhile hybrids & plug-in vehicles. There's also a very serious awareness of climate-change growing. The drought & storms of 2012 make that painfully clear. So claims that Volt is experiencing the same circumstances as the rollout Prius did is just plain not true. That's rather blatant greenwashing, in fact. There's no reason to even bother pointing that out though. The conflict from within is growing. All those warnings about GM competing with itself fell on deaf ears. They didn't want to hear it. Now, evidence is becoming difficult to ignore. There appears to be an unintended consequence of all their downplay. GM is requiring dealers to purchase a special tool (cost is \$5,000) to discharge battery-pack sections before sending them away for repair. First, that's a little odd that they'd have to send anything away at all. Repairs should be so rare, they just replace instead. Isn't that what you'd expect in an "*early adopter*" phase? Second, some dealers are just choosing not to sell Volt as a result. If this is just an "*early adopter*" phase, what difference would that make anyway? They'll just start selling them later when Volt becomes mainstream. It's been problem after problem with pressure from traditional sales continuing to grow. Think about inventory on the dealer's lot. What is the consumer more likely to purchase? What is the salesperson more likely to make a decent commission from? The enthusiasts thought the third year of sales would be no big deal. They're finding out the hard way that most definitely isn't the case.

- 1-03-2013** **The Discovery.** This is pleasant to read: "*Oh wow. I was wondering if the cold could be killing my MPG.*" It's nice when a new owner figures out on their own why their efficiency has dropped. I replied to his discovery: Remember the days before having a display on your dashboard, when you were blissfully oblivious to the affects of Winter? Engine warm-up, winter-formula fuel, reduced combustion, increased rolling-resistance, heavier traffic... factors of efficiency influence for all vehicles that new owners of Prius become painfully aware of as the temperature plummets. With a hybrid, you also get the influence from heater use and a decrease of available battery capacity. Every year, it's the same discoveries made by newbies. They eventually figure out, then give thanks when the warmth of spring arrives. The emotion they experience is actually a building-block for the passion often associated with Prius ownership. You feel empowered after learning so much about what had always been affecting vehicle efficiency. Those who have firsthand experience with multiple Winters behind the wheel of a Prius appreciate when you experiment and share your finding. Eventually, you will become the teachers of new owners with the very same concerns about suddenly MPG dropping, informing them of the circumstances. It would be nice to set expectations sooner. But often, new owners join forum discussions as a result of Winter discoveries... then continue to participate later. So, it works out nice anyway.
- 1-04-2013** **Closure, part 1.** It's all over. The end of 2012 brought the end of Volt spin. I only had a single rebut to post, and that was only because this particular owner is still quite defensive about the results... doing everything he can to prevent conclusions from being drawn. I find it redeeming, especially with others wondering why he's still arguing and not moving on like everyone else. Anywho, his recent offensive maneuver was a great one to fortify closure with started with: "*Wrong... Where do you off saying that is the goal?*" Implying meaning rather than just answering the question is one of many greenwashing techniques... most of which are very easy to detect now. My post to that was as follows: I asked this question "*The goal of Volt technology is to replace their traditional propulsion system, right?*" and got that as a response. Then you went on about me somehow wanting overnight success, despite the fact that I've stated "*by the time the tax-credit expires*" countless times. Whatever. I'm not wasting effort on pointless discussions. We all know traditional propulsion systems must be replaced. 2,082,504 was the grand total for Toyota sales in the United States for 2012. Of those, there were 327,413 hybrid purchases. That's 15.7% now being hybrid, undeniable evidence that Toyota is striving to replace. We see Ford aiming in the same direction, introducing C-Max, C-Max Energi, and Fusion Energi. By the time the tax-credit expires, the market for Volt must be well established and cost reduced significantly. Otherwise, it will lose sales to GM's own inventory of traditional vehicles or lose customers entirely. That's market reality. There's nothing to question. The clock is ticking.

- 1-04-2013** **Closure, part 2.** Everyone except him acknowledges the 2015 tax-credit expiration, the upcoming CARB & EPA standards increase, the upcoming CAFE efficiency mandate, and the need to sell more hybrids and less traditional vehicles, not to mention competition from other automakers. Each ending in long fought series of battles always has a final few who continue to fight even when everyone else has already conceded and begun discussing what comes next. I find that particular stage very reassuring. You can see the desperation, yet know the next chapter will begin without fallout. It's simply that some accept change less willingly than others. Those few need to convince themselves this outcome was really what had been intended all along... despite overwhelming evidence to the contrary. The internet really makes that difficult, since all it takes is a quick search of blogs & forums to reveal thoughts people had back then. They try to dismiss, wondering how certain things could have ever been claimed. To them, the result should have been obvious, that it would have happened without any reason to question. For me, I feel vindicated. Reading my own comments confirmed concerns. Much of it boils down to not understanding the market, focusing entirely on the engineering alone. Those of us who helped with the rollout of Prius a decade ago are well aware. We know the pressures which come from aspects of technology that have nothing to do with the technology itself... so many players involved... so little recognition of the part they actually play. Needless to say, the die-hard enthusiasts now see the big picture... and are slowly learning to accept it.
- 1-04-2013** **Electric Passing.** For some unknown reason, the car I was following on the 3-lane highway at 55 mph slowed down to 50 mph when the lanes reduced to 2. Traffic started to build up behind me. I could see there was a truck about to merge in on the right from the ramp. There was no one in the left lane. I pushed the pedal and drove around. It seemed like no big deal. Then it hit me. That was a scenario I hadn't ever encountered with the Prius PHV. I effortlessly passed using only electricity. Sweet! That wasn't something I had ever considered before. What would happen if you were cruising along in EV at a top suburb speed and required a medium increase in power? The assumption would be that the engine would simply start to assist. The fact that it didn't without any effort to prevent it was nice. It was a genuine performance substantiation check. Cool.
- 1-05-2013** **Short Trips.** With the temperature only 16°F outside, the battery-pack doesn't stand a chance of delivering full potential on its own. Lithium batteries are restrained when used below freezing. It's a better tradeoff to start the engine rather than putting high demand on them. The perfect example was this evening, after having left the Prius sit in my unheated garage for over day. The drive was only 6 minutes long. The distance was just 2.6 miles. That's a MPG killer for the regular Prius. The warm-up for short trips isn't normally efficient. In fact, it's only a small amount better than a traditional vehicle for those first few minutes in the dead of Winter. That's not the case for the plug-in model though. PHV takes advantage of the battery-pack... not with pure EV travel, but the use of the engine is much more efficient. On that one-way drive, the outcome was 81 MPG. That's pretty darn good no matter how you look at it. On the return trip, the engine never started. Warmth within the battery-pack from the drive there 1 hour 40 minutes earlier was apparently enough to prevent the need. As a result, it brought the overall average up to 162 MPG. That's amazing! I do still miss Summer though.

- 1-06-2013** **\$2.89 Per Gallon.** With the price of a barrel of oil staying in the low 90's, seeing that for the price of gas makes you wonder. Is that where it will settle? You'd expect it to be higher. Some wonder there may have been an oversupply during the holidays, resulting in the low we see now. Some wonder if the price should have been that way all along but was higher due to fiscal uncertainty. Some see the price of diesel at entire dollar higher as a clue that the current situation is only temporary. Whatever the case, it means a challenge for hybrid sales. As people grow accustomed to paying more, the incentive to keep efficiency as a high priority falls. That does equate to a short opportunity for the new & affordable plug-in models to establish themselves though. They would then be able to capitalize on rising gas prices, even if they were only modest. For the more expensive plug-in hybrids and the electric-only vehicles, that's much harder sell. Once a model has been around for awhile, it raises the question of interest. How will it grow? Traditionally, there would be a large advertising campaign to introduce a next generation. That requires a massive budget and lots of inventory at dealers, which isn't realistic for vehicle like Volt. What does that mean then? It become a big issue. Fortunately, there's the Prius family from Toyota. That variety of choices and market penetration should really help with growth, even when the price of gas is low.
- 1-07-2013** **EV Observations.** I took advantage of the warm spell today. The temperature got a bit above freezing. So after recharging at work, I moved the Prius into an enclosed ramp and let it sit there for 6 hours. In there, it was 40°F. The outside temperature dropped to 30°F. That made me quite curious, since I wouldn't need the heater. Could I drive the entire capacity without the engine starting? I hadn't ever actually tried that, since climbing out of the river valley at 56 mph isn't the best use of it on a 17-mile drive. But I was wanted to push the limits in cool conditions. Sure enough, it was an effortless drive... all EV until depleted, including the climb. That should provide an interesting basis of comparison for when the temperature drops again. With it considerably colder last week, I wasn't able to identify a pattern. Smaller increments may be revealing. I'll keep watching. We know is the engine starts even without the heater on when the temperature outside is below freezing. The circumstances which trigger it are still elusive though.
- 1-08-2013** **Effective Analogies, part 1.** We still get echoes of the past, people comparing the efficiency of a traditional car to that of a SUV and being proud of the progress it represents. That embarrassing. Thankfully, my feeling is shared. This quote from an thread doing exactly that summed up the situation: *"That's exactly the kind of half-logic that causes the rest of the world to laugh at Volt buyers. You'd be saving money, compared to an SUV, with any of a whole host of cars."* Needless to say, it was on that daily blog discussing 2012 sales of plug-in vehicles. Discussions there are getting better, now that the rhetoric is gone and we have begun a new year. I was still a bit flustered though. We still didn't have an approach for those absurd comparisons. Then it hit me, an analogy everyone could easily understand & accept. That's what you need, something so simple there's no debate. Here's what I came up with: It's really unfortunate GM chose to market Volt that way. Comparisons to a 50 MPG hybrid, something that actually strives to deliver high efficiency, would be far more constructive. Then they would be able to point out the benefits of having a plug. Comparing to our domestic average of less than 30 MPG says a lot about how low our priority actually is toward reducing consumption. When would it ever make any sense to do something like that in the technology industry? It's like comparing Blu-Ray to VHS rather than DVD.

- 1-08-2013** **Effective Analogies, part 2.** Turns out, that was really effective. The analogy wasn't challenged at all. The discussion instead moved on to this: "*Yes, it took time for the Prius sales to jump so why not grant the Volt the same courtesy?*" Seeing an abrupt shift to something different is a good sign, especially when it's on topic. And in this particular case, it also set the stage for me using the analogy. Who knew the same one would apply again so quickly? I was delighted to use it too. Referring back to the past with total disregard for what happened in between is bad enough. Pretending the past simply didn't happen as all is even worse. I replied with: That's because that same courtesy was already given. TWO-MODE and BAS were the recipients. Volt built upon that experience gained from those previous battery & motor technologies. Again, this is like comparing Blu-Ray to VHS. It makes no sense disregarding DVD, referring back further as if no advancements were made in the meantime.
- 1-08-2013** **Proof of Change.** Today we had a new thread started by a new member on the big Prius forum. It featured a cost & comparison report for Volt from an owner's perspective. It had some obvious holes, incomplete information which could easily lead to incorrect assumptions. I jumped on it right away, but only addressed the poster as the author who could make updates accordingly. No big deal, leaving plenty of opportunity to fill in the blanks. Good thing too. The thread had quickly got a post describing Prius as an "*eco box*" and added the adjective "*sucks*" for good measure, then there was a "*blows*" included in a follow up. Those were from a well known troublemaker, a Volt owner who didn't care about being smug. His attitude had been pretty bad for months and I didn't want the new member to begin reflecting it. Too late, he did. So, I decided to push my luck. The author had replied with a comment about when a Prius owner gets a real electric-gas that doesn't use gas when on the highway, climbing hills, or accelerating... which we all know quite well at this point isn't true. That only happens if you push the pedal down hard. Ordinary driving is in EV with the plug-in Prius. Sure enough, he retracted that statement just minutes after I gave him a LIKE and a THANKS for making an effort to be constructive. The result of me stirring the pot, perhaps a bit too much, resulted in someone willing to reassess. That's pretty sweet! It's proof of change.
- 1-09-2013** **Lack of Data.** That had been the underlying problem with all the hype surrounding Volt. Now that real-world data is beginning to accumulate, there are owner reports. It's a big improvement, but missing detail and vague references contribute to assumptions & misconceptions. Stopping them in this increasingly complex market is a good idea. Getting help with that is questionable though. There's no way to request it without being explicit. Unfortunately, doing that makes you confrontational. Instead of just accepting what was posted as is, your effort to clarify get perceived as an attack. To make matters worse, certain members provoke to make you appear to be an antagonist rather than someone attempting to prevent. Fortunately, there is just barely enough data now to get us beyond that. You can leverage off of owner experiences to stir a constructive discussion. It's what happened yesterday. The thread topic and the intent itself clashed. In the end, that didn't matter. We could focus on the bits of detail that were provided. In other words, the hype addressed an unrealistic market expectation and the outcome of unachieved goals is no longer addressed... we just deal with other issues instead, simple things like recharging.

- 1-09-2013** **More Data.** Today's was especially interesting. I had to run several errands before leaving for work. That rarely ever happens. My running around is almost always in the evening instead. It was 34°F outside, warmer than usual too. I still had the heater on, of course. But it was only minimally needed. Anywho, after 29.1 miles of driving, I arrived at work. The end result was 80 MPG. That's well above what the 2010 Prius would have delivered under the same circumstances. Who cares if the engine runs from time to time. The goal of significantly reducing emissions & consumption was clearly achieved, even in cold season. True, I yearn for the return of the warm season, when MPG is higher. But the data collected this morning certainly is worthy of writing to home about.
- 1-09-2013** **Heater Threshold.** I had noticed enough of a difference with coolant temperatures and heater threshold to want to research further. I hoped to detect a pattern. Could I uncover & confirm reactions to specific settings and reliably repeat those results? The answer is, yes! The catch to performing all that testing was to not allow the engine to heat up the coolant too much. That's what has been preventing us from noticing detail in the past. Everything really needed to be measured within a small window of time, not spread out over weeks like we've been doing. We already knew with the heater set at 65°F, the coolant temperature would drop well below 100°F before starting the engine to warm it back up again. What I wanted to know what happened when it was set higher. Check this out: 68 = 118; 72 = 118; 74 = 118; 76 = 123; 78 = 127. The heater setting on the left corresponded to the coolant temperature on the right, several times at each level. I was even able to confirm results while driving and while stopped. In other words, if you set the heater at 74°F, the engine will remain off until the coolant temperature drops to 118°F. At 76°F, it's 123°F. At 78°F, it's 127°F. No longer is there a single cutoff point like the regular Prius. The plug-in model takes a tapered approach.
- 1-10-2013** **Missing Data.** The newsfeeds about hybrids sometimes pop up unexpected content. That was certainly the case today. There was a link to a blog and guess what I found... It was the same Volt owner getting remarkably similar comments. The snippet that caught my eye also had a confrontational type stance, though less caring and lacking any examples: "*you give me nothing of substance*". The follow-up is what really got me. It was the same link for more info, which got a similar response too: "*doesn't give us enough data*". The point was made. You can't just make a comparison, then draw a conclusion without also providing detail. Summaries only aren't acceptable. Greenwashing attempts of the past give reason to ask for missing data. Knowing how numbers were collected & calculated is very important. Long story short, if you don't, expect people to question your intent. Sincere efforts will be self-undermined otherwise. People are learning not to accept what they read without confirming it.

1-11-2013 **One Million Goal.** That's what Toyota set out to achieve a few years ago for 2012. Taking sales of the v model in Japan, hybrid sales in Europe & Canada, sales of Lexus hybrids, and sales of Camry/Highlander all into account, combined with the counts we have solid numbers for, it's easy to see Toyota is well on their way. Here in the United States, all models of Prius purchasing came to a total of 236,659 Prius. In Japan, the regular (liftback) model accounted for 317,675 Prius. There, Aqua (known as the c model here) had sales of 266,567. The numbers look good. It's a promise of sustainability, which is the point. Automakers must sell a bulk of their production as hybrids. There's no argument about that anymore. Greenwashing efforts of the past, attempting to label cars like Prius a niche, have failed miserably. That's why the rhetoric now is so intense. Those fighting change had no option left anymore but to accept it. Some will still attempt to spin numbers to conceal the reality of the situation. That does nothing for the business though. In fact, not facing the need to be competition has dire consequences. That's why watching Ford embrace this change has put so much pressure on GM. Seeing C-Max & Fusion plunge into the mainstream leaves Volt behind. That vehicle was promoted as a car for the everyday commuter, something we'd see as a popular purchase choice. Instead, it's been downplayed to a hopeful next generation, leaving Toyota in a position to begin reducing production of their popular traditional cars (Camry & Corolla) in favor of Prius here... in Japan, that has already taken place. We'll see more and more hybrids, so with plugs too. Eventually, the next goal will be stated. When should we expect 1.5 million sales annually?

1-12-2013 **Lowered Standards.** In a thread on the big GM forum about Equinox not getting eAssist, this was posted: "*Our AWD 2.4 gets excellent mileage (about 26 MPG) in suburban/rural driving in Maine.*" That's so bad, I don't even know where to begin. Remember years ago when 40 was the goal? It has since been lowered to 30. That's embarrassing. Once upon a time, we were leaders, we delivered great feats of engineering. Now, we downplay expectations. What happened to the 21st Century? We're going backwards! We've lowered standards to such a degree, some people are sincerely fooled into believing MPG in the 30's is helping us reduce our dependency on oil. How could that even make sense? Population growth alone should be enough of a problem to recognize that more needs to be done. Have they forgotten what traditional vehicles delivered in the past? Don't they know what some hybrids actually deliver? Are they greenwashed to such a degree that they assume what they here isn't actually true or that somehow traditional vehicles will suddenly be replaced entirely. More and more, I'm thinking it's the latter... that they've convinced themselves what they drive now is fine and sometime in the future hybrids will improve to such a degree they'll never actually have to make a conscious decision about which to purchase next.

- 1-13-2013 The Ultimate Quote.** Reading this, I was amazed: "*It may be a quality product, but if it doesn't meet the needs of the consumer as well as the competition then it deserves its lackluster sales.*" That came from the ultimate antagonist, a person so intensely in favor of Volt and against Prius he argues any criticism... totally unwilling to be constructive, just unfounded hope. It quite remarkable to encounter anyone so stanch. But then to read a quote exactly as I would post, how would you respond? He was making comment about Malibu. Why wouldn't the same apply to Volt? I didn't respond. Why bother? It's so hypocritical anyway. At best, you could label that as a double-standard. If Volt wasn't intended to fill the same role as Malibu, what the heck is its purpose? Anywho, I find it the refreshing seeing him post what I had been saying all along. Apparently, he heard & understood the words but couldn't see how they applied to the vehicle he most praised. Is that progress?
- 1-14-2013 What Can You Say?** Too little, too slowly was the concern stated throughout the development of Volt. It highlights the very situation being faced now. Yet, enthusiasts insisted that wouldn't be the case, this couldn't possibly happen. We're starting the third year of availability and attention is refocused on the next generation, hoping cost & volume will be what was expected back in 2010. Discussions don't even have Volt as a topic anymore. It would be nice hearing realistic talk about Volt in 2013 instead. Will we really just step back and hope for the best? What should the expectations be? Just writing off this generation and settling for slow acceptance doesn't give GM any direction or incentive. We still need a vehicle configured & priced for the masses. In all seriousness, the lack of diversity is what will end up holding Volt back. What's so wrong with a second model, something scaled back to resemble a high-volume top-selling middle-market car rather than only offering one that strives to exceed on many levels? After all, that's the type of vehicle which provide business-sustaining profit, not one that impresses at autoshows. Wasn't anything learned from Two-Mode's emphasis on want rather than need?
- 1-14-2013 Outside Temperature.** It clearly is a parameter taken into account for the heater, beside the coolant threshold... which explains why observations have varied so much. My recent evidence of this was watching the engine shut off when the coolant temperature warmed up to 112°F with the heater set at 70. What the heck? That didn't fit in the pattern I had measured a few days earlier. The obvious difference was it now being a little above freezing outside, rather than well below. The next observation of not-fitting-the-pattern was when it got even colder outside. Not using the heater at all, the engine shut off and 105°F and I was able to drive for 4 miles in EV. In the past, initial warm-up was always to 130°F anytime the engine started. That didn't seem to matter. Maybe time is a parameter too. Yesterday, my cold morning errand running with heater had an engine shut-off at 123°F instead. That was yet another temperature. Hmm? Today, with it 12°F outside and the need to get to work shortly before noon, I set the heater at 70 and jumped on the 70 mph highway with a full battery and a cold engine. Upon reaching the 55 mph section, there was plenty of reserve heat built up for EV driving... or so I thought. When the coolant dropped to 136°F, the engine started back up. Huh? Of course, in the end, does it really matter? The point is to deliver a significant MPG boost from plugging in. That is indeed what I've been getting. The same advice we gave in the past applies now too: *Just Drive It.*

- 1-14-2013 Mid-Research.** There are many observations to make & document still when it comes to when the engine runs. It feels like I'm confusing matters by interjecting seemingly random values. We may uncover a pattern as some point, ultimately identifying all the parameters used to determine when the engine is used. But the criteria is so much more complicated than in the past. Toyota really did their homework... delivering a system able to respond in such a dynamic way, we cannot beat respond in a way to achieve better. That makes sense. A computer should be able to take more into account more than a human, especially when it comes to delivering longevity in addition to great emissions & efficiency all at the same time. It's redeeming to see the flexibility in action. There are so many fine adjustments continuously at play. Yet even in the extreme temperatures we're experiencing now, the results are still great. I do yearn for warmer weather though. Having already witnessed the increase in capacity from higher temperatures, it certainly is something to look forward to again. Engine warm-up is so much faster too.
- 1-14-2013 Really Cold Driving, part 1.** Last night, the Prius had been sitting outside for about 2.5 hours, it was only 9°F. Even if the battery hadn't been totally depleted, I would have started the engine immediately anyway. That's simply too cold to endure... which is why I don't actually start the heater until the coolant reaches about 100°F degrees. Fortunately, warm-up began with it at 40°F. It's nice still having a tiny bit of warmth left from the previous drive. 2 minutes into this drive, the benefit of having a heated seat became evident. It was then that I looked over to see how the coolant was doing. What the heck? RPM stated zero! The coolant was only 101°F, yet the engine was off. I was in Stealth mode (low power & speed EV) already. How come the usual engine warm-up to 130°F didn't happen? Needless to say, there are so many variables at play, it would be too much of a chore conveying our findings to those without aftermarket gauges and keen observations skills. Because even with, it's a challenge.
- 1-14-2013 Really Cold Driving, part 2.** It's not worth it anyway. The other day I finally encountered what another owner had complained out, saying window fogging could be dangerous... but never elaborated about the circumstances. I wondered why anyone would push it... but then again, was well aware of how some owners disregard the refill warning. So, I kept experimenting. I refrained from turning on any ventilation, allowing the steam to build up really heavy on the windows. Then I hit them hard with outside air from the blowers. The condensation flash-froze to ice. That was indeed a dangerous situation. But with the temperature only in the teens, I can't imagine someone not just turning on the heater long before that would ever happen anyway. Then again, it's a common sight to see people driving around with only minimum snow & ice removed from the outside of the vehicle. Some take chances more than others.

- 1-15-2013** **Initial Impressions.** Those about the latest from GM are rolling in. All the enthusiasts were expecting the Cadillac ELR to introduce an upgrade to the plug-in system. Instead, they get a heavier vehicle with more power. It uses the same engine & battery and sacrifices range. Even the look is style over substance. The situation is so bad, there's nothing we can really post without sounding condescending. That's taking Volt in the wrong direction. What a mess! This should be a clue about setting realistic expectations. They keep hoping for a miracle and end up getting way less than hoped. I can't imagine sales for such an expensive plug-in without any efficiency improvements being any more than a trickle. This is yet another example of GM building what they want to sell... not what they need to.
- 1-15-2013** **After Thoughts.** Instead of Voltec 1.5 being revealed, we we're shown a vehicle that's 289 pounds heavier and consequently gets less EV range and lower MPG. What happened to the anticipated improvements? No upgrade to the system? As other automakers rollout their plug-in vehicles, GM decides to offer something even more expensive. Where is the choice of something affordable? Why a vehicle for the luxury market? This makes you wonder what's next. How long will it take to finally get a vehicle able to take the place of traditional high-volume sellers? What will ordinary consumers buy? We are not going to see middle-market buying large quantities of any vehicle that's not competitive; in other words, the vehicle much be share similarities to what people purchase now. GM clearly does not want to focus on that audience yet.
- 1-16-2013** **Posted Response.** Also having an upscale vehicle is fine, but we really do need a genuine competing car... something that gets hybrid MPG after depletion, is large enough to be practical for a family, and is reasonably priced. Remember the "*too little, too slowly*" concern? It's the same problem as in the past. How have things changed? Money from bailouts & tax-credits is suppose to accelerate progress. Upscale alone doesn't provide any sense of that. Rather than getting something for the masses, or even an upgrade to the system itself, we get another trophy vehicle. What's the point of offering a nice vehicle very few people will actually buy? It's not even a midsize. If we also got something that was competitive with offerings coming from other automakers, that would be a different story. But the deafening silence about plans with Volt is reason for concern. More is expected. Faster is expected.
- 1-16-2013** **Heater On, Engine On.** To add to the complex array of parameters we already have, I made yet another discovery. It was 12°F degrees on the commute to work yesterday. I set the heater at 65, then watched what happened when I turned it on (pressed the fan button) and off (pressed the off button) while driving. The hypothesis was the engine would remain off while the coolant temperature was still above the usual 114°F threshold. After all, it doesn't start when the heater is running. Why would the engine start up upon starting the heater? Turns out, it does. Huh? I performed the test three times was in motion, at 118°F, at 123°F, and at 128°F. Each time, the engine fired up and ran until reaching the usual warm-up shutoff temperature of 130°F. I also tried it once while stopped, at 127°F. Same response. Needless to say, we are dealing with a very dynamic system, one that takes a wide variety of conditions into account. The "*set it, then forget it*" advice is proving to be an excellent recommendation. The Prius will figure out how to achieve the best results for you. It is no longer the early days of hybrid driving, when the suggestions to improve efficiency were so simple you could easily to the same yourself.

- 1-16-2013** **Electric Only.** On the simple side, I stopped at the coffeeshop this evening with a toasty warm Prius. It sat there outside in the 23°F parking lot for 1.5 hours while I relaxed. The estimated EV distance remaining was 7.7 miles. My drive home would be with only the heated seat on high. The heater itself would stay off. Since the interior was still warm, there wasn't any need for window clearing. The glass had retained enough energy to resist condensation. Maximum speed would be 50 mph. It was a remarkably efficient trip, despite the cold. The entire drive home was with electricity only. I arrived home 7.5 miles later. I even had 0.9 of EV left.
- 1-17-2013** **Greenest.** The pressure sure is building. Seeing that certain groups are making their hate for Prius is overwhelmingly clear confirms it. The c model was named the greenest car by the American Council for an Energy-Efficient Economy. The regular model Prius took third place. The plug-in model got fourth. The v model came in at eleventh. It's bad enough hearing from people like me (an owner) repeatedly pointing out the importance of offering a choice for mainstream consumers. But then to hear that some of those popular choices from a competitor are also extremely clean & efficient really burns. That's why there was always so much rhetoric from Volt enthusiasts. Now there's a backlash with trucks too. Ford's F-350 was label the "meanest", which means the dirtiest. GM has a large inventory of pickups. SUVs are losing customers, who are now choosing the big wagons instead. We saw this coming. They hoped it would somehow not be as intense. The rest of us see the emotion as validation. How could we continue to dismiss oil-dependency and climate-change? At some point, the problems would become obvious. That time appears to be now.
- 1-17-2013** **Not Dead.** The switch to damage-control for GM has been rather abrupt. The reveal of their new plug-in hybrid, the Cadillac ELR, didn't get the reception they were hoping for. Even many enthusiasts were disappointed. The expectations was a technology upgrade; instead, it just ended up being cosmetic upgrades with nice creature-comforts and more horsepower. As a result, focus shifted back to Volt... and people are asking the same question I had been for quite some time. What should we expect for this third year of sales? The fact that last year's was just half that of what had been projected has people wondering. After all, attention to detail of the tax-credit has exposed the reality that there isn't actually an expiration-date for it, that the only criteria is sales. That gives little incentive for high-volume production until cost has been significantly reduced. For Volt, that's a major challenge to overcome still. The quote given yesterday from GM's top executive was: "*The electric car is not dead.*" A comment like that is confirmation of having missed an opportunity. We kept saying now. They kept saying later. We were right. Ford is preparing to rollout their second plug-in hybrid, the Fusion. Toyota will be expanding to rest of the country soon. And Honda will be rolling out their first. Now is the time, not in a few years. Waiting for a second generation is too late. They clearly didn't learn from lessons of the past. The situation is quite a mess now.

1-18-2013 **Just Wait For It.** Reading through the forum post, blogs, and comments, that message is being echoed from the head of GM all over the internet. There isn't an effort anymore to reach out to the mainstream with Volt. We're being told middle-market will get a choice from the next generation. There's no sales prediction this year, we only get a message conveyed of slow increase. It's not even worth posting there anymore. Heck, they are now reciting what I had been saying all along. They've even opened up to the idea of a model being quite a bit different, something to appeal directly to the masses. The thought was that would happen shortly after the second year, since fallout with Two-Mode followed the same timing. The long debates about priorities are over. The enthusiasts claimed all I ever did was post about Prius. But when you look back, there's lot of mention of consumers needs in general... the very thing being addressed now. It was frustrating for me that they'd totally ignore anything I posted about Ford, denying there was ever anything said other than Toyota. But now they know that wasn't ever the case. It felt good for them to have someone to blame, a scapegoat to deal with their own frustration of struggling sales. Focus has shifted away from this generation entirely. They're saying "*just wait for it*" instead. What a change.

1-18-2013 **It Was Inevitable.** I remember closure of the past. When the enthusiast came to terms with their expectations not being met, they'd lash out at those who had predicted the outcome. You could see it coming too. Bait would be dropped on a fresh thread, provoking individuals that were correct all along to challenge them. There's a basic desire to have one last fight, a glorious final battle. Denying them that is counter-productive. Even though you end up getting labeled as the troll, despite their dropping of bait being so obvious, you accept the invitation anyway. It's the classic "*can't see the forest*" situation. They focus on one particular tree. That disregard for the big picture is a painful lesson to learn. Hope clouds judgment though. Pride makes it worse. It played out like a textbook response. I tried to point out the past to them, to prevent the repeat of the history. I got scorned for my trouble. Oh well. The message about the need verses want got through. No one said the process would be smooth. Transition can be extremely difficult for some people. Our past obsession with size & power has made that change a painful one. They were determined to earn a trophy, rather than focus on the crowd instead. It was doomed from the start. It was inevitable.

- 1-18-2013** **Minnesota Morning.** Looking at my scribbles from the commute yesterday morning, I like what I see. It was 10°F outside. I drove the usual fast route, starting the engine a block shy of the highway by turning the heater on. My garage is insulated but not heated. It's plenty comfortable to drive those first few blocks in EV. That way, I don't get stuck at a light with the engine running. The heater was set at 74. I didn't use the heated seat today. I wasn't wearing gloves either. At the conclusion of the 70 mph section, at the 9.5 mile mark, the coolant temperature climbed to 159°F. Upon slowing down to 55 mph, which shut off the engine, I turned the heater down to 65 to keep it off as long as possible. At 10.8 miles, the engine started back up again. The coolant was at 136°F, clearly higher than the usual 114°F threshold. My theory is the outside temperature influences when too. After 2 miles, the engine shut off again. The coolant had reached 146°F. With the heater still at 65, the newly generated heat only lasted 0.9 mile. That was no surprise, being that cold outside. It was getting pretty warm inside though. So when the heater shut off 0.8 mile later, I shut the heater off too. Why let it start again. I was already 14.5 miles into the trip and only had 2.2 remaining. So, the rest of the drive was without any blower running and using only electricity. I arrived at my parking spot in the ramp with 0.5 mile of EV left. The overall average was 114 MPG. That's amazing considering how cold it was outside and how little was done to achieve that outcome.
- 1-19-2013** **Acceptance.** It's a painful process. Yesterday's concluding lash out confirmed even the enthusiasts are done with the long series of discussions, arguments, and debates about Volt shortcomings. Looking back, the first was the direct-drive uproar. They lost their purity hope. Then came the non-disclosure of depleted efficiency. GM absolutely refused to share MPG data, despite their heavy promotion CS-Mode. We knew something was seriously wrong. They didn't want to admit it though. When the price was finally revealed, everyone knew trouble was to come. And sure enough, shortly before rollout itself the MPG was finally revealed and was considerably lower than anticipated. Sales results the first year made it worse. Then came the second year, with sales at a growth rate far below expectations and the new Prius family doing remarkably well at the same time. That's why this comment yesterday came as no surprise: *"But rippin' his crapbox to shreds was always a bit of fun."* The hate for Prius ran deep, but the target to troll was gone and it wasn't rewarding anymore. They give up. Proof was reading this from one of the most extreme of those who despised Prius... *"GM needs cost savings to offset the inevitable elimination of the credit."* ...since that was what I had been saying all along. Hearing it from someone who focused on business results rather than engineering pride doesn't work though. That's why the resentment for me grew so strong. But the moment they got confirmation I was gone, the message immediately changed. That's so hypocritical, there's nothing which needs to be said. The point was to get them to accept that. It looks like they have.

1-19-2013 **Downplay.** To sum up the mess, allowing us to all move on, it's just a matter of looking at the downplay. Prius was configured to appeal to the masses right from the very beginning. It didn't offer power, speed, and handling in excess of what ordinary mainstream vehicles offered. In fact, it was quite plain... but with an usually smooth & quiet ride. Toyota went to great lengths to keep cost within check, delivering a design which could achieve profit without even requiring a generation upgrade. They rolled out that model and did indeed accomplish that goal... despite gas being dirt cheap then and their being basically no interest in reducing dependency on oil or worry about either type of emissions (carbon & smog). The intent & persistence was obvious. That most definitely is not what happened with Volt, which had even higher expectations. But none of the goals that were actually set are remembered anymore. Those who had backed them deny there were any. They'll even lie to protect their pride, making it pointless to argue. Instead, they'd downplay. New goals would be focused on instead, pretending that's what was intended all along. 2 years later, that's all the newbies know about. They have no clue any of that previous history took place. They simply assume (without any detail) it was a bit rough at the beginning and all is well now. That's how history is allowed to repeat. We've seen this pattern several times now, each ending in very unfortunate circumstances. The only real hope is that goals are downplayed to such a degree that they actually become realistic. Pride is very difficult emotion to overcome. It's so powerful, it makes believers see what they want. That's why no matter how often I mentioned examples from Ford, Honda, or even GM, all they would hear was "*Prius*". Heck, when I pointed out the differences between the hybrid Camry and Prius, all they heard was "*Prius*". It was truly amazing blinded they were and the resulting hurt from it. The disenchantment caused them to seek blame. I was an easy target. I won't hold it against them either... as long as they learned the lesson from their own disenchantment.

1-19-2013 **Defeat.** The only message I can find that still remains is this: "*The PIP was a hack job of an effort to respond to GM.*" That's the point Volt enthusiasts want to convey about Toyota. It makes them feel better believing the design didn't exist way back in 2003, that Prius wasn't planned to deliver up to 100 km/h (62.1 mph) all those years ago and only had to wait until a realistic battery became available. The owners from back then knew about the testing taking place with parallel NiMH packs. That worked, but it was expensive and the capacity was way too small. Delivering a system without compromise to price or interior room have always been major priorities. A top priority was to deliver high MPG using only engine-supplied power at high speeds. All of that is what we now find in PIP (the plug-in Prius). Reasonably affordable batteries using Li-Ion is what changed the situation. They want to portray that accomplishment as defeat. They hope that one bit of history won't be uncovered. Remember how much of an influence image (the trophy mentality) has on them, how big of a deal stigma is? They're hoping people who read that claim feel the same way, that they'll believe Toyota was desperate instead. That doesn't make any sense when you think about it, since there's no mention of Ford. Declaring victory by professing defeat is what makes them feel better about the situation. That's how certain individuals can move on without feeling disappointment. Thankfully, the rest already have.

- 1-19-2013** **Compromise.** Anytime there was mention of a smaller battery-pack for Volt, it was always contrived to be an attempt to endorse Prius. Every approach possible met with the same results. The enthusiasts found Prius a threat and would not accept anything resembling its design under any circumstance. (Watch for absolutes.) That large capacity was the key to survival. It's what defined Volt as different from the other other plug-in hybrids... even though it was just an arbitrary measure. That's why aftermarket upgrades were quickly dismissed. They exposed shortcomings... like MPG no better than a traditional vehicle after depletion. With Prius, it remains just as efficient as a regular Prius after all the plug-supplied electricity is gone. That the key to success. Prius PHV can reach a massive market as a result. With Volt, the primary selling feature has been the battery size... since reducing capacity also reduces the horsepower & torque available. But with Toyota, Ford, and Honda all seeking out middle-market, something needed to be done for Volt. It's why I over and over and over and over and over again suggested a second model. That way, the original would require compromise. The other could be consider a "lite" version. Guess what. That's precisely what those same enthusiasts who attacked me for that very suggestion are now endorsing. I was told by a pastor many years ago to note how often the word "*hypocrite*" was mentioned in the Bible. Those written words tell us much about life now. To think, the Volt enthusiasts are now in favor of what they fought so hard against before. Oh well, accepting this outcome despite all the grief which could have easily been avoided is form of compromise. It's what we need.
- 1-20-2013** **Remembering.** What should we remember? I obviously don't care about the personal attacks, where antagonists (having no interest in being constructive, wanting only to stir trouble) would focus exclusively on you to avoid having to acknowledge the big picture. I don't care about enthusiast lies either, since having real-world data available now easily prevents that greenwashing from re-emerging. They were just defending what remained of a poorly conceived plan. Having witnessed both Two-Mode and Volt fall well short of their own goals, you really don't want that to ever happen again. Will it? Could they really blindly hope for a miracle a third time? I'd prefer to start fresh. It looks as though we can too. But there is an inherent fear of repeating mistakes by not addressing what had already been tried in the past. It was truly amazing how bad the hype & rhetoric got. What comes to mind the most is how much stigma dominated discussions. The label of "*failure*" heavily influenced responses. Perhaps that's an important lesson to be learned, to remember how much emotion clouds logic.
- 1-21-2013** **New Video.** I was able to film this morning's commute. I sure hope the footage looks good. 62 MPG for the trip, with 1.7 miles of EV left. That's quite remarkable considering the outside temperature was -6°F. It's always a complicated setup anyway. The cold makes it worse. Things like a smudge on the glass are difficult to notice when you are trying to be brief and avoid causing condensation from your breath. The vents near the base of the windshield cannot be blocked either. That shift of the dashmat alters the lighting for both cameras, forcing you to guess what's needed. There's no opportunity to calibrate either, since a cold engine and the fullest battery possible are required. Needless to say, it becomes quite an effort to coordinate it all. Failures happen too. I know I'll end up having to abandon a video due to an equipment issue. That's reality. But I persist. Most of the footage turns out. Then you end up spending a ton of time with the rendering effort. It's a labor of love though. That level of detail is extremely informative. It's squashes misconceptions and puts and end to greenwashing, as well as entices the curious to want to learn more.

- 1-21-2013** **Another Video.** -6°F this morning, nearly identical to yesterday's commute. So, I took the other route, filming that too. Having a slower speed limited, so I was intrigued what the outcome would be. Unfortunately, the dashmat got in the way, interfering with the window clearing. Condensation became a problem. The extreme cold caused a camera's suction-cup to repeatedly fail too. That made for a fun driving experience. The end result was rather predictable, despite the unexpected. The Prius handled the conditions well. It's odd hearing the high-rev for heat though. The engine would run at about 1964 RPM. In the end, that got that longer & slower route down along the river was more efficient, as usual. The MPG was 63 today rather than the 62 yesterday. There was a 1/3 more battery-capacity remaining too. Hopefully, today's video captures actually worked. Stay tuned.
- 1-22-2013** **More Video.** Yesterday's effort failed. One camera locked up, preventing the final segment's file from being saved. That loss of footage meant frustration, but only a bit of patience. Being so darn cold here, waiting until the next day is no big deal. This morning's temperature was -2°F. Filming setup went better, so well I decided to try something different rather than try to refilm. I wondered how much EV travel was possible when no heater was required. No owner has ever tried that particular experiment before in conditions so cold. I'd put the heater on high and crack the windows open for ventilation. I'd drive with gloves off too, a good indication of how tolerable the interior could remain in temperatures that low. Wearing only my usual work clothes and my regular coat, my voyage starting from my non-heated but insulated garage had an unknown outcome. I couldn't even guess what would happen. The hope was electric-only travel until depletion. Lithium batteries work much better in Summer. I was curious. Turns out, the effort was worth it. Taking the back way (max speed of 55 mph), I pressed the pedal down really hard to start up the engine with only 0.1 miles of EV remaining. Traveling at 55 mph and quickly approaching a hill, I wanted to have extra electricity to buffer the very cold engine warm-up. I had already traveled 8.9 miles using only EV. That was totally worth it. Though, it did make me curious how much electricity the heated seat actually consumed. When I arrived at work, total distance was 17.2 miles. The final overall efficiency was 117 MPG. That's amazing.
- 1-23-2013** **Imaginary Interest.** What happens when a halo vehicle no longer gets attention? We are watching that play out now. My participation on the big GM forum was perceived as stoking the fire, the enthusiast proof of naysayers. In reality, it appears they now recognize I was only stirring the ashes looking for embers. Volt simply isn't discussed anymore. Even ELR only gets barely a peep, just days after the reveal. It's astounding to observe. There's nothing. Silence. They looked forward to the participation, having no idea the interest was really only imaginary. But with everyone else already gone, that should have been easy to see. After all, it's not rocket science. We all recognize who posts. If no one else ever joins each new attempt at discussion, something is wrong. And with the thread content itself not constructive, confirmation of trouble is abundant. Sales results next week certainly will be interesting. The rush for 2012 tax-credit eligibility has passed. Details about Ford's plug-ins are available. And the initial rollout of Honda's plug-in has begun.

- 1-23-2013** **Worth It?** An antagonist of the past reappeared. He was one who pushed the perspective that Volt's engine was there only for emergency backup, claiming virtually all but vacation travel would be done exclusively with electricity. Claiming such an extreme view, which has since proven to be false, caused him to stop posting. His return is now with a different perspective. Turns out, using fuel with a combustion engine is ok. The catch is the fuel should be clean & renewable. Naturally, that's what I had been saying all along. But why bother stirring up that? It's not worth it. Pointing out the agreement wouldn't accomplish anything. So, I'll just document his new attitude instead: *"Why are so many people pre-determined to get rid of the combustion engine? Is there some religious belief I'm unaware of? An EREV combustion engine range extender running on bio-fuel would give us a 100% sustainable, carbon neutral solution, all using our existing infrastructure of home electricity and liquid fuel filling stations. What's not to like?"* That type of turn-around never ceases to amaze me. When someone finds out their stance didn't payoff, what do you think they'd do... after a prolonged battle to save some pride, of course? I like the outcome, even without interjecting any type of *"I told you so"* comment despite all the frustration he caused in the past. You just quietly note that they finally heard what was being said. Phew! What a relief... and quite worth it, from the end-state vantage point.
- 1-24-2013** **No Heater.** I grew quite curious, then finally asked myself the ultimate question. What if I didn't turn on the heater at all? What if I just cracked the windows for defrosting instead? Between the heated seat and the proper winter attire, I'd be reasonably comfortable anyway. After all, a traditional vehicle wouldn't be able to provide heat from its engine in only a few minutes. With it too, you'd be relying on the same methods of keeping warm. Anywho, it was -2°F outside, providing a great opportunity to observe that extreme. Prius shined. I got 9 miles of EV out of the battery-pack, which included electricity from the camera setup prior to the 17.2 mile drive and providing electricity for my seat. The end result was an amazing 117 MPG. Let's hope the video footage actually came out. It's challenging enough when the temperature outside is warm and I did have a recent failure. With it significantly colder than freezing, problems happen. Regardless, I did get photos.
- 1-26-2013** **Vaporware Repeat.** It's hard to believe 6 years have passed. We went from a collection of unrealistic hopes to an idea struggling to survive. Using the label of *"vaporware"* early on was very offensive, the enthusiasts did not take kindly to it. Yet, they continued on with the something-to-prove stance rather than constructively adjusting expectations as market & design realities were uncovered. Unfortunately, that seems to be happening again. I'm seeing ideals emerge, claimed as necessary rather than being identified as reasonable high-end choices. That's a warning sign. Focus should be on what's most realistic for the masses, especially since the design expecting to deliver them is second generation. Why do they do that? It's one thing to strive for a goal. This setting of expectations beyond the reach of business & consumers is troubling... especially when it repeats!

- 1-26-2013** **Smog.** Photos of the rapidly growing problem of smog in China are capturing headlines today. It was so bad, some industry & service had to be shutdown. The air was like a thick fog, making traffic extremely dangerous. Seeing that is truly frightening. Rather than learning from mistakes we made decades ago and have been struggling ever since, they focused on economic growth instead. Now the consequences of that choice are becoming overwhelmingly obvious. Could you imagine air so toxic it's difficult to see? What a nightmare. Too bad some people here just plain don't care. In fact, some think the same thing believing emissions should be sacrificed for the sake of not having to invest in new cleaner technologies. It's that "*good enough*" attitude that's really presents challenges. What do you do what someone just plain doesn't care. Nothing you say will convince them, but you certainly don't want to wait until the situation gets so bad it becomes extremely expensive to repair. The best choice has always been to lead by example... which is precisely what Prius owners have been doing. Nice.
- 1-27-2013** **Efficiency Pressure.** As the cost of hybrids drops and the need to use less oil increases, the pressure for delivering higher efficiency results in comments like this: "*As if by magic a Jetta Hybrid appears!*" That begged a response. It's the kind of situation which contributes to greenwashing, starting as an uninformed mention then growing into a belief. Responses are sometimes misinterpreted as being confrontational. So, it's best to know the person prior to jumping in with background information. In this case, it was fine. We exchange constructive posts routinely. I replied with: That's like congratulating someone who worked hard for a decade to become an overnight success. Diesel (engine only) was doomed from the day hybrids rolled out. It was far too dirty and simply could not compete with ever-improving battery technology. It was destined to become a filler option as the transition away from traditional gas vehicles progressed, then be replaced by a hybrid of some sort. With automakers like Toyota, Ford, and Honda all striving to deliver a plug-in hybrid with an affordably-sized battery along with a no-plug counterpart, there wasn't any magic. It was inevitable that VW joined in, starting with a gas hybrid. Diesel (engine only) quite simply cannot compete with the +75 MPG some of us are now experiencing, especially with a PZEV emission rating.
- 1-27-2013** **Not Size.** I liked reading this comment: "*Hybrids are less still than 3% of the market and compete in segments with near 60% of the market. There's a reason for that small size and it's not the price.*" As the price of gas continues to put pressure on our society and people simply grow familiar with the plug-in hybrids (remember the "*don't by the first year*" mindset), the acceptance will become easier & easier. It's a bell-curve too. Momentum picks up after the slow initial progress. The catch is reminding yourself that 3% is actually around 1/3 of a million vehicles. In other words, this is yet another example of misleading by using a percent rather than stating the actual number. I rebutted with: How effective of an argument against hybrids do you think that will be going forward? It's rapidly becoming weak as the Prius family grows. Seeing so many on the road is far more of an endorsement to accept than a statistical percent. Ownership sends a powerful message. We've witnessed a clear change in priorities recently... the importance of efficiency. The emergence of plug-in hybrids pushes regular hybrids deeper into the mainstream than any monetary incentive could. It sends a very clear message that hybrids are indeed the next step in automotive evolution, not a niche as the greenwashing had persistently claimed. The perception of the market expanding strong, making it very difficult now to argue against.

- 1-28-2013** **Fiesta.** Oh my gosh. Believe it or not, the small cars with the 3-cylinder engines are about to make a comeback. Their return may not be with open arms though. Decades ago, there wasn't a technology solution called hybrids available. Now there is. That makes the reveal of a 1-liter Fiesta by Ford a head-scratcher. What will it cost and who will be interested? Supposedly, the direct-inject gas engine with turbo-charging will offer 40 MPG city and 50 MPG highway. Of course, nothing was mentioned about emission rating. It will offer 126 horsepower and 148 lb-ft torque, so it will be competitive in one regard. But special measures will need to be taken to deal with the extra noise & vibration caused by a 3-cylinder engine. This is definitely an unusual situation in a market now trying to introduce plug-in vehicles to the masses.
- 1-28-2013** **Halo Delay.** Since we are now in the double-standard/hypocritical/contradiction stage of rollout with Volt, the previous reasoning approach is basically pointless. Enthusiasts arguments of the past now work against them. That means taking another approach instead... though we can still introduce it by pointing out the irony of the situation. It was done by reciting concerns "*dead weight*" issues. I thought that was a great way of moving beyond old rhetoric. You recognize, then try something different: Prius supporters continuously heard "*dead weight*" arguments. It went on for years and years, despite the fact that there wasn't actually any long duration when either the battery or engine remained unused. Now when that is actually true for Volt, nada, zip, nothing. It's wrong on so many levels, how can we expect to get constructive feedback? The next step is going to be a challenge. What will the current owners think of a scaled back design, one that uses a blend of battery & engine? Approach will have to change to draw in mainstream sales. There is the possibility of GM choosing to support both a "*dead weight*" approach and one that strives for a balance. But without a non-plug model to supplement production volume, it's an expensive business risk. Maybe their reports will help with that transition. After all, details of the past are often forgotten or not even known anyway. Even though it takes much longer, the halo delay really could be the key. Arguing design shortcomings doesn't accomplish anything and they know quite well that cost-reduction won't be solved by technology breakthroughs alone.
- 1-28-2013** **PHV Surprises.** I especially liked reading this: "*I think one unexpected surprise for me was to learn that even in HV, mileage is improved by the larger battery capacity.*" It's exciting when a new owner discovers more than they had anticipated. He had several other enlightening things to comment about as well. I saw it as a great opportunity to ask about ways to identify that behavior, since most people assume PHV either drives in EV or HV mode. They don't realize there's a mode in between, despite the fact that the term "*blending*" is used so frequently. It simply never crosses their mind that they'd see MPG in excess of 100 while the engine is running. The fact that the motor has so much electricity available to assist the engine isn't something ever mentioned. So, I've been helping to promote a term for that, asking about it with: Sadly, there have been certain individuals trying to portray operation of the plug-in Prius as having no advantage once that engine begins to run. If you had encountered that greenwashing, it didn't seem to deter your purchase. Sweet! You clearly have discovered that's that what actually happens too. That proclamation of it being amazing, even in subzero temperatures, speaks volumes. Anywho, we've been trying to spread the word about there being a plug-in benefit even with the engine running by using the term: "*EV-BOOST*". Do you think that is an informative way of describing it?

- 1-28-2013** **EV-BOOST when in HV.** Most people have no idea there's still quite a bit of electricity left even upon reaching the depletion point when the engine starts. They just assume there's nothing left but ordinary HV mode driving. The fact that a minute worth of EV-BOOST still remaining to provide a smooth, low strain warm-up of the engine is often not known. Heck, even some owners don't notice it. That's one of those things you really only observe when using an aftermarket gauge. Anywho, I joined a discussion pointing out today's observation of that with this: Something is needed to identify the behavior. I was quite delighted witnessing it firsthand today too. It's warm now here (just above freezing). I drove 13 minutes in EV prior to depleting the battery, including a climb out of the river valley at 57 mph. Just as I reached the 70 mph section of highway, the engine fired up. I watched the SOC drop all the way down to 2 bars (specifically 18.4%). The result was the first minute of warm-up yielding 70 MPG, something clearly not possible without taking advantage of electric more than HV would offer. Just think if there was something in the car to document that behavior, an illustration showing owners detail about exactly what happened during that warm-up. It's a design feature some may ever even notice otherwise. Heck, I remember certain individuals claiming that wouldn't even be possible, that the engine would start cold and have to fend for itself. Fortunately, the boost during ordinary cruising on the highway is already easy to see. The instant & summary bars show MPG well above what you'd get in HV mode. Of course, that data is lost right away. Being able to download/send/share it afterward sure would be nice.
- 1-29-2013** **Labels & Purpose.** Marketing is intentionally bias. That's the point. It's purpose is to convince you their product is the best choice. Why can't those handful of Volt enthusiasts still convinced purity is the best approach see that? Needless to say, I didn't say much after reading this from one such person: "*...people that don't understand what EREVs are really all about.*" The reason was simple, that phrase followed a series of insults for those in favor of a different plug-in hybrid. He's been quite smug. I find that a relief. Thank goodness many owners aren't like that. Being among the few still holding on to hope of the past, I wonder if there will be a change in attitude following results this month's sales. In the meantime, I had thoughts of my own to document: The design is intended to deliver EV by avoiding use of the engine, only starting combustion when absolutely necessary, even if efficiency opportunities are lost. But since that wasn't even the point of the post, why bother? GM needs to produce a high-efficiency vehicles that is purchase in high-volume. No argument about semantics will change that. They must deliver something for mainstream buyers. Period. Volt itself can continue being appreciated by owners. That's great! There's nothing wrong with enthusiasts. They provide ambition & excitement. But enthusiasts are not middle-market, who don't share the same passion. They couldn't care less about whether a vehicle is called an EREV or a PHEV. In fact, most won't have any clue how the system actually works. They just need a practical & reliable vehicle that's affordable.

1-29-2013 **Misled Purchases.** They happen. In fact, that's how some owners discover the big Prius forum. They come there to voice their frustration, then vanish without any further comment. It's a common occurrence without any certainty of outcome. Once in a blue moon though, that misled purchase ends up creating an strong advocate rather than the assumed frustrated customer. This time, it was: *"Toyota needs to come clean and make it clear to buyers that the EV plug-in is not truly or exclusively electric... I was assured it was when I bought it."* I did my best to console & advise with: Sorry to hear you were misled, but please don't blame Toyota corporate. They delivered model of Prius you purchased to clearly display the "PLUG-IN HYBRID" emblem. Finding fault with salespeople & dealerships is an entirely different matter. And by all means, sound off when that happens. We, as owners & supporters, will help convey the detail needed to make a well-informed purchase decision. Hybrid means blending of two power sources. The EV you experience can indeed be with the engine off, but there is no promise of that or even that it will be the first miles driven. The addition of the plug enhances what Prius already offers, hence being a package option. The test-drive experience will reveal that, especially when you exceed 62 mph. The purpose is to provide very high efficiency and very low emissions... which happens regardless of how the electricity from the battery is actually consumed. Give it time. Your purchase in the dead of winter means there is much to look forward to. EV range increases as the temperature warms. The engine runs less often and at shorter intervals once the cold is gone too. Local errand running becomes a pleasure, rather than a chore, as a result. Being one of the few who owner a PHV back when there was still snow last year, I can point out how much of a difference it makes.

1-29-2013 **Expensive Gas.** It makes you wonder how a comment like this actually derives: *"When I bought my first Prius (Oct 2000) everyone was talking about how in ~10 years we'd be paying \$10/gal for gas...hasn't happened."* Was that a distorted memory of the past, consensus from a very small group, or some other misrepresentation. My personal logs certainly don't have any references like that and the forums of the time weren't discussing gas anywhere near that high. Perhaps it was some totally different venue, something not directly related to vehicles... perhaps related to energy instead. Whatever the case, I tried my best to prevent that comment from getting any more off track with: I'd suggest searching for some old comparison analysis reports. You'll find it was quite a challenge even arguing \$4 would happen. It was actually quite frustrating. The belief was gas would continue to be cheap. What's much more interesting is the change that happened when \$4 gas really did arrive. The guzzlers started to disappear, despite the arguments then having shifted to \$5 being the tipping point. Clearly, it wasn't. Now, we are still looking at \$4 being the norm for the next few years. That's somewhat of an influence, but people are slowing growing use to paying more. Becoming tolerant of higher prices poses a very real challenge for plug-in growth.

- 1-30-2013** **Late 2013.** That was what Toyota's major website revamp stated in the section for the plug-in Prius. The wording on the webpage says: "*Availability will open up to all other states in late 2013.*" That basically just tells us the expansion will be here & there throughout the year, but don't expect availability everywhere until later. We pretty much already knew that would happen anyway. Even within the new states could be spotty. I was told not all dealers around here would get inventory at the same time. We have also been told that the domestic market (Japan) would get priority as well. Since the EV market here has been so wishy-washy and loaded with political rhetoric, that isn't much of a surprise. The market is no longer choiceless like it was when Volt first rolled out. The this-or-nothing situation no longer exists. Ford offers a choice of two different plug-in hybrids. Honda offers one too. None of them resemble GM or Toyota in operational characteristics. Confused feedback from consumers already is reason to focus on existing markets more than expanding to new ones.
- 1-30-2013** **Inspired.** A thread on the big Prius forum discussing extreme-cold driving results inspired me to try more. Why not do it again? Although the temperature is considerably warmer now, a blustery 18°F rather than -2°F as before, it would still be a good example of Winter driving. I'd run errands all in EV. With a maximum speed limit of 50 mph and using only the heated-seat, it shouldn't be a big deal. I'd simply crack passenger-front and driver-back windows for air-circulation to prevent condensation instead of using defrost. The engine should stay off. I began with a fully recharged battery-pack. Charging ended 8 hours earlier. The Prius hadn't been used for 18 hours. It sat there in the garage overnight. Leaving mid-afternoon, conditions inside were about 30°F. That's far from ideal, nothing like the maximum battery performance we experience when no jacket is required. Anywho, I drove 3 miles to the bank. From there, it was 2.5 miles to the cable-company. From there, the drive to mom's was just under 1 mile. No engine up to that point. Next stop, the coffeeshop. I traveled a distance of 9.1 miles before running out of EV. The engine fired up and continued to draw electricity. The battery-pack was depleted down to 3 bars before the warm-up process began generating electricity instead. When I arrived at my destination to enjoy a coffee and type this post, the total travel came to 11.9 miles. The final drive through the parking lot to the spot was in EV, since warm-up had already completed. The resulting average for that entire drive was 198 MPG. It was an excellent example of what you could experience given the right conditions, a demonstration of potential... but not necessarily an expectation. YMMV.
- 1-30-2013** **Entirely Different.** 2013 is a fresh year, a clean page in history. Consumers now know of Ford's two plug-in hybrids (C-Max & Fusion), Honda's new plug-in hybrid (Accord), and obviously Toyota's (Prius). So perspective of the past doesn't apply anymore. In other words, previous excuses aren't valid. We start with an entirely new market. The situation emerging poses new questions, now that real-world data is becoming easier to find. Focus will be on results, not approach. Only enthusiasts care about system details. It's very similar to what we saw in the past with the difference between ASSIST and FULL hybrids. The typical consumer couldn't care less how it operated. They were interested in how well the vehicle would fit their needs & budget. I'm thrilled that technical debates are over. At this point, all comes down to sales. To specifically address Volt & Ampera, how sales growth will be achieved remains a huge mystery. Somehow, GM must keep interest from being lost to the other automakers. What will that do to achieve that, knowing the tax-credit will eventually expire? It's one thing to deliver the vehicle itself. It's something entirely different to make it a high-volume profitable seller.

- 1-31-2013 Deliberate Greenwashing.** You have to wonder what happened to journalism upon reading published statements like this: *"How green is it? In the compact car arena, without the EV mode, the 2013 Chevrolet Volt can get 40 mpg. That's pretty green in any book."* First, 40 MPG is nothing to be proud of from a compact hybrid when traditional vehicles are able to deliver the same thing. Second, being green doesn't just mean high efficiency. That only represents a reduction of carbon emissions. It says nothing whatsoever about the other kind, smog. In fact, some high-efficiency vehicles are actually dirtier. In the case of Volt, the book gives it a ULEV rating. That's just like most other traditional vehicles on the road, very common. EPA wrote that book. They are the Environmental Protection Agency, an official authority when it comes to being green. Yet, the author omitted any reference to them and deliberately painted a green picture for Volt. It in fact is not. A truly clean emission rating is PZEV. And you guessed it, that's what Prius delivers. Want to ponder the topic even more, think about how clean electricity from an old coal factory is. Think about the emissions it creates. The writer certainly didn't convey any information to that effect... a proper journalist would have. The article ended up just being a promotion for Volt, despite initially leading you to believe it was an overview of what automakers had to offer.
- 1-31-2013 Heater Greenwashing.** A handful of Volt supporters are attempting to exploit a behavior trait, trying to spin it as disqualification: *"PIP doesn't even get any EV only miles if heat is used."* Some still obsess with the absolute. So any engine run, even if brief, means it doesn't offer EV. You start by asking them for some detail. The response to that is usually a fairly solid clue to actual intent. It's just like when the EPA estimate was released. They ignore the battery-capacity itself and focus entirely on when the engine is first triggers. Shutting off shortly afterward doesn't count, despite the fact that Prius is a hybrid and that's the way it is suppose to operate. Getting a mix of EV & HV is a shortcoming as far as they're concerned, regardless of the resulting MPG. Whatever. I responded with: Who told you that? It certainly wasn't an owner. -6°F on this morning's commute was a great example. Despite using the heater in my PIP this morning, I drove in EV... 4 miles with the engine off, to be precise. The engine stops once coolant temperature reaches 130°F, then stays off until hitting the low threshold... typically 114°F, but sometimes lower if speed is really slow. Also, let's not overlook the reality that the plug-supplied electricity is used even when the engine runs. That is referred to as EV-BOOST. It pushes MPG above 100, which you routinely see while traveling faster than 62 mph.

- 2-01-2013** **No More.** Sales results for January were published today. The hybrids are holding ground. Thank goodness. Focus is shifting to plug-in models. We knew January is always a bad month and that the rush to collect 2012 tax-credits would cause counts to be lower. We also don't want to draw any conclusions on debut offerings, since they typically have a skewed impression of demand at first. That limits commentary to Toyota & GM still. 874 for Prius was within expectations, since availability was still limited to just the 15 initial rollout states. Now in its third year, Volt is clearly facing a struggle. 1,140 for sales is so low, there are no more discussions about it. I was actually shocked to find nothing beyond a brief mention. Even the spin has evaporated. Attention has been lost. No one wants to say anything about Volt sales now. After the expectation revision last year being way off, what could be said? Remember how 45,000 was stated? That meant 3,750 per month. Without growth, how will it survive? There is no hybrid counterpart. It somehow has to find a way to stand on its own, especially with competition growing and incentives later expiring. That doesn't look promising without some type of major change. Status quo isn't enough... which is why we aren't hearing anything anymore.
- 2-02-2013** **Challenges.** This summarized the general view pretty well: "*In my opinion, the PiP has two major problems, range and cost.*" Without history, judging market response is like throwing darts. For me with extensive experience, I see thoughts about the technology changing rapidly. By the end of the year, people will be familiar with the basics. That's a big step. But the way we spread real-world information now, it's fairly realistic. I posted this: The perception of "range" being low isn't a daunting challenge to overcome. After all, the audience is focused on "performance" numbers related to efficiency, not the old school more-is-better with speed & horsepower. Fortunately, the test-drive experience can be quite compelling. When it comes to "cost", there's a big question to ask. Is the point to entice someone who would otherwise purchase a regular Prius or it is to offer an affordable plug-in hybrid? There's a big difference. A larger battery-pack would offer more, but the tradeoff is higher cost. You also have to sacrifice both internal space and efficiency after depletion. At least with the plug-in Prius, things the system will be refined over time. Like with the computer industry, there will be battery & cost improvements. It's not like the automotive industry a few years ago, where the definition of "improvement" was to just make the vehicle bigger with no concern about efficiency.

2-02-2013 **Decision Making.** We're seeing lots of questions about the plug now. The increase is a good gauge of growing interest. I suspect we'll see steady growth as the temperature warms. In the meantime, it's random queries like this: *"I am thinking of purchasing a Prius plug-in and I will be using it to drive within 8 miles of my home. Since the speed limits in my area range from 20 to 35 mph will I benefit from using the EV mode? Or am I better off buying a the standard non- plug- in version of the Prius?"* After awhile, a pattern will emerge. That comes about from the basics becoming easier for the curious to find answers too. I responded with: Short trips are MPG killers with the regular Prius. If you had to deal with them and speed limits up to 45 mph, efficiency is heavily in favor of the plug. That makes the decision easier. The engine likely wouldn't be needed at all. 8 miles from home (16 round trip) is longer though, but the capacity would actually balance out nice. You'd still get great MPG overall. In the summer, you'd experience the rapid engine warm-up and not mind much when it runs. In the winter, you may get annoyed by the engine warm-up taking longer and running for heat, not just providing power after depletion. The EV experience is complimented nicely by the HV driving. It's what a plug-in hybrid is all about. Toyota designed a system for the masses, delivering a vehicle that takes advantage of electricity without sacrificing it just for the sake of keeping the engine off even when it's inefficient to do so. It's a balance some people like and others don't. Good luck with your decision.

2-02-2013 **Financial Burden.** In the past, greenwashing included some rather blatant number misleading... like expecting the price of gas to remain under \$2 per gallon throughout the entire lifetime of the vehicle. That was absurd, yet many articles did it anyway. Fortunately, the arrival of \$4 gas put an end to that. Another common thing to do was to force the perspective that the hybrid system must have a break-even price before it could be considered for purchase. Those attempting to undermine Prius used that "financial burden" argument to dismiss it from being a realistic choice by making any additional cost seem a penalty. The mindset is carrying over to the plug-in model, making some accept arguments at face-value rather than looking at the big picture. The who & what is uncertain, but the consequence is obvious. Greenwashing through the use of omitting information is wrong, period. We're trying to prevent that. This is what I responded with when the topic emerged today: The magic question is asking yourself how much you'd like to contribute to the environment and making a better future for the children. Some people disregard that benefit entirely, expecting the financial decision to *"pay for itself"* rather than helping out a little bit. Considering a small chunk of the price difference for that is realistic.

2-03-2013 **Common Sense.** The discontinuity between expectations & reality should be obvious. The matter should be so easy to see, you think of it as common sense. But no such luck. You read something like this and wonder if it's even worth the bother: *"Volt's engine can not drive the car alone without its electric motor. In fact, its electric motor is the main drive, thus the EV. Prius's engine can drive the car directly without any of the electric motor input at all. That is why it is a hybrid."* People just make up their own definitions to fit their own needs. A hybrid is a vehicle with two power sources. The way those power sources are used identifies the type of hybrid, it doesn't make it something else... like an EV. Yet, they'll just argue with you to no end. Prius cannot move by engine alone. The power-split-device doesn't accommodate that, since it is configured to do the opposite... allowing electric-motor propulsion instead. But they don't care about things like facts. Ugh. Definitions are the same way. The entire industry can follow a rule-of-thumb, a best-practice with well-proven results. That doesn't matter to them. If that isn't formally defined by some official authority, it doesn't exist... like the volume considered mainstream. Even though it has been acknowledged in countless writings as 5,000 per month, that popular consensus isn't enough. Accounting realities somehow don't count. Things like speed & power don't either. When an antagonist sets a boundary, they stick with it like glue until the hybrid exceeds it. Then they pretend it was criteria all along. Fortunately, we've been through this enough times now that it is no longer worth bothering. Common sense is beginning to prevail. Yeah!

2-04-2013 **Demand vs. Supply.** GM being it's own worst enemy is nothing new. Assurances about supply matching demand have been abundant. Production shared with existing high-volume traditional vehicles was suppose to provide an advantage. That's proving to not be the case. Volt doesn't share much with other vehicles. That adds to cost in every regard. Starting fresh by building an upgradable platform wasn't the approach taken; instead, it was to deliver a vehicle with end-state performance hoping prices could be dropped quickly. Unfortunately, opportunity is being lost in the meantime. Ironically, a weakness about the plug-in Prius frequently sighted by pundits could very well end up being top rollout benefit and is pretty much an extreme from Volt... it's too similar to the regular model. Volt has no hybrid counterpart. Prius does and it high-volume. Volt doesn't even have anything remotely close in comparison. It's stands alone. That means it isn't realistic to expect anything resembling mainstream sales for awhile still... ironically, what some of us were saying for years prior to rollout. But it doesn't matter anyway. History can so easily be spun and everyone seems to be on the same page finally. Demand doesn't matter if there isn't supply.

2-05-2013 **Losing Marketshare.** Someone stirred this pot, claiming plug-in Prius sales won't grow at all in 2013. This was one of the comments posted in that discussion: *"Trying to not sound like a PiP basher (but it will sound that way anyway) I think the PiP is only appealing to Prius owners that want a HOV sticker."* I chimed in with: It's easy to avoid that by including data with the comment. Heck, I could make the very same statement about Volt, since we did indeed see a surge in sales in CA when the HOV model was introduced there. Knowing how much Prius owners want more electric-only driving opportunities, more electric-only power, and a plug from countless discussions in the past, without any reference to HOV, that *"only appeal"* comment doesn't hold much water. Do some searches on the EV button. You'll find an abundance of examples. We even had a number of threads & surveys discussing how much that battery & plug augmentation should cost. The merits of keeping cost in check verses offering lots of capacity generated lots of participation. It was a very popular topic prior to PHV rollout. Now that there are PHV owners sharing detail of their ownership experiences, commenting on a wide variety of observations, interest is growing. Look at the volume of activity in the plug-in section of the forum. HOV rarely gets mentioned. It's obviously helps justify the purchase, but how many of the 15 initial rollout states even offer that? Lastly, think about how many Prius fence-sitters there have been, those who found Prius appealing but wanted a little bit more from the electric side. That increase in battery-capacity with the addition of a plug as a reasonably priced package option, could prove just enough to push them over the edge.

2-05-2013 **The "Real" Effect.** I was pleased to end my evening reading & responding to this: *"The second factor is ANY vehicle needs to be on the market three or four years before the vast majority of folks can even consider it "real" or even a possibility."* If you didn't guess, the first factor was the price of gas. Here's what I had to say about the second: That sensible logic really ruffles the feathers of both enthusiasts & greenwashers. The enthusiast yearns for rapid success, signs of strong high demand shortly after rollout. Heavy emphasis on bragging-rights how you to indentify them. Words over substance, a recipe for trouble they just plain cannot see. It's really unfortunate; yet, we've seen it play out several times now. The greenwasher is one who doesn't want to acknowledge all the aspects at play or take into account real-world data beyond a vague sampling. It's your own assumptions they take advantage of, painting a picture of failure rather than providing information rather than allowing you to decide. For me, I'm enjoying the first year of plug-in hybrid ownership during the wait. Just like with the previous generations, I knew it wouldn't even be until the summer of the second year that people would begin to take notice. Patience totally paid off then. At that point, you've collected enough data and summarized your finding to such a degree they are compelled to learn more. The *"real"* effect is something I've been looking forward to.

- 2-06-2013** **First 3 Years.** This shows a level of desperation I hadn't expected to encounter, taking me quite by surprise: "*The Volt is actually outselling the Prius.*" The statement itself wasn't so unreasonable, it was the data used to support it: "*Prius worldwide sales: 1997 sales = 300; 1998 sales = 17,700; 1999 sales = 15,200; First 3 years = 33,200.*" I was blown away by such blatant greenwashing. Ironically, it was on a daily thread in support of Volt rebutting an article published yesterday asking the question: "*Is the EV already facing extinction?*" To answer with such misleading of a response is amazing. We all know times are very different now. Last year, there was much anticipation of the upcoming rollouts of plug-in hybrids from Toyota & Ford along with the availability of several different EVs from several different automakers. That makes it a very different situation, without even addressing some of the other differences... which I was more than happy to post: Leaving out details like sales in 1997 not starting until December tells a very different story. Availability outside of Japan did not begin until the second half of 2000. Misconceptions were abundant and gas was dirt cheap back.
- 2-06-2013** **False Memories.** A featured story on the radio today was about how people remember things that never actually occurred. It's a surprisingly common problem too. Even more frequent is they don't remember correctly. I've got tons of firsthand examples of that. Someone will say something about Volt and I'll make reference back to it years later, an easy thing to do when you've got the quote documented in searchable blogs. They'll deny the statement was ever made. I also have proof that claims were made by someone else, even though they absolutely insist it was me. Facts being forgotten & confused is the reason for the pullback now. Why bother when 2013 should be the focus anyway? Sadly though, some either don't understand or refuse to be realistic. Reading this on the big GM forum fortified that: "*Drop the price \$10K. Fist fights will break out on Chevrolet dealer doorsteps the morning that happens. And that's just the grey-haired bingo-playing crowd. Put the Volt in the price range of a well-equipped mid-size sedan and it's game over. Volt wins.*" How could that possibly be achieved? Cost reduction is an extremely difficult challenge. The purpose of the game is to achieve profit. You can't just slash prices. Don't they remember financial disasters of the past. Oh! Apparently, some people don't. Of course, it could just be selective memory. After all, refusing to acknowledge mistakes of the past is a component of the pride problem we've been dealing with... bragging rights.
- 2-06-2013** **\$5 Gas.** The hot spot in the United States is downtown Los Angeles. Gas is now \$5 per gallon there, again. That's getting people to take notice. We know that Toyota & Ford are well positioned to take advantage of the opportunity, the desire for better efficiency by consumers. Hyundai will likely do well from this too. That could also work out to be very good timing for VW, with their new Jetta hybrid. Honda with its the upcoming Accord is anything by certain. Nissan is in a strange situation, choosing heavy emphasis on EV sales. That's risky. As for GM, Volt should see a climb in sales, but it will be impaired by competition from within. eAssist and the diesel version of Cruze about to debut confuses matters. Combine that with compacts like Sonic & Spark, there's a variety of choices with a huge price gap. The premium for purchasing a hybrid was always a big deal. \$5 gas makes it an easy decision, when the resulting price is similar to that of other middle-market vehicles. Too expensive makes it difficult to sell. This is why being able to deliver a profitable vehicle with an unsubsidized price of around \$30,000 has been so frequently sighted as a goal. It's especially challenging for plug-in vehicles. Time has already run out... reinforcing the configuration decision to keep the battery-pack in Prius modest sized. Waiting a few years still is too late.

- 2-07-2013** **Cruze Diesel.** The price was revealed today. It will be \$25,695, plus \$810 destination. That \$2,115 more than Cruze LTZ, but supposed well equipped. It's also \$2,640 more than Jetta TDI, so it's not exactly competitive. 42 MPG is the highway. That reveal has caused quite a stir. People were expecting a better rating. MPG for city is still unknown. It's obviously lower, a good reason to avoid stating it... knowing highway came up short. With diesel so much more than gas (50 cents per gallon here), the selling point for choosing it over the gas model will be a difficult argument... and that's before you discover what's in the trunk. There, you'll find a 17-liter (4.5 gallon) tank for hold urea. That's a liquid required to cleanse the emissions. And even with it, emissions much dirtier than Prius... only enough to allow the diesel to be sold here, not even close to the PZEV rating... the opposite end of the spectrum, in fact. All that effort for a loss of cargo space, extra weight, and extra expense for what? Remember that it was suppose to deliver MPG close to Prius? It isn't even a midsize car. It's a compact. How is this competitive? After all this waiting, the outcome certainly isn't what had been hoped for. Needless to say, even the GM supporters are expressing disappointment. There's no need for me to even bother saying anything.
- 2-08-2013** **Under-Rated.** Quite a number of diesel supporters came to the defense of Cruze diesel yesterday. There was a common theme to many of the responses... diesel MPG values are under-rated. Reading that over and over again without a single explanation why is reason for concern. We don't see that same claim from hybrid supporters. Sure there are plenty of hybrid owners posting stories of them achieving higher MPG than the EPA rating, but none claim that as an expectation. In other words, with a hybrid you could do better and with a diesel you will. Based on what? It's reasonable to see that will long highway cruises using a manual transmission, but that's a specific driving condition and Cruze diesel will only be available as an automatic. Making blanket statements without justification seemed perfectly legit for them, even though if a hybrid supporter tries that they get beat up. It's amazing how hypocritical the situation is. It doesn't matter though. 42 MPG highway with a city MPG lower and the fuel itself both more expensive & dirtier, why bother? This is just another example of not offering something actually competitive, yet touting it as a wonderful new choice for consumers.
- 2-08-2013** **First Year Wait.** One thing I have been hearing more of is the "*first year wait*" advice. It's a mainstream consumer mindset. They wait until the second year of availability before even considering a purchase. This is an old-school mentality that hasn't actually matched reality since the 20th Century, but some people still feel more comfortable with the delay. They figure if there are any problems, they'll surface and be resolved within that first year. There's nothing wrong with waiting either. Patience is a virtue and it has always been worthwhile with Prius anyway. So, the supporters who made their purchase immediately wait too. It's rewarding for everyone. We see the excitement building from those consumers who chose to live vicariously for a year. And now that the annual cycle is almost complete, online curiosity is clearly growing. It's easy to see that from the questions being posted too. They want detail to help them finalize their purchase decision. This is supposedly what would happen with Volt last year. That's why I recently had to deal with so much backlash... because it didn't. Will it with the plug-in Prius this year? Limiting availability to the already established rollout states fits well with the wait advice. We'll see.

- 2-09-2013** **Getting Along.** New members on the big Prius forum are sometimes baffled by the head-butting that comes from a small number of older members. It was even asked: "*Can we all just get along?*" That innocent & naive statement is important to take seriously. It's an excellent question. But just like political dead-lock, the situation is nowhere near as simple as it seems. Heck, just getting to address fundamentals is a monumental effort... which sadly, often ends with useless talking points. Nonetheless, it's worth a fresh attempt: Who is we? Who should we be? It would have been wonderful for all the plug-in hybrids to team up in the fight against traditional vehicles. Things didn't work out that way though. The "*over promise, under deliver*" situation and "*leapfrog*" attitude made things very uncomfortable and we've been struggling to find common ground ever since. In other words, there has to be agreement on goals. What are they? For when? For who?
- 2-09-2013** **Insults & Injury.** Advancing beyond the fallout of 2012 is going fairly well. The only people still stirring the pot are those who were injured then, meaning their expectations had a major disconnect with what ending up happening. As a result, they feel injured... so they lash out with insults. After all, attacking someone who represents the triumph you didn't have is a way of getting closure. It's not a good one. In fact, it's quite terrible. Fortunately, they are few... and quickly losing credibility through their own lack of politeness. It's odd to watch self-deprecation play out. The temptation to respond to the bait they drop is intense. Resisting pays off too. You can even point out the fact that you are ignoring their taunts. Long story short, 2013 is shaping up to be pretty nice. Newbies are looking forward. Everyone else is happy to see progress. Yeah!
- 2-09-2013** **Fundamentals.** Hybrids with plugs. Electrics with engines. How are consumers really going to distinguish them? Volt enthusiasts continue to praise "EREV" as the only solution for the masses, yet cannot actually explain how it differs from the other plug-in vehicles that sometimes use gas. The label is really just a marketing strategy, since there isn't any criteria defining what it is. This is just like the lack of goals. Nothing specific ever stated was an obvious clue that whatever happened next would invite conflict & confusion, as well as impede progress. You can't be that vague and expect to succeed. The problems of risk & profit aren't resolved by gimmick. Yet, attempts continue. Notice how most comparisons are based solely on specifications, absent of real-world data? Notice how the specifications don't address need, simply expressing a "*more is better*" perspective? Notice how much emphasis is placed on price after tax-credit, rather than production cost? Fundamentals are lost in a wash of marketing push. Are readers taking the time to consider what the differences actually are? What about levels of importance? How many? When?

- 2-10-2013** **Toyota Hybrid Sales.** I lost track of the file where counts from Japan were saved on. Oh well. We know that the C model (known there as "Aqua") and the regular model (often referred to as "liftback") have been holding the first and third spots there for monthly sales. Here, the regular model is frequently in the top-10. Stepping back to look at the entire year, an interesting total emerges. Remember that goal set a few years ago? Toyota wanted to produce & sale 1,000,000 hybrids starting in 2012. They did it! Again, I don't have all the numbers, but the ones available tell the story anyway. 892,519 was the final count for Prius worldwide. 90,569 was the final count for the other Toyota hybrids and all the models from Lexus, here in just the United States. Only 16,912 would have had to been sold in Japan, Europe, Canada, or anywhere else to bring the total up to 1,000,000. It's quite clear, the goal was achieved. Yeah! The technology is undeniably mainstream now. That level of annual volume makes that fact undebateable now.
- 2-10-2013** **Annual Report.** I have lots of data now, 11-months of daily & tank real-world data collected so far. That was enough to reveal the variety of graphs & summaries I plan to present in the form of an annual report in March. Having a single document highlighting everything we commonly refer to, with actual owner information rather than just generalizations & assumption will be quite handy. There are things some people haven't ever considered before. For that matter, I had to make sure my representation wasn't misleading or incorrect. A good example is the depiction of MPGe. Since that's a brand new concept, even the formula itself must be very clear. Anywho, I shared what I had on the big Prius forum hoping for comment, suggestions, and whatever feedback possible to help make the final version realistic to publish shortly after the anniversary itself. The fact that the plug-in Prius has only been rolled out to 15 states so far makes a resource like this quite timely. We'll have something available to refer to when interest stirs later in the other states. I'm excited about the document. None of the other generations of Prius had anything so comprehensive. Of course, they didn't have a plug either. The use of plug-supplied electricity adds a whole new dimension to the purchase decision.
- 2-11-2013** **Inadvertent EV.** All I can say is "*ugh*". Several times recently, I've looked at the display on the dashboard and discovered EV range was almost all gone. Without even realizing, I had driven off without firing up the engine. EV mode is the default. So if you're a bit distracted, that can happen. But when you were planning to use that electricity later, finding it almost all gone is a bit of a mixed-emotion experience. There's quite a thrill to realize EV works so well, the lack of an engine isn't noticed. But there's also a bit of a let down that an efficient HV opportunity was missed. When you inadvertently drive along in EV mode, the endorsement for that design certainly is difficult to argue against. That's proof of how well thought out the approach actually is. The needs of real-world driving were clearly taken into consideration, in great depth. It's a nice balance of priorities.

- 2-12-2013** **EV Commute.** Today was an unexpected treat. I drove using all of the available battery capacity (that's 62%, from 85 to 23 of the entire pack) on my drive home prior to the engine starting. Usually, it's cold enough to require the engine to start for heat. Winter is slowly starting to fade away though. Just below freezing temperatures are far more frequent than the nasty near-zero from recent memory. That's exciting, since the commute route includes a climb out of the river valley at 55 mph. Being able to show that someday on video would be nice. This evening, it was just me alone observing. It pleases me every time I do that. Way back before I got my own plug-in Prius, I got to drive an early model for a few days. Climbing up the steep residential hill in my neighborhood without using the engine was the highlight. Those trying to undermine continue to claim that isn't possible. I know it is. Going up & down is part of the routine. My commute includes frequent EV use. This time, it was all in one big chunk.
- 2-13-2013** **Stereotyping.** There is a new initiative. It's an effort to stereotype Prius drivers. With so many in traffic now, forcing them into an odious category isn't much of a surprise. That may seem a little harsh, but we all remember what happened with SUVs. There's is an undeniable feeling of dislike still. There's also the faint memory of what happened decades ago with minivans... those who wouldn't be caught dead in one ended up having that as their everyday mode of transportation. The realities of need always win out over want in the end. Some have more difficulty accepting that than others. This effort to label is nothing new. It's unfortunate, predictable, and unavoidable. With the internet so prevalent, seeing op-ed attempts to undermine circulate from website to website is no longer a concern. They all refer back to a source with little to no credibility. In the past, that didn't matter. Now, it's easy for readers to figure out what's going on. Those sources with data to support claims draw attention away from those simply stirring the pot. Things like stereotyping don't work. We've all been through that too many times online already.

- 2-14-2013** **Tesla Love.** Today may be Valentine's Day, but love certainly isn't the theme online in the automotive world. Last week, there was a report published by a journalist who took a long highway trip with the Tesla Model S. There was 200 miles of road to travel. With a 265-mile estimated driving range, the trip in that electric-only vehicle should not have been a big deal. But when it comes to EV understanding, there is reason for concern. Knowing how some reporters don't take the time and just jump in behind the wheel... as we've seen countless times with hybrids... this experience wasn't likely going to be an accurate portrayal of what owners would actually do. Sure enough, the actions taken became a bit unusual. He slowed down to 54 mph in a 65 mph zone, supposedly to conserve power. There was no mention of the speed he had been traveling at prior to then or if slowing down had any effect though. Running low on electricity, he stopped to recharge. That went fine, until a confusing narrative of what happened the next morning. The trip had started with the temperature just a little below freezing, quite comfortable for us northern folk. It was now just 10°F outside. That cold gives the impression of lost EV range, since the distance is represented as if the battery were to never warm up. It will as you drive, lowering internal resistance, which results in longer range. But he didn't know that; instead, he ran the heater on low for 30 minutes without driving anywhere or even being plugged in. That was a huge waste. He then needed to find an electrical source before using up most of the power remaining. He did too. But he only waited for the minimum recharge. You can guess the outcome too. He didn't have enough electricity. It was a strange account with advice not followed and wonder about intent. Long story short, there has been quite a stir online for the past week. You'd expect all the resulting controversy to be a big endorsement for Volt, since it eliminates the "*range anxiety*" fear. Interestingly, it hasn't. In fact, quite the opposite as occurred. Volt isn't getting any attention at all. More missed opportunity. I bet the Tesla supporters won't remain silent like that.
- 2-14-2013** **We Love Oil.** There was a video circulated online that did an excellent job of using sarcasm to tell the story of oil love. There were my favorite quotes from it: "*I love how when the oil companies are making more profits than any other industry in history, ever, they still get billions in subsidies every year. I mean, that's awesome!*" and "*I love how oil companies talk about making gas cheaper with more domestic drilling, when gas prices aren't going anywhere, no matter how much we drill. Oh yeah!*" and "*I love how pollution from oil is causing climate change, which is letting oil companies drill in the arctic so we can have, you know, more climate change. I love that!*" and "*I love how you grown ups are so oil crazy. You're going to leave us with nothing but scary weather, no clean energy, and now oil left. Good thinking! I love it!*" and "*I love how having our entire economy dependent on oil leaves us dependent on régimes from all over the world, who don't even like us.*" Doesn't knowing that make you feel the love?

- 2-15-2013 Problem With Prius, part 1.** Reading this on the forum dedicated to Volt caught my attention: *"My contention is that, though the Prius is one of the most efficient cars on the road, it still suffers from the same fatal flaw that most vehicles today suffer from: It runs on gas."* Since I have never posted there and am not even a member (despite easy to prove false claims that I am and have), it's a good source for getting perspective from. What do they have to say? After all, this is the good that thrives on bragging rights. Getting constructive posts in response to that new thread would be a sign of change. After all, they avoided acknowledge that their founder replaced his Volt with a C-Max Energi. Remember, the original hope was that Volt's engine would only be used as a backup, when unexpected circumstances caught them in depleted state. Having the engine run routinely for heat certainly was a topic of greenwashing, an attempt to undermine and so favor for Prius. So naturally, they would portray the plug-in model of Prius as only being able to run exclusively with electricity as a rare situation. Needless to say, they were wrong on both counts. That's why I was quite curious to find out what their mindset is now. Has it actually changed?
- 2-15-2013 Problem With Prius, part 2.** Nope, no change. There were the expected comments, the usual "apples to oranges" dismissal comments... which made sense. Why in the world would the hybrid model of Prius be compared to Volt? It was quite obvious they avoiding discussion of the plug-in model like a plague. Not wanting to even bring up the existence was a dead giveaway they fear it. After all, I got characterized as a threat last week by a Volt owner on the big Prius forum. Those sharing real-world data thorough enough to cast doubt on GM's one-size-fits-all approach get cast as wanting Volt to fail. The idea of a plug-in for the masses is unacceptable. Appealing to the middle is in direct conflict of having a standout vehicle. It's always the same old nonsense. They wave the flag and paint a rosy picture for the future, ignoring what's actually happening. I had really hoped 2013 would be the wake-up call, such a shock to enthusiasts that the greenwashing would vanish like we've seen in the past for particular misconceptions. Signs of that not happening are emerging. They still see a problem with Prius... which means hope of a compromise are unrealistic. A more affordable model that depends upon blending for high efficiency isn't what enthusiasts are willing to support. The *"no gas"* chant continues.

- 2-16-2013** **Idle Workers.** Missing the overall sales goal of 60,000 for Volt last year continues to reveal consequences. That really angers some of the supporters, one of whom just plain could not resist: *"It's just a shame it doesn't have a larger battery so that overall efficiency is as good as the Volt."* He obviously isn't pleased that Prius PHV hasn't shared the same suffering. I responded with: It truly boggles the mind that such a basic economic reality is so easily traded for bragging rights. That quote is a classic example. Misplaced priorities continue to be a problem. The point of idle-worker report was to bring attention to the consequences of not meeting sales expectations. Profit comes from meeting production goals. Workers get paid whether they build anything or not. Sitting there playing games and watching movies instead of increasing inventory results in financial losses. Remember, the automaker chooses what to produce. Not meeting their own goals results in a profit penalty. Having a trophy for highest MPG does not pay the bills. The smaller size of the plug-in Prius battery keeps cost in check, making it a premium package option rather than a substantial price differential. The 4.4 kWh of capacity is clearly more market-competitive than the 16.5 in Volt. Reality is, waiting for the next generation of Volt is turning into a costly risk. Reports like this will continue to point that out.
- 2-17-2013** **Warmed Battery.** Cold temperatures reduce efficiency. People know that. Most don't actually know why though. Like many things, it's just accepted without questions. After all, most people are not engineers or chemists or physicists. The science is just taken for granted. Those are usually safe assumptions... unless you're trying something new, like driving a plug-in vehicle. In the case with Li-Ion batteries currently, the electrical resistance increases as the outside temperature decreases. That means it requires more electricity to deliver the same power as it does when it's warmer. Knowing this, you can actually improve EV performance simply by delaying when you electric-only drive. That works out great when you have a drive further than the capacity available and need to run the engine for heat anyway. A clue that the battery-pack is happily warmed, through the use of HV mode and the cabin heater, is when the windshield no longer fogs up even when you shut the blower off entirely. At that point, EV driving is at its most efficient. Of course, you can drive in EV sooner, but that's consumes more kWh than waiting. This is why some plug-in vehicles offer a battery pre-warming feature that operates when still plugged in. Think about MPG. Results vary with the engine. Why not results from a battery-pack too?
- 2-17-2013** **Boosted Acceleration.** I just got back from a driving trip, an expected funeral to attend. It's nice being able to provide support like that, just jump in the car and go. Of course, that meant not being able to plug in. Turns out, it was a good thing. I noticed something I had overlooked before. Saving EV-BOOST for hard-accelerations was something I hadn't ever considered before. That just automatically happens when both commuting to work and back home, since the engine is fired as I accelerate to get onto the highway. But when you're on a trip, you are usually in HV-mode and have little or no EV power available. So, the engine revs high (up to 5500 RPM, which is actually rather low compared to some traditional vehicles) when you drop the pedal. Taking advantage of EV, the RPM is kept below 2000. It's basically the same fuel-saving approach the regular Prius takes when accelerating in the suburbs... using electricity to allow the engine to run more efficiently. Now with the plug-in, the same thing can be done at higher speeds. Saving some EV for that when on long trips, especially when I'll mostly be cruising on the highway, appears to be worth further observation. It could be a handy MPG tip.

- 2-17-2013** **Stable Gas Prices.** We're seeing gas prices settle around \$4 per gallon, with the price of a barrel of oil just under \$100. That appears to be fairly stable, making all players involved somewhat content. There will be a little bit of up & down with the upcoming seasonal formula change. This time of year, there isn't much supply interruption. Vehicle sales tend to pick up as the weather warms. Demand predictably matches the increase in driving. It's typically good for all. With respect to hybrids, this is the time of year supporters look forward to. The build up naturally resulting from Spring combined with Earth Day promotion stirs lots of attention. Consumers now realize \$4 gas is more than just a spike. It's the new reality. Fortunately, there is no expectation of a climb. This is where it is anticipated to stay for the next year or two. Slow economic growth combined with ever-increasing awareness of climate change is good reason to think we aren't going to see any rash decisions in the near future. Price stability brings sensible choices.
- 2-18-2013** **First Generation.** It's always fun to point out history that some are totally unaware of. It was this today which called for that: "*The PIP is still in its first-generation and will quickly become a dinosaur as plug-in technology improves.*" Needless to say, I couldn't resist. I waited for a response before putting my own here. And as you could have guess, that person didn't answer my question. Most of the time, wild comments like that without any substance are easy to squash. That was definitely the case here. This is what did the trick: Actually, the current version is third generation. The first used 2 NiMH packs in tandem with the Gen-II Prius ...never offered for sale but had real-world testing. The second used a 5.2 kWh sub-pack Li-Ion configuration with the Gen-III Prius ...never offered for sale but lots & lots of real-world testing by ordinary consumers. The third is what we have now, the first offered for sale and featuring a number of software & interface upgrades based upon the real-world data & feedback collected from the previous. The battery-pack was reduced to 4.4 kWh without loss of range. As for becoming a dinosaur & quickly, that's quite vague. Care to quantify?
- 2-18-2013** **Need For Profit.** It all boils down to that. True, low-emissions & high-efficiency are selling points. But unless profit is made, volume will remain small. To seriously consider production replacement, the technology investment must return on expectations. That reality made the Volt enthusiasts absolutely crazy and the supporters nervous. That's why both were always out to prove something. Now it's 2013. Consumers are well aware of the plug-in. There's nothing left about the engineering to reveal. It's understood. It's also quickly dismissed. Just like with Prius, the top decision-making factor was price. Lost opportunity is the result. With such heavy dependence on a large battery-pack, the approach is really struggling. That need for profit is increasingly more of a problem. Not achieving mainstream minimum is a big issue for vehicles intended to be daily drivers. When it's ultimately needed as seller to help sustain the business, gambling that the next generation will be a homerun (being a popular middle-market choice) isn't exactly a good plan. Heck, even Toyota didn't want to do that with Prius. There are multiple models available as well as bigger systems for larger cars (both front & rear drive) as well as an all-wheel-drive system for minivans and SUVs. Just think how long it will take to get GM to diversify like that, especially if their approach is plug-in only. That's why the pressure continues to build, despite so little attention from the media anymore. Supporters are well aware of what the "*too little, too slow*" concern was all about at this point.

- 2-18-2013** **Unrealistic Criteria.** I agreed wholeheartedly with this statement: *"To tell you the truth - it really sounds pathetic to keep on hearing how: "I'm not going to get an EV until it goes 500 miles and charges in 5 minutes." "* Exaggeration is a common greenwashing technique. Those attempting to undermine blow numbers out of proportion with the hope that you'll quickly dismiss the topic, rather than taking a moment to realize how weak the argument actually is. Thankfully, Prius PHV is well positioned to deal with that. Since the plug-in feature is just an upgrade option rather than an entirely separate vehicle, the opportunity for further consideration is quite realistic... even when the online nonsense persists. The rhetoric won't do much to prevent closer looks at the dealership. In fact, negative attention typically stirs curiosity. Despite not being able to meet the extreme criteria some claim is required, being a reasonably affordable package choice and not requiring anything other than an ordinary household outlet for recharging will give people reason for consideration. The test-drive experience melts away doubt. People will just forget that greenwashing in the end. Realistic criteria wins. We've seen problems of the past fade away as those making the absurd claims mysteriously discover they're outnumbered by practical-minded consumers. Remember how some claimed gas would have to get considerably higher than \$4 per gallon for people to consider downsizing. They certainly were wrong about that.
- 2-18-2013** **Not Alone.** There was reason for a little bit of hope today. I may not be alone at work anymore. To my surprise, there was a brand new iMiEV using the other charging-station. Having someone else there could finally set into motion the plans to expand. Management there has been saying several more charging-stations will be installed soon. That kept getting postponed though, which is totally understandable considering the expense and it being the dead of winter. Seeing the only 2 spots filled everyday would change that. They'd like to avoid sharing too, since there's an entire section set aside for plug-in parking. More usage is a win-win situation... especially considering the ramp features an 82 kWh solar-array. I'm looking forward to the change. Owning a plug-in for almost an entire year without anyone else mingle with has been a test of patience.
- 2-19-2013** **Tesla Support.** Owners certainly didn't remain still or silent. They quickly organized a trip, recreating the drive in that controversial report. It was their version of a rebuttal to prove what the writer had done didn't make sense, to refute his negative experience. They did too. There were four that drove the entire route. All made it just fine. The catch was planning ahead and fully recharging. Note that they used the same super-fast recharging stations he did, so we're talking extra minutes not hours. He got impatient and stopped early. Two of them also left the battery plugged in overnight to keep warm. Two didn't for good measure. He did not. It was an effort to set the record straight, done by those who support it... not the automaker. This is the very thing Volt supporters were told to do. Over and over again, you inform them of the power that owner endorsements have as an educational tool and a preventative. Makes you wonder if they'll do anything now. Excitement is building for Prius PHV, anticipating rollout expansion. Future owners are yearning for the opportunity to purchase & document. Tesla owners are getting a taste of what positive reinforcement can do. Being proactive rather than reacting after the fact is far more effective. Makes you wonder what will happen next.

2-20-2013 **Good Judgment.** It was the New York Times who published that misleading article about the Model S. They had backed up their writer too, until yesterday. Harsh words from the Tesla's CEO and the outcry of owners got them to change. True journalism cannot have controversy like that. The facts should speak for themselves. They finally did. This is very much like online eruptions of the past. Just look at Volt, there were so many it's hard to believe. However, with Volt they weren't all from reporters who, in the words of the NYT, didn't use "*good judgment*". There were quite a few enthusiasts who simply relayed a message of hope without giving it any actual thought. The most abundant example of that was the frequency to which effects of Winter on the battery-pack were summarily dismissed as rhetoric from Prius supporters. They didn't give it serious consideration. They just outright rejected the claims. Had they taken the time to think through the situation, as what was just done with Tesla, the outcome would have been very different. Fortunately, the conflict having arisen with this was short-lived... quite different from the years of poor judgment with Volt... which has been point all along... learn, then move on.

2-20-2013 **Pipeline Protests.** It doesn't take a rocket scientist to determine that our addiction to oil and recent climate-change events are preventing old-school thinking from gaining any traction. Just a mere thought of building a pipeline across the country stirs intense emotion. Why in the world would we devote so many resources to legacy technology? It makes no sense. Even if the act of extracting oil was a clean & undamaging process, it's still a limited resource. The infrastructure we put in place won't be able to be used by our children. Establishing wind & solar locally in communities spread throughout the country is an entirely different matter. It is with the use of waste bio-material for local ethanol production as well. How much oil do they expect to transport via the pipeline anyway? Shouldn't jobs be created in something that's actually sustainable? How will money for the construction and money from the refined product afterward be handled? Which country will control what? Who will be overseeing the well-being of the pipeline long-term? In what way is supplying more oil actually helpful? The list of questions is quite extensive. Those few are just the tip of the iceberg. What is the goal anyway? Looking at the big picture, using less oil is the key. Pumping more into the system doesn't seem a sensible solution.

- 2-21-2013** **EV Experiences.** At this point, we've seen countless posts stating observations of EV miles dropping due to the cold and lots of HV driving. Unfortunately, we still see numerous online claims about the plug-in Prius not being able to climb hills or drive through the suburbs without the engine starting. After 11 months of ownership, that's really annoying. It's about time we have a thread dedicated to the sharing of EV experiences. For me, this evening offered a great experience to share. I needed to run an errand, to pick up a number of provisions before the upcoming winter storm arrives. Outside, it was 21°F and dead calm. Inside, my Prius had been parked for 4 hours, plugged in immediately upon arrival home from work. The garage stays just warm enough to melt snow the Prius carries in. The battery-pack was obviously still warm from recharging having finished 1.5 hours earlier. Since the car had been toasty warm from the previous drive, just the heated seat would be all I'd need for internal comfort, no need for window defogging either. The EV distance estimate was 10.1 miles. The distance I was planning to travel was 10.6 miles, was very very hilly, and had a top speed-limit of 45 mph. The drive was great... electric-only the entire trip, both directions... despite the temperature below freezing and all the hill climbing. 0.7 miles of EV remained too. Errand running was always a pain prior to the plug. Once you're home after work and have eaten dinner, you normally don't want to take time late in the evening to pick up provisions. Doing it without using gas, with smooth & silent driving changes the experience. It's really nice.
- 2-22-2013** **You Still Get.** It's interesting what the new PHV owners have to say about the EV experiences. There are comments like, "*But only 10 miles?*", mixed within their positive praise. That makes sense from the perspective of electric-only vehicles being applied to a Prius. Even they want that plug to represent more than the supplement it was intended to be. But then again, for those new to hybrids purchasing a plug-in Prius as their first, it contradicts the belief that owners are only those who are upgrading from an earlier model. The greenwashers want people to believe it is just a "*novelty*" and have been successful to the point of even new owners referring to it that way. Fortunately, seeing the potential for more is easy. You still get quite a bit now anyway. The tradeoffs aren't big as from competing automakers. Toyota worked hard to deliver a balance. I put it this way: The addition of a plug comes without any big compromise. You still get 50 MPG even when the plug-supplied electricity is used up. You still get the full cargo area with seat down for transporting large objects. You still get a vehicle that's priced for middle-market consumers. That's something the other plug-in choices don't offer. The fact that we also get more EV power and the target distance of 20 km (12.4 miles) to do things like running errands without any gas is a side benefit. The actual goal was to deliver an improved hybrid, not make it an electric-only vehicle. We got exactly that. As for calling the generation we have now as a "*novelty*", that doesn't actually mean anything. For that matter, no label would. The plug-in model will have modest beginnings simply due to the market perception created by the other plug-in choices. Those who own one will enjoy the EV experiences.

- 2-23-2013** **One Size Fits All.** That assessment of GM's approach made some Volt enthusiasts absolutely crazy. They were very, very resistant to the idea of diversity... since it wrecked the "EREV" concept. Offering a model with a smaller battery, which consequently would depend upon blending operation more often, was a topic replied to with fierce retaliation. It was amazing how hostile some of those exchanges got. Now, they just outright dismiss it... since addressing the merits of balance never ended well. It made Volt too much like what Toyota, Ford, Hyundai, and Honda were all working to deliver. It wouldn't stand out then. Ironically, that mindset is anti-mainstream... but they refused to acknowledge the needs of middle-market too. Anywho, as anticipated, GM will pursue pure electric-only vehicles but will restrict availability... due to having heavily promoted the idea of a plug-in with an engine instead. Offering choice isn't going to happen. No 45-50 MPG regular hybrid. Spark EV will be limited to California & Oregon only. If you want high-efficiency, the choice will be Volt only with a 16.5 kWh battery. One size fits all. That means either the major expense to buy a Volt or getting an eAssist or Diesel instead. That lack of choice, a huge void in between, could turn out to be a risky business plan.
- 2-24-2013** **Spring.** We're getting a taste of it now. The daytime high temperature has climbed to just above freezing. That feels good. It's so much warmer than it had been just a few weeks ago, I cannot begin to explain the differences. Thank goodness I scrambled to document as much as I could. Experiencing stuff for yourself for the first time is a lot in itself to absorb. Doing it with a notepad & camera adds to the moment, but it also quite draining. Fortunately, it does make the arrival of Spring even more of a welcome change. The feeling of that was quite obvious today too. I felt it. The Prius did too. You end up forgetting just how nice EV is when dealing with snow, ice, and the heater. When those elements disappear, you are left with the smooth & silence. MPG shots up as well. A month from now, most of Winter will just be a memory. In the meantime, there's lots of potential for heavy accumulations of the white stuff still. Thankfully, it melts off the road rather quickly. Keeping the car clean becomes a challenge then. The true arrival of Spring is when you discover what color your Prius actually is. Seeing the shiny clearcoat finish is quite a change from the sand & salt crusted layer of the cold season. Fortunately, you still benefit from the plug year-round... even when the temperature is way, way below freezing... just not as much when it finally gets warm.

- 2-25-2013** **Single-Camera Video.** I got really lucky the other day, leaving work at exactly the right time. The sun was just setting on that overcast day, which had delivered about 6 inches of fluffy new snow. It made for a great opportunity to film my commute home without any special video setup. Lighting was perfect. Scenery was compelling. Traffic would allow driving EV the entire capacity. I'd be able to deplete completely without needing a hard acceleration or having to turn on the heater. That particular drive requires a climb out of the river valley at 55 mph, something I've been yearning to show others. The video turned out well. Now I have something to share with others. Maybe it will inspire a few owners to try that themselves. Watching it, you'll see me leave the ramp from work. I pull out of my usual spot where I plug in to recharge. It's a few miles of driving at suburb speeds, with the occasional stoplight. From there, I jump onto the highway starting at 55, then speeding up to 70 mph. Watch the exterior lighting. You can see it getting darker as I go. The snow begins to fall again too. On the vehicle gauges, what I normally see is what's on the video. I didn't reset. That way you can see the results of the entire commute, instead of just that drive. The 34.5 mile round-trip with two full recharges resulted in a 94 MPG average. Even though the temperature was just under freezing on the way to work and only 21°F on the way home, that's still quite good. The cold isn't so bad when you have a plug... [Winter Commute \(dashcam\)](#)
- 2-26-2013** **Understanding EV.** I had much to say after reading a post with: "*Not only are ice drivers not interested in mpg, many don't know how to figure it out.*" and "*These drivers can only look at the bottom line when buying a car.*" Those particular comments say a lot... and are quite familiar. It reminds me of when Prius first rolled out. Since new owners had no idea what their previous vehicle was actually getting for MPG, their complaints about Prius efficiency didn't have any merit. They were comparing to an expectation, not real-world data. It was eye-opening when they finally discovered all those years of thinking MPG was higher really weren't. Then of course, there were the discussions of maintenance. We liked to point out that the EV experience offered more than just smooth & silent driving. Since they had no idea how an automatic transmission worked in the first place, detail about the simplicity and the lack of gears in the PSD fell on deaf ears. For that matter, they didn't even know how much they had spent on repairs in the past. In other words, not being interested is an important reality for us to be aware of. I hear that frequently. The person simply wants a vehicle that's reliable and cheap to operate. That's it. Enthusiasts go on endlessly, praising aspects of operation & performance that the mainstream couldn't care less about. They get really angry too, when you point out how middle-market buyers don't share their priorities. Stealth, that mode in Prius when the engine shuts while still driving in HV, has proven to be a rare trait that actually does appeal to the masses. That's why EV, the mode in Prius that automatically supersedes Stealth, is so important. It's simply an extension of an already well proven approach... something an ordinary person still won't be able to figure out, but they will understand how it affects their bottom line.

- 2-27-2013** **Strangely Quiet.** Not hearing anything about Volt anymore is really strange. On the big GM forum, not a peep. Without anything new to discuss, sales well below what's needed for continued interest, previous attention focused so heavily on the next generation, the reality of this one remaining a niche isn't up for debate. The hope for growth to mainstream minimum is postponed. This is exactly what happened with Two-Mode. The enthusiasts got quite angry when I requested they study its history, to help avoid falling into the very same trap... They know monthly sales announcements are rapidly approaching. They know gas prices are stabilizing at a level not conducive to market expansion. They know that recent negative press about Tesla did more harm than good for Volt. They know that GM's financial situation and product gap means little hope of change this year. They know that the other automakers are in a much better position to respond to the growing pressure to offer a variety of affordable high-efficiency choices. They know there is nothing else to be said. This new year is presenting a very different situation than they had anticipated. The next step isn't clear. What should they hope for now?
- 2-27-2013** **Pondering Rollout.** We'll never know all the criteria taken into consideration with respect to PHV rollout. After all, this is the foreign market and the home market is given a higher priority. Anywho, there is some pondering taking place now. For example: *"I am not sure why it takes so long to go nationwide, but training and car supply are two factors."* Other thoughts are being bounced around too. It really doesn't matter though. With so many variables at play, all you can do is make sure the approach is flexible. I jumped into the discussion with: Reaction to rollout of other plug-in vehicles has become a decision factor. The most likely, the focus now is to penetrate deeper into the initial states instead of rolling out to the others. It's part of that "wait until the second year" mindset... especially seeing how slow and how much negative press the others have received. Knowing that Prius is well established and that the plug-in model is really just a package upgrade will help it reach mainstream buyers. So, taking advantage of that opportunity to do exactly that rather than spreading thin to other states does make sense.
- 2-27-2013** **Not Knowing.** New owners being unaware of a feature or how it works is something we've seen on the big Prius forum countless times now. Today, it was: *"Now that I've gone thru Dec, Jan and Feb with the PIP - I'd rate its cabin heat as poor."* How do you point out that they've overlooked something? Pointing out a feature can sometimes be misunderstood or taken as condescending. You don't want to embarrass the person either, especially since they were so willing to speak out. I tried to delicately respond to that with: That's what the HV/EV button is for. Using EV-BOOST mode (in EV, but the engine running for heat) will limit the amount of heat available. It's easy to confirm too. Push the button and watch what happens to the engine RPM. It switches from low to high, resulting in coolant temperature rise. Unfortunately, spreading the word about difference that makes has been a challenge... since it took us awhile to make the observations in the first place. We also discovered that the temperature setting for the heater itself directly affects when the engine runs. The higher the setting, the higher the coolant threshold. That's different from the way the regular Prius operates, which uses a non-changing threshold instead.

2-27-2013 **2013 Goal.** GM is quite ambiguous when it comes to goals. They are rarely ever official. More often than not, a statement will come in the form of hearsay instead. That's all the internet needs to thrive on. After all, much promotion of the past was based on unsupported hype. Remember early last year? Denial about those goals from then, despite the fact that they were portrayed as solid & reliable, became abundant... which led to a fury of backlash problems the end of 2012. Needless to say, all involved have been squeamish about saying anything related to 2013 expectations. Today though, that changed. An article was published, stating this: *"General Motors Co. is planning this year to build as many as 36,000 Chevrolet Volt and other plug-in hybrids, 20 percent more than it sold in 2012, two people familiar with the effort said. GM is planning to build 1,500 to 3,000 of the plug-in vehicles a month, said the people, who didn't want to be identified because the target isn't public."* Notice how accountability is carefully avoided? That's typical. What's also typical is the response. In a thread about that article on the big GM forum, a Volt owner jumped on and immediately attempted to change the topic. When a thread emerges stating something they don't like, the reaction is to undermine by diverting focus. We've seen it countless times in the past. That's how we know they aren't pleased. That number is well shy of the mainstream minimum of 60,000 and far from what had been hoped. The other GM vehicles will easily eclipse Volt sales, holding it firmly in the niche category... especially since the difference may actually be nothing but the new Cadillac model. That's not what had been intended for the technology. That's not what is needed either. It's a bad situation getting worse.

2-28-2013 **Serious Question?** I've been complaining about GM's product gap for years. No one on the big GM forum took me seriously though. I was attacked relentlessly, accused of trying to promote the competition. Some were downright hostile. Others simply made up lies. It got very ugly. Thankfully, not posting there anymore was all it took to get them to finally hear the words. Now, the very same questions are being asked by those who had previously been the barrier. For example: *"Why has GM not released a direct competitor to the C-Max and the Prius V to truly take it to Ford and Toyota in this segment?"* The answer should be obvious. The way Volt was promoted, GM self-deprecated their own sales opportunities. There was a very clear message of purity, endlessly conveying the idea of blending being bad. Now, they cannot sell anything that blends. This is why the thought of offering a Volt with smaller battery-capacity to make an affordable model is such a problem. Supporters don't want it and consumers have been greenwashed to believe blending is a shortcoming. Meanwhile, the C-Max and Prius hybrids are taking advantage of that ability with both plug & no-plug models. It never ceases to amaze me how some paint themselves into a corner, simply unwilling to consider the big picture and instead of hopelessly clinging onto an ideal... then suddenly discovering they're in trouble... or it may just be sarcasm.

3-01-2013 **Smug.** A new owner asked about that label. Most encounter a friend or family member who states the attitude of Prius drivers that way... generalizing, without ever having given the matter any actual thought. I jumped onto that new thread he started and contributed: We've been dealing with that false stance for over a decade. The greenwashers attempt to create a stereotype to prevent the idea of doing something better for our children & environment from becoming the norm. Realistically, it's as effective as labeling someone who used PDA years ago... since devices now are far more geeky and far more common. How many smart-phone users have you seen today? The idea has been embraced by the masses and is in no way whatsoever identified as a "*geek*" tool like it was in the past. It's a complete non-issue. Ironically, the new smug emerging is helping to remove the prior stigma from the greenwashing. There is a very small number of Volt supporters who are still flaunting "*vastly superior*" claims. It's hard to believe they can still have such an attitude. Thankfully, they represent only a tiny fraction of actual owners... much like the circumstance with Prius in the past. In other words, remember what we were taught in kindergarten? Name calling isn't a good thing.

3-01-2013 **Consequences.** There are some. That's the lesson being learned now. We're watching history unfold. It's not playing out as planned. Sales results for February were released today. As the rest of us figured, Volt fell well short of what had been hoped for. 1,626 were sold here. Assuming the upcoming Cadillac ELR purchases account for 6,000... which would be amazing having its rollout begin close to the end of this year... the rest would have Volt at a minimum rate of 2,500 per month. Less in the Spring means more per month must be sold later. That kind of growth rate, with so much competition ramping up, likely makes this the biggest gamble yet. It's progressively getting harder, not easier. That should have been expected. As enthusiast purchases are all fulfilled and choices increase, sales become a greater challenge. They've always assumed acceptance would come naturally, so little was done to reach out to middle-market when the opportunity was still ideal. Now, it's a scramble. Appealing to mainstream consumers is turning out to be a heck of a lot more difficult than they imagined... even though that reality had been pointed out so many times, it began to make some of them crazy. They laughed & jeered. That's typical. The accounting aspect of business often gets accused of bean-counting and stifling innovation, even though that is what actually funds next generation design. Will they see that irony now? Who knows. Whether or not the consequences are acknowledged doesn't matter. The spooky silence online means something happened. That's a dramatic change from what we saw late last year. It indicates this year is already different.

3-02-2013 **Big Picture.** It may seem harsh being so critical of Volt, but that's because 2013 is decision time. The third year is when choices about the current generation become critical. Sales somehow must be increased. To be able to sustain at least a mainstream minimum (that's 5,000 per month) when the tax-credit is no longer available, the purchases we see leading to that should be much stronger than they are now. How will that growth be achieved? It's bad enough having plug-in competition from other automakers. But when you step back to look at the big picture, you'll see the same old still exists. GM is competing with itself. February counts make that overwhelmingly clear. Looking at the middle-market cars offered, it's ugly: Cruze 17,947; Impala 15,424; Malibu 14,817; Sonic 6,025; Spark 2,836; Volt 1,626. Even Camaro's volume is higher, mainstream level in fact: 6,171. That's not what was suppose to happen. It didn't take the market by storm. How is the next generation model going to compete? For that matter, how it further research & development being funded? How much capital are those other cars taking? After all, heavy focus on them is what's generating profit. Those references to "*too little, too slowly*" appear to have been in vain. That mistake was made despite the warning.

3-03-2013 **Heater Dance.** 9°F outside this morning meant an opportunity to try out single-camera filming again. The sun was rising quickly; that meant I'd be pushing exposure limits with the contrast between dashboard scenery. I really wanted another example showing what happens while you "*Just Drive It*". The battery had finished recharging 6 hours earlier. The engine hadn't been used for about 10 hours. The garage temperature was around freezing. I pulled out, adjusted the camera, hit record, then drove away. After traveling about a block, I turned on the heater. It was set to 70°F with the blower on 2 bars. The request for heat caused the engine to start. Still being in EV mode (the default), I was looked forward to it shutting back off as soon as the warm-up cycle completed. That happens when the coolant reaches at least 145°F and there isn't demand for high power. The engine will then remain off until the coolant drops to 136°F. Note that lower the heater temperature also lowers the coolant threshold. As I drove, the engine starts up, runs shortly, then automatically shuts back off. That's why I call that a "*heater dance*". That same cycle repeats over and over again, until the battery is finally deplete of EV capacity. Following that, the same things happens in HV mode but with less electric-only power. The purpose of the plug is to boost MPG. So even when the engine runs, the system is still taking advantage of plug-supplied electricity. EV driving is not necessary for great efficiency. This video clearly demonstrates that. 17.9 miles was the total distance traveled. 85 MPG was the result, with 1.3 miles of EV capacity still remaining. See... [Heater Dance \(dashcam\)](#)

3-04-2013 **Something Else.** You know times are changing when this is asked by a Volt enthusiast: "*So what is GM supposed to do about the big hole in their product line?*" Well aware that mentions of Two-Mode, "too little, too slowly" and "one size fits all" really irritate certain individuals, I posted this in response: The "product gap" question has been asked ever since Volt was first announced. In fact, that's how those with both a business & engineering background knew it faced far more of a challenge than the engineering alone revealed. GM simply cannot compete with nothing but a large-capacity plug-in. Something else is needed. The obvious choice was offering a system without a plug that uses a much smaller battery. Toyota abandoned their design like that many years ago. Honda did just recently. Ford never bothered. Nissan didn't either. Newer hybrids like that from Hyundai and VW both strive hard to be a careful balance of price & performance, well aware of the history of others. GM decided to upgrade their BAS system, which had a variety of issues to address. That next generation was rolled out as eAssist. It also has a variety of issues... most notably, not delivering enough of an efficiency improvement to generate many sales. Mention of Prius causes quite a stir with some supporters. Their reaction and the obvious effort to avoid addressing it confirms that "hole" is a lot bigger than they care to admit. Something else is needed. Volt all by itself is not enough.

3-04-2013 **Oh Well.** Not much I can do about it, but I still regret having missed a great filming opportunity. I had my video-camera with me, but didn't realize what I was about to face. The lighting was actually too bright and there were times when the windshield got messy. But the experience was well worth telling. We just got a few inches of snow and the traffic was really back up, some of the worst I've ever seen on the 70 mph highway. So, I took the back way instead. It was 25°F, which meant no need for warmth from the engine. The heated seat works well and I'm from Minnesota, after all. That slower route allowed me to drive 11.6 miles in EV before running out of electricity. With some travel at 55 mph and several stoplights, that's pretty good for the winter. In fact, the estimate when I started was only 10.7 miles. When the engine started, I was quite curious how long it would take to warm up. Though, it really didn't matter. Once warm, it shuts off almost immediately after a hard acceleration. And indeed, it did just that when leaving the suburb route to get onto the highway then immediately getting off on the other side of the river. That on & off of the engine is a usual part of hybrid driving. That works out especially nice when dealing with heavy traffic like today, even without plug-supplied electricity. Anywho, when I finally made it to my usual parking spot, the end result was 160 MPG. It was a sight for sore eyes. The cold temperatures usually prevent the super-high efficiency. Today was an exception. It's the norm come Spring, but we're a way off from that still. Of course, then, it's not as impressive to see since all the snow is gone.

3-05-2013 **Rollout.** Talk of availability has taken center stage lately. I joined in with: The market is quite finicky right now. We all hear comments that price should be lower and capacity higher, but that isn't realistic. It makes promoting plug-in vehicles a challenge, especially now that consumers have already been led down the greenwashing path... lots of hype that wasn't delivered. We now find ourselves in the want verses need situation. It's a good place to be, though uncomfortable at first. Following the traditional path of advertising based on desire doesn't cut it as we change focus to emissions & efficiency being more important, though there is definitely a niche opportunity for some. As for the masses, which is the point of the shift over to electricity, won't share those priorities. Their purchases are far more practical. We would all like to basically eliminate the importing of oil. That's not going to happen though. It's another unrealistic wish. The large capacity batteries we want are simply too expensive. What we actually need are those big enough to significantly reduce consumption but still small enough to remain competitive. After all, the market for traditional vehicles is well established. Replacing them is a monumental effort. Toyota worked hard to strike a balance, directly addressing need while well aware of the consumer wanting more for less. You get a plug upgrade without any loss of the upper cargo area or lower HV efficiency following depletion. Over time, price & capacity will improve. But currently, we're still dealing with a market that doesn't understand plugging and place little priority on super high-efficiency vehicles. That can change rather rapidly though and Toyota is already well positioned to respond. Long story short, there are many consumers who simply dismiss the plug-in Prius without actually knowing how it works. They just make a basic assumption, then judge without actually having facts available. That means sales will fluctuate from month to month initially. Entrenching deeper into those markets with some presence established already rather than rolling out to new ones makes sense in that case. Let's also remember how many consumers simply never buy a car that hasn't even been available for a whole year.

3-05-2013 **Greenwashing Attempts.** We've seen many of the years. As hybrids became more common, they died down. It's difficult to argue with false information as disproving becomes easier. And with so many on the road now, that's very easy. Misleading about history is different though. It isn't as simple as looking up real-world data. When it comes to perspective & belief, the matter is that of opinion instead. You can come up with a consensus too, assembling a collection of sources who all considered the same hearsay as credible. That's the type of greenwashing attempts we are seeing now. For example: *"Well, Toyota never really wanted to build this car anyway. They were dragged kicking and screaming into this world of plug ins."* Few people are actually going to research the engineering itself. For that matter, even finding the needed information would be a challenge. Those of us who followed Toyota's design from the beginning saw the potential. It was quite clear the setback was battery cost. The system was already setup to deliver. It was a matter of waiting for the technology to become affordable. They want to portray PHV as a last-minute after-thought. They fear the idea of it being a solution for the masses already well established.

- 3-05-2013** **Reduced Range.** Volt has fallen so far out of favor, even the talk of reduced range from the CEO of GM doesn't stir much attention. Enthusiasts are so dead-set on the "40 mile" range being best choice, offering another simply doesn't make sense and they stanchly defend the one-size-fits-all approach. That lack of diversity should raise red flags. Owners themselves are remaining indifferent... since they aren't concerned about future sales. Those of who are concerned see a niche without a path to mainstream. I posted: Same question as always: WHO? Who are the consumers they want to sell to? We are all well aware of how price has been a major purchase factor for middle-market. Not pursuing an affordable option means being stuck with a niche. The price has to be considerably lower to appeal to the masses. The hope of a cost plummeting quickly isn't realistic. Batteries will continue to advance, but the "miracle" people are hoping for will take a few generations. After all, the computer & hardware industries have been continuously advancing rechargeable batteries for decades.
- 3-06-2013** **Power EV.** I gave it a try. ECO mode is pretty much always what I use. This changes the behavior of the throttle, allowing for more play. POWER mode changes the throttle to touchy, making your press on the pedal an amplified effect. It doesn't really change the amount of actual power, though it does feel that way and there has been questions raised online if there is a momentary burst of higher amps. Whatever the case, it raises the coolant threshold, causing the engine to run more often in the Winter. So, I tend to avoid using it... except when driving through heavy snow. I wanted to know what it was like while in both POWER mode and EV at the same time. Turns out, it's pretty much like I expected. The behavior is just like in HV. That thought had crossed my mind as to whether or not it would be harder to keep the engine from starting, since that is something I spend very little effort doing. My guess was that ECO mode made it easier. Turns out, that doesn't actually matter. Ordinary driving even with POWER worked just fine. In other words, drive in whatever mode you like.

3-07-2013 **Coffee Run Video.** I managed to capture one more drive with snow still on the ground. Just like the other suburb drives I've filmed, this one takes me to that distant coffeeshop. The run back & forth is a good basis for demonstrating what happens as the EV capacity is utilized, then what happens after it's gone... which is why I filmed that same route prior to getting the plug-in model. You can clearly see the benefit. This footage featuring that rare lighting circumstance when a single camera can be used. Too early or too late, there will be over & under exposure. The refresh of the screen will become an annoying flicker as well. In this case, I took advantage of the sun setting with the horizon obscured by clouds. It provided a nice balance between dashboard and scenery, as well as show a nice pink in the final moments before the sun disappeared. As for the drive itself, shown at 5X normal speed, you can see me pull out into traffic driving in just EV. But with a route longer the total capacity available, I fired up the engine right away. That resulted in a boosted MPG until warm-up is complete, then the engine shuts off. Watch the estimated EV distance value. I suddenly drops from 9.6 to 8.5 when I turn on the heater to blow air on the windshield to keep it clear for the filming. Capacity itself is unchanged. That's simply how you are informed of the potential EV loss the heater could cause. Driving was uneventful, the usual stoplights & stop-signs you'd encounter driving through the suburbs. When accelerating hard, the engine will come on to help provide power. Watching the MPG, you can see that doesn't actually lower MPG much and it shuts off relatively quick afterward. In the summer, it shuts off even faster. But at 28°F outside, it runs longer. Halfway through my drive back, you can see me approach a long hill. Climbing that with only 1.8 miles of EV remaining wouldn't be the best use for that electricity. So, I switched over to HV mode by pushing the button for that on the dashboard. When at the top, I pushed it again to switch back to EV mode. That feature comes in handy when you want to preserve electricity for use later. At the conclusion of the drive, the overall result was 135 MPG for the 15.7 mile round-trip. The entire EV capacity was consumed; that's roughly 3 kWh of electricity including charging losses. That was a great drive for winter, but I sure miss summer. In warmer temperatures, resistance with the battery itself is lower. That more efficient transfer of electricity allows you to drive further EV from each recharge. So whether you use gas or electricity, cold weather reduces efficiency. Here it is... [Coffee Run \(dashcam\)](#)

3-08-2013 **Speaks For Itself.** We've been watching the demise of Volt. It's certainly not a failure from the technical perspective. Enthusiasts always feared that judgment. Their focus was exclusively on engineering though. Downfall on the business side was something few ever wanted to acknowledge. You got the impression none of them ever took an economics or accounting or management class. And now that the very situation concerned & warned about has emerged as an undeniable reality, silence. They simply don't want to talk about lost sales. Fortunately, I don't have to point out the real competition anymore. This post in its entirety from just a random member on the big GM forum speaks for itself: *"The Volt as it sits today meets my commuting range needs, and that's true for most people. I hope they aren't developing a high-cost vehicle for a small slice of the population. They ought to be figuring out how to make a pure electric or Voltec at a lower price point and with PROFIT. That would drive the company forward - volume and profit. The Volt is a halo car, and I love it, but it's just beyond what I would pay for a commuter car (3rd family car) and thus we bought a Cruze a week ago."*

3-09-2013 **Dizzying Array.** Notice the struggle Microsoft is currently having with its newest operating system? If so, you've fallen for the same trap countless others have. They blame the most obvious player, since that's what the media tends to focus on. In reality, Microsoft became flexible and offered a platform that could accommodate the new world of touch-interface as well as support the legacy needs. The software is fine. The actual problem is the dizzying array of hardware choices. Consumers assume without trying, drawing conclusions based on impression rather than firsthand experience. Can you really make a purchase decision from a quick test at the store? How could you possibly about ultra-portable ownership from a model chained to a display table? Think about plug-in ownership. Same problem? There's no possible way you could learn about what it has to offer with just a brief encounter at a dealer. That's why analysis & survey papers being published now about plug-in vehicle future expectations don't reflect what could happen. Heck, just ask a person what the operating system in a computer does. They likely won't have anything beyond just the most basic understanding. It's even worse for a plug-in hybrid. Most people don't even know what an automatic-transmission does in a traditional vehicle. So comparing it to a hybrid is pointless. Adding a plug only confuses matters. Then when you consider that each automaker will take their own unique approach, the situation leaves you wondering how the heck we are going to take the next step. In other words, the hype of the past claiming an obvious winner was just a dream. Reality is quite complex. There will be many choices. Don't look at only what articles point out, also consider the other factors.

3-10-2013 **Quizzed.** I filled up with gas this evening. It was the final tank of the year. Tomorrow starts year number two. To think that the second is about to begin already. I so clearly remember taking delivery. That vivid memory was an entire year ago already. Anywho, evidence of so much time having passed was quite evident when paying for the gas. I mentioned it being my anniversary to the cashier. He began quizzing me with questions. One after another, he kept shooting them off. I was impressed. For anyone to fire so many sensible inquiries at me, I couldn't help but to be impressed. That was sweet! He had clearly been paying attention. To who though? There are only a handful of Prius PHV in Minnesota still. Perhaps working at a gas station raises your awareness. There's a lot to notice if you are attentive to the media. After all, with the price of gas having stabilized just below \$4 per gallon, the cost to fill up is a common discussion topic nowadays. Needless to say, I look forward to the upcoming days when seeing plug-in hybrids on the road isn't so rare. Soon. Pressure from tax-credits expiring and CAFE requirements rising will help, even if gas prices don't change at all. Battery costs should slowly drop, which will obviously help too.

- 3-10-2013** **\$3.49 Gas.** How do you sell a plug-in hybrid when that price for a gallon of gas is considered acceptable? Demand for fuel efficiency has for the most part just caused people to downsize to appropriate-size vehicles. For those who have a more pressing need, the solution is typically a sub-compact car. That makes selling regular hybrids a challenge. Increasing the size of the battery-pack and adding a plug makes it a real struggle to stir interest. That's why there is currently tax-credit incentives. They are intended to help stimulate the market and provide a price-buffer while the automaker scrambles to reduce-cost to make up the difference prior to the credit expiring. You cannot depend upon the price of gas increasing demand to justify a higher price. That's a big problem for Volt, with its \$7,500 credit. How could its cost be reduced by that much it just a few years? Prius only faces a \$2,500 credit to offset and it has the advantage of high-volume production. Achieving that is much more realistic in comparison. It's likely the price of gas won't change much in the next two years either. Oil supply seems to have stabilized and the economy is recovering. That's good news, since the market seems to indicate lower prices than even what the incentives offer are needed for plug-in hybrids to really take hold. People have become tolerant of higher gas prices.
- 3-11-2013** **No Heater Video.** -2°F in EV speaks for itself. I wanted to know if the battery-pack could deliver the power needed for my daily commute in such extreme cold conditions. It did... and I'm quite thrilled how well the video turned out. The ride itself wasn't exactly warm, but I did it without wearing gloves for the first 24 minutes of driving. The heated seat on high does a remarkable job. The point was to find out how well the EV would perform, so I kept the heater off. 9 miles of electric-only driving was what ended up being available. I fired up the engine shortly before the battery was fully depleted of EV, not wanting the upcoming hill climb at 55 mph consume lots of HV capacity (electricity is used to allow the engine to gracefully speed up). Watching the video to the end, you can see close-up display photos of the outcome. The total distance traveled was 17.2 miles. The result was 117 MPG. That took approximately 3.0 kWh of electricity (including charging losses) along with 0.15 gallon of gas. That would be impressive even if wasn't -2°F. I still miss summer though, since EV works better then. Here it is... [No Heater \(-2°F\)](#)

3-11-2013 **Annual Report.** My first full year of 2012 Prius PHV ownership is complete. I meticulously documented details of that experience. Here's the summary:

18,477 = Total Miles

6,328 = EV Miles (displayed amount)

12,123 = HV Miles (displayed amount)

365 = Days (12 months)

574 = Recharges (based on capacity replenished)

239.9 = Total Gallons (measured at the pump)

1,721 = Total kWh (including charging losses)

1,505 = Total kWh (displayed amount)

77.0 = Lifetime MPG

50.5 = MPG (HV)

27 = kWh /100 miles

All the data itself and lots of graphs are included. It's really nice having a resource like that available now. We've needed something to easily refer back too. So often, there's been claiming about the plug-in model that were way off base but couldn't be disproven by simply supplying a link. Now, we can. Detail from very tank refill and every recharge is listed. The daily results are especially informative to see illustrated. Variance from real-world driving needs is very easy to see, clearly confirming that the generalizations about per-day usage are way off. There is no pattern. Life is not that simple. It was fun watching all that play out. Each day revealed a little bit more information. Watching the influence of seasonal change tells quite a story too. There's much to consider when it comes to everyday driving. Looks at the information I have available to consider your own particular circumstances. This webpage is where you the free downloads are available... [annual report](#)

3-12-2013 **Lies & Hate.** When that's all we have left, you can finally breath a sign of relief... and it now looks like that's all there is. It's quite unfortunate to have some dishonesty still, but thankfully that's easy to disprove now. As for the deep emotional response, those are to be expected. It's an outcome of change, confirmation things are happening beyond their control. Without getting too detailed, since there's plenty of lie & hate examples I could provide, we'll try to just stick to facts. Even though Prius PHV was only available in 15 states and in them for only 10 months, the total for the year came to 12,750 purchased. Worldwide, the sales total was 27,181. We're not really sure if that difference of 14,431 was exclusively in Japan, since a few must have been sold in the United Kingdom, but we do know that was only 11 months' worth of availability. Long story short, the total for Volt was still higher: 30,090. That's why those final desperate comments are being made. It won't be much longer before those attempts to greenwashed will simply be overwhelmed by the truth. Some love would be nice too. It was quite frustrating dealing with all the enthusiast rhetoric. But in the end (like when the tax-credits expire), vehicles designed to appeal to the masses which are also profitable will be the winners. That's what we can properly call "superior".

- 3-13-2013** **What Happened?** I'd consider it well timed. Someone on the daily blog for Volt, which rarely ever actually has content about Volt anymore, tried to greenwash about the plug-in Prius. It was one of the subtle attempts, despite using information that clearly didn't represent real-world data. I was intrigued. That type of desperation is the very thing I had just blogged about. So, it was a good way of summing up and moving on. I'm not expecting it to make any difference or for anyone to even respond; it was just a nice way to draw attention to the fact that it still happens. After all, going down with a fight is how some people achieve closure: Raising doubt was surprisingly effective in the past, but not anymore. It's now easy to challenge vague claims & dismissals with lots of detail. The internet empowers and continues to improve. Examples can be backed with references, confirming it really is what was stated. Follow up is not only possible, it's expected. People researching a purchase will do searches, watch videos, ask questions, work their way through the rhetoric. They'll reply with actual information, not just parrot a comment or make a generalization. What happened here?
- 3-14-2013** **Not Price.** It's simply not worth responding anymore. Just let it go when you read something like this "*It wasn't until the 2nd gen Prius and the cut in price that sales really began to rise...*" The price started out the same, then halfway through that first year price was increased by \$300. The real reason was the design delivered more power and greater efficiency in a larger vehicle. Switching from a sedan to a hatchback made a world of difference too. Volt's lack of a middle seat, very little legroom in back, and it not offering flat cargo area are a convenience factors often dismissed, something GM could clearly benefit from if the enthusiasts stopped claiming it was fine the way it is. Of course, the other part of the increase in sales was the reputation that had already been built up at that point along with the obvious gesture of continued investment on Toyota's part. If GM could send a clear message and stop with all the over-promising, Volt may stand a chance. Then again, enthusiasts becoming the barrier is a growing problem. Proof of that was the recent comments posted about price. So many sounded off that battery-capacity should not be reduced or a smaller battery offered as a second choice, it makes stating goals just about impossible... hence all the mixed messages. Clarity would be quite helpful. Though, some still either don't know the history of price or are in denial about that. Without understanding reason, it's difficult to make any progress. But when I ask, it just ends up becoming an argument... since ending up being proven incorrect is rarely ever taken well.

- 3-14-2013** **41 Degrees!** Although it is suppose to get cold this weekend, down to the single digits again, we had a brief taste of warmth today. My EV range estimate even went up as a result. I had seen quite a few "*10.5 miles*" values lately. Today, it was 10.9 miles. I remember the same drop & rise pattern last year, following cold then warm. It's part of the experience owning a plug-in vehicle. Winter reduces range. Consequently, the range estimate will reflect it. As Spring arrives, I'll see the value climb into the 11's. Low 12's will come later. I don't expect to see 13's, since I do so much HV driving. Those who primarily drive EV will though. Some will see estimates even higher. Of course, that has nothing to do with actual EV range. I routinely drove 13 & 14 mile distances with EV on a single charge, despite the fact that the estimate was only in the 12's. That's just the way it works. For that matter, it works the same way with traditional cars. You get "*distance to empty*" value with them too and they are also just estimates. MPG varies. So does the consumption of electricity. Fortunately, it improves as the weather improves. That's always something to look forward to, even if it is just a guess when and how many degrees.
- 3-14-2013** **The Irony.** I really get a kick out of how Volt enthusiasts use to sight the engine starting up as a Prius PHV weakness. Now that it's emerging as a strength, they stop mentioning it. That abrupt change to silence is clear confirmation they didn't have all the facts. Well, better put would be saying they didn't listen to all the facts. We presented them over and over again. But their outright dismissal prevented any consideration. Finding out that a brief burst of power from the gas engine to help out the electric motor is actually a wise design choice makes them sound hypocritical if they say anything. The nature of that behavior actually being a feature to point out as a strength to those researching the approach makes it ironic. Talking about a backfire. It's more efficient overall to save electricity for cruising, to take advantage of the engine briefly. Prius makes that easy to do to. Pressing on the pedal usually just results in EV driving. All you have to do is push a little harder, to make the bar on the Eco-Meter jump into the power-zone. With the engine already warm, it only runs for a few seconds. Having it shut off so quickly impresses those taking test drives. What was supposedly a weakness is clearly proving otherwise. Ha!
- 3-15-2013** **Research Funding.** The big news today was the plan to use revenue from federal leases for offshore drilling to fund research for automotive batteries and biofuels. The expectation is to provide \$200 million per year for the next decade. Considering how much we've spent on defending oil-reach nations, oil subsidies, and the automotive bailout, that choice would seem to be rather trivial. It's a good investment in the future and a rather small amount of money in comparison. Even so, there are still some opponents. That's hard to believe considering those other reasons combined with the price of gas. Why haven't we been doing that all along. Simply switching to domestic drilling and creating a new pipeline from Canada makes no sense. There should be something related to renewable energy sources too... and that's without even considering the environmental benefits. Needless to say, there were plenty of comments about this posted online. Long story short, it's a political issue... lots of finger-pointing and blame, rather than actually trying to accomplish something. It's sad.

- 3-15-2013** **Market Share.** The spin-doctors are at it again. They limit scope to give a false impression. Stepping back to look at the big picture reveals they are up to the same old nonsense again. Sadly, some simply thrive on the attention that gets them, which means there's no solution. They'll just keep misleading. They don't care about greenwashing. This was today's example: "*From hybrid cars Toyota's market share is falling...*" That almost seems objective, until you look at who posted it and remember the replies the previous times. I typically ignore those posts. But every now and then, it's better to respond than to allow them to influence innocent newbies. I chimed in with: The larger numbers get, the smaller the difference becomes. Also, it's called percentage spin when the market as a whole is not taken into out. The competition is traditional vehicles, not other hybrids. 892,519 Prius were purchased last year... which means fewer traditional vehicles were sold. Remember, the purpose is to replace mainstream sales, not compete within a niche.
- 3-16-2013** **The Disconnect.** We've been wondering when it would finally happen. Turns out, it's right on schedule. 2 years is the limit. Something big must happen in the third year; otherwise, new technology loses its "newness" and people simply move on. That was overwhelmingly clear with Two-Mode. Sales the first & second year were so far under expectations, attention shifted over to something else instead. Volt became the center of attention. Enthusiasts were captivated by the potential. They didn't let realities of business hold them back either. Cost and market need were carelessly disregarded. It was the very same thing that happened with Two-Mode originally, back when it was going to crush Prius. Later with Volt, it became a "*vastly superior*" campaign. Now that Volt has faded away from having under delivered to such a huge degree, promises from the next generation have become the focus. Now, we are seeing that same baseless hope emerge... again. Anticipation of increased EV range and increased MPG after depletion with a total absence of cost concern is dominating discussions. It's truly amazing to watch the very same behavior repeat. They learned nothing from the past. There's a disconnect between reality & hype they don't want to see.

3-18-2013 **Frustrated, part 1.** We've been seeing the same thing over and over again. So, I climbed up on the soapbox... Setting of expectations is incredibly difficult for any type of plug-in vehicle. With a pure EV, some owners find out and accept the reality that the range displayed is only an estimate and only delivers that value under certain circumstances. It's a source of frustration, but they learn about the factors involved and adapt. In time, many enjoy their vehicle again... but certainly didn't anticipate there would be such complexities. The thought had never crossed their mind prior to purchase. When a gas engine is introduced to the situation, matters become even more confusing and far more incorrect assumptions are made, especially with Prius. Notice the pattern that has emerged? Virtually even complaint about dropping EV estimates share the same thing in common... no mention of MPG. Prius PHV is a plug-in hybrid. It's not an EV. The purpose is to deliver a significant MPG boost, not electric-only driving. Owners become transfixed on the EV range estimate. Some have driving routes that bring it way down. Others simply drive in an inefficient manner, believing more EV is better. They forget about the purpose of the design. They figure using the engine as infrequently as possible is best. They end up seeking out help online. Some of those owners are receptive to the information provided. Some just aren't interested and really only want to vent. Unfortunately in this case, the owner stating *"Either Toyota is mis-representing the product, or there is something very wrong with my vehicle"* doesn't give us much opportunity to respond. It gives the impression that it's already too late to provide feedback. Will the owner be receptive to switching focus to the purpose of increased efficiency? Considering how many times the EV range was mentioned and the total absence of MPG data, the feeling is, no.

3-18-2013 **Frustrated, part 2.** It's frustrating for all involved. As active forum participants, the repetition of the same complaint is frustrating... despite the fact that most new owners end up pleased with the responses. It's having to jump through the same hoops every single time and the new owner not having taken the time to do some searches first. Oh well, my first post was immediately proceeding with this: Thanks for unknowingly allowing me to climb up on the soapbox. I hope we can help you out. Welcome. Specifically for me, I've watched my EV value go down. Now, I'm watching it go up again. In my circumstances, it's the result of seasonal change. Temperature fluctuation is a major influence for me, up here in Minnesota. Long distance travel without the opportunity to plug-in is another factor that will drop the value. In the case of a battery-pack delivering roughly 2.7 kWh of usable electricity, it doesn't take much to qualify as "long". Notice that you didn't tell us how many miles your daily drive is either. Hopefully, you'll get past the frustration and begin to see how well thought out the design actually is. There's much to appreciate after discovering how many factors were taken into consideration. Simple things like the ECO button's benefit when it comes to heating & cooling easily get overlooked. Give us more info and we'll do the best to try to help.

- 3-18-2013** **Frustrated, part 3.** The discussions continue: Expectations depend heavily upon audience. That's why the "Who?" question has been asked over and over again and continues to be. Prius PHV is a plug-in hybrid. Toyota aimed squarely at middle-market and you can clearly see what they are working to deliver. It's intended to become a high-volume business-sustaining vehicle for mainstream competition in the near future. That's certainly not same as an EV. True, you do get the electric-only driving experience from Prius, but that's not the purpose. Engine running is a normal part of operation. It will use some gas. The point is, that combustion will be cleaner and the efficiency will be better. All we can do is continue to share our own experiences. No matter what information EPA or automakers or dealers provide, it's not going to convey anything more than a generalized measure. Owners are the only ones that can exchange detail to make help those making the purchase decision. They can relate, making sure "Who?" really understands how the vehicle will function.
- 3-18-2013** **Frustrated, part 4.** The activity on that thread quickly died down. I got a few likes, then people moved on. Only so many people can cry wolf before responses become refined and attention wanes. My conclusion was to simply provide detail from my commute this morning. The solution is often to just present real-world data. The original poster rarely follows up with their own. And if they don't bother, most everyone else won't either. Lack of detail usually indicates the person hadn't considered or wasn't aware of all the factors involved. Simply raising awareness does the trick. Their complaint ends up being satisfied without us ever finding out what the true situation actually was. That leaves you hanging, but at least they end up being able to draw a conclusion. Here's that data from me... 17.3 mile commute today. 55 mph maximum 36 minutes driving. 32°F outside. Cabin-Heater set at 68°F. Heated-Seats off. Headlights & Foglights on. Driving through fresh snow. 10.7 miles was the EV estimate upon leaving the driveway (video-camera setup consumed 0.2 mile). Drive-Ratio reported: 9 EV and 7 HV. End result: 127 MPG.
- 3-18-2013** **Expecting Miracles.** The cycle has begun. Observing hope emerge from rumor is disturbing. It feeds itself, setting people up to expect a miracle without anything to actually support it. The belief is that somehow the engineers will deliver... despite evidence showing that's an unreasonable assumption. Volt's past had that unfortunate history. Enthusiasts got excited about a concept and talked about it so often, the "group think" convinced them it could be true. That turned into a disaster. So many of the original goals fell short, discussing purpose resulted in hostile responses. It's happening again. They are repeating the very same hopeful assumptions. This example in particular caught my eye: *"If the Gen II Volt can step up to 45+ miles of EV range and 45+ MPG in charge-sustaining mode, while cutting the price at the same time, that would be a game changer."* It seems cautiously optimistic... until you think about the detail. Even if battery costs come down dramatically, there's no way to offset the entire tax-credit difference and increase range... which would only retain the current price. To get it even lower and also deliver an improved engine in just a few years would require divine intervention. That simply is not realistic. Then of course, you encounter this: *"Volt 50/50 – 50 miles all electric – then 50 more per gallon of gas!"* It's that same senseless cheerleading of the past. That's how the over-promise situation gets out of hand. They clearly haven't learned from the past. Ugh. There's only so much that can be accomplished in such a short amount of time.

- 3-19-2013** **No Long Frustrated.** That owner ended up going to the dealer and had his computer reset. All it actually does is just revert the EV estimate value back to the default of 13.4 miles. His response to that was posting this: *"I'll let everyone know if it starts to deteriorate again."* Sadly, that's a naive statement with total disregard for the information we had provided. Some people just plain don't want to face facts; they just want their original assumption to be proven correct. In disbelief to his attitude, quite curious what his next post will say, I responded with: There's a 100% chance of that. The estimate is a dynamic value, always adjusting based on your recent driving. My first long-distance driving trip, the value plummeted since I couldn't plug in while on the road. When winter changed to spring, I watched the estimate go up. From spring to summer, it went up even more. In my fall, it dropped. In the winter, it dropped even further. Now that it's warming up again, the value is going back up. That's what the estimate is supposed to do. It reflects the conditions. What good would it be if it never changed?
- 3-19-2013** **Dishonesty.** That's the ultimate source of finality. The cries of superiority coming from the Volt daily blog were truly amazing today. I called someone out on the claim that the best Toyota could do was deliver 6 miles of EV. The response was a long post that went on and on about the regular model Prius. It wasn't even relevant. There of course was attacking of the messenger, nothing's complete without that. But the best was basing their conclusion on a single owner's comments and some random observations from undisclosed sources. The original claim was avoided entirely. There was nothing to support it, nor was any acknowledgement given to the fact that the very same topic was recently brought up and another member confirmed that was not correct. He just plain didn't care. It's the same thing on this particular venue as there was on the big GM forum late last year. It's was started the whole hope nonsense in the first place years ago. The only way Volt could be made to look good was to misrepresent Prius. Things went downhill from there. That's beginning to happen again. I'm intrigued by how it will play out, especially since there isn't much of a need to participate there anymore. The audience is so limited and so bias, what difference would it make? With so much real-world data available now too, readers can confirm on their own that the information in the posts isn't honest.

3-20-2013 **So Familiar.** Nothing constructive came out of those blog postings. It turned into an opportunity to attack & insult Prius and proclaim superiority for Volt. Watching that deterioration of attitude was spectacular. It was like witnessing a disaster. You cannot believe the situation could get so bad so quickly. The outcome was so familiar, I was beside myself. To watch someone who had in the past tried to be fair & balanced turn to misrepresentation like that, you can't believe it. Greenwashing on that level goes beyond dishonesty. He just plain didn't care anymore. It's the very same thing we've seen elsewhere. Enthusiasts are not in any way interested in the well being of the masses. Having a vehicle available for middle-market is meaningless. They can afford more and are happy to pay for it. Even the idea of cost-reduction sickens them. You can tell how deep their dislike for business goes. Any attempt to bring up the topic of high-volume production or making profit makes them cringe. Volt is the vehicle they and GM wanted, not what was needed. It must stand out as special. Becoming a common, everyday vehicle for ordinary daily transportation without anything making it unique would sour the appeal. Volt must not under any circumstances transform to a run of the mill product... the very thing Prius is now. They see the compact, hatchback, and wagon models of Prius everywhere. They know that success was achieved through careful attention to cost... something GM clearly did not do with Volt. The tradeoff is not a conciliation they are willing to accept, hence the responses growing hostile. They know that inevitability can only be fought for so long... and are irrationally lashing out as a result, exactly what we've seen before in other venues. Resistance is futile.

3-20-2013 **What a Relief.** Knowing the "third year" effect would play out in an abrupt fashion was difficult to prepare for. When sales are bad 2 years in a row and the competition is rolling out lots of alternatives, it's pretty obvious to expect rather intense fallout. On the big GM forum, they don't even discuss Volt anymore. The explosive exchange of messages ended in December. They gave up, betting the farm on ELR coming to the rescue. It was suppose to be a mid-cycle upgrade, often referred to as the "1.5" generation. That didn't happen. In fact, it was such a big disappointment, almost nothing was posted about it. With some much built up and an instant death, there was nothing to support Volt anymore. That's a major reason why Toyota is simply focusing on existing markets for the plug-in Prius. The PHV model will establish itself in pockets around the country. In the meantime, the thought is that Toyota will be able to reduce cost some. It may not be reflected at all from a price perspective when national rollout finally takes place, but that would definitely sweeten the appeal for dealers. It would give them the incentive to keep more in stock. Salespeople would make more commission from each sale. That's important for a vehicle intended to appeal to the mainstream, especially without a dependency on tax-credits... quite unlike the situation Volt faces. All I can say now is, what a relief. The disaster GM created for itself does not seem to be having a negative effect on the efforts of Toyota. For that matter, it looks like Ford won't be harmed either. Phew!

- 3-20-2013** **Ignoring Prius.** We don't often here anything from the big Ford forum. Today, that silence was broken with this: "*Like the Roman Senate upon Julius Caesar, the Ford Focus toppled the 10th generation Toyota Corolla in global sales in 2012 with 1,036,683 compared to less than 971,601 units.*" That was a declaration of victory, finally taking away the leadership position Corolla has held for ages. But like many situations, the story changes when you have all the facts. The reality that the c model of Prius took sales directly away from Corolla was never mentioned. Nothing in the article nor any comments ever considered that. Toyota's goal to replace traditional vehicles with hybrids was conveniently absent. Excluding such vital information like that is greenwashing. They don't care though. There's no place for facts when you seek bragging rights. All they want is a number that's better than the opponent, regardless of what it actually represents. Limited the scope of competition is what they thrive on. That's nothing new. We've seen that with plug-in vehicles too. Enthusiasts don't want to consider the market as a whole, just their own particular view. Ugh.
- 3-21-2013** **Cold Pass.** I got stuck behind someone who actually fit the land-yacht stereotype. It was a beautiful end-of-winter day out, so I totally understood the draw. The driver was a man who appeared to have been retired for a number of years and had one of those old-school very, very long cars. He was clearly enjoying the drive. But when doing that, pull over if traffic builds up behind you. Doing only 28 mph in a 40 isn't exactly contributing to a smooth flow. Anywho, when we got to the small city along that country drive, he increased speed to 30. What the heck! Through town, where he could have easily let me pass by pulling over for a moment, he was now going faster than before. Geez! Following that, it got worse. The speed limit changed to 50 mph, but the fastest he got up to was 35. It was a test of my patience... and a golden opportunity. That entire drive was in EV. I had a very, very cold engine. What would happen if I dropped the pedal? That should result in a sudden surge of electricity to allow the engine to gracefully start with the motor holding combustion at 1500 RPM for the cleanest possible warm-up. Merging onto the highway, that's what I routinely see on the ramp. There's no need to drop the pedal then, medium is enough. In this situation, I was about to request maximum, but only would briefly. So, I did. It was finally time to pass him. That burst shot me from 35 to 57 mph. And sure enough, the engine did indeed hold at the warm-up level. It was surprisingly smooth as a result. That made me enjoy the overall experience too, a nice drive for the both of us.

- 3-22-2013** **Spring Arrived.** Yeah! One of the undeniable signs of Spring having arrived is MPG increasing. That's easy to see with a regular Prius, but difficult with the plug-in model due to the normal variance being much larger. There is something else related to the plug though. It's the EV estimate. That range increases as the temperature increases. It doesn't have to be outside high temperatures climbing much either. In fact, it's been colder in that respect lately. It's the thermal warming caused by the growing intensity of the sun. Interior temperature is a pleasant warm now after sitting out in the bright afternoon catching rays. That's quite a noticeable recent change. The extra warmth reduces electrical resistance in the battery, which is what MPG ends up lower when there's still snow on the ground. Li-Ion doesn't work as well when it's below freezing. The cabin temperature of the Prius is well above that now. As a result, I'm seeing that estimate climb. Today, it made it to 11.3 miles. That had been just a long ago memory. In the early Winter, seeing 10's became the norm. Now, 11's are what I'll get for awhile. Eventually, 12's will return. The actual EV distance will exceed that from time to time. But the miles estimated doesn't fluctuate as much. Anywho, long story short, I have officially said goodbye to values starting with a 10. Yeah!
- 3-23-2013** **Gone.** It's pretty easy to confirm that closure has been achieved when seeing what I've seen. Nothing! It's as if Volt doesn't even exist. Discussions on the big GM forum are gone entirely. There is literally no mention anymore. That's exactly what happened in the past with Two-Mode. Sales continued, but the outlook became so grim, nothing more could be said. Constructive posts weren't possible at that point. The niche was pleased, but there simply wasn't any way of expanding the market. There were no aspects of appeal to reach to a larger audience. It became trapped as a specialty vehicle. Hope was transferred to the next generation... which all these years later, still hasn't been delivered. I suspect Volt will "die" the same way. When a competitive design actually is offered, it won't bear any resemblance to the one currently available. Remember BAS, that first assist hybrid GM offered? The next generation got renamed to eAssist to disassociate from the past. Of course, it shared a number of the same shortcomings, so it didn't matter. Some of Volt's fundamentals much change. Enthusiasts know they've become the barrier now. The goals to achieve mainstream sales are not what they want to endorse. That means focusing on what they like and disregarding everything else until later... the very same approach that got them into this mess in the first place. Oh well. At these blogs won't be packed with their spin anymore.
- 3-23-2013** **Online.** Sometimes, a bit of "did you know" is needed on the big Prius forum too. Some people really don't. Fortunately, that audience is receptive to constructive rebuttals. But reading this does stir temptation to interject more than is really necessary: *"I find this to be one of the most combative and self-righteous automotive-based on-line communities in which I participate. Even the bilious vitriol in The Car Lounge pales in comparison to some of the hit-and-run poo-flinging which goes on around here."* Clearly, he hadn't been exposed to the same things I've encountered. Curious to find out what comments would follow, I posted: Haven't been on the GM forums or blogs, eh? Go there and bring up the business success of Volt. You'll get attacked personally and relentlessly bombarded with responses referring exclusively to performance & engineering. Being an enthusiast venue, they just plain don't care about accounting/profit or products for the mainstream. That bit of perspective helps with the understanding of posts here where the original-poster has basically already made a decision prior to starting a thread and doesn't respond to feedback.

3-23-2013 **Failed.** It would be nice for these to be closing thoughts, but odds are it will drag on a bit still: "Enjoy the trophy. Some of us simply want a mainstream choice." What else could be said when dealing with attitude like this: *"Then Toyota, like an angry little child dragging its feet, made an attempt at a plug in vehicle, and failed miserably. If you want a target to throw your "price", "masses", etc stones at, look no further than the PiP. What a joke of a car. A plug for single digit EV miles, why even bother. My question to Toyota, is when will they release their Volt knock-off? It's only a matter of time, and I bet the day that they do, you will praise them for developing a brand new "synergy" of power-trains, that no one else could ever accomplish."* Those are basically the words of hate & blame, excuses rather than deal with actual need. I responded with: Based on what goals? They delivered a plug upgrade for their popular hybrid without weight or cargo compromise. They kept cost within the stated target. They achieved efficiency well above traditional vehicles even after depletion. How is that a miserable failure? As for the *"why even bother"* comment, that is pretty obvious for everyone to see. My annual average went from 50 MPG to 77 MPG. The benefit of adding a plug & capacity is undeniable. With respect to a Volt knock-off, what does that mean? Adding capacity is simple. The early model Prius plug-in pointed out the ease of which sub-packs could be used. Capacity can be doubled by just bridging in a second pack. Ford's C-Max Energi shows how that could be implemented too; it's basically a matter of trading off weight & cargo space. The degree to which GM is defended in the name of pride is troubling. All that's been needed from the very beginning is something to replace traditional vehicles; instead, we just get efforts to prove superiority. That want sacrifices well being of the automaker. They still must pay workers & suppliers, as well as remain competitive. Joke all you want. It's not a laughing matter though.

3-25-2013 **What Really Matters.** When the argument is lost, rather than accept and move on, the topic is rapidly shifted over to something else. In this case, it was: *"Let's see, how much emissions are spurted out by every cold start/stops of the Prius engine?"* The response to that was pretty straight forward, just remind him of the topic at hand... as well as point out what had just been attempted: That's exactly what I meant about misrepresentation. No matter how many times details of the startup process are shared and the PZEV emission rating pointed out, it's as if that never happened. As for sales, the goal is replacement of traditional vehicles. It doesn't make any difference whether it's a vehicle with a fuel-cell or a large battery-pack. If it remains just a trophy winner, what's the point? Looking at the entire automaker production of cars, like GM with Volt, it's quite a daunting challenge. So, it's understandable about all the resentment toward Toyota for having progressed to the degree they have with Prius. 892,519 last year is quite a sizeable chunk of overall production. Keep using words like *"pathetic"* to describe that progress. Meanwhile, we do have the genuine worry of how many Malibu, Impala, Cruze, Sonic, and Spark that are still being purchased.

3-25-2013 **Constructive?** Strangely, you do get someone proclaiming "superior" to actually listen. Whether or not anything is heard or not is a different matter. But it sure beats not having any dialog at all: GM had experience from EV, Two-Mode, and BAS prior to Volt. They all contributed to engineering & production knowledge of motors & batteries, as well as improved engines. Toyota had none of that when Prius was designed. As for the cherry-picking, excuses don't change the reality that traditional vehicles are the true competition. GM's own line-up is Volt's greatest enemy. Continuing to believe Prius is the competitor causes harm, yet some still don't see it. Heck, those numbers posted made it obvious. The plug-in Prius is only available in 15 states; yet, you repeatedly treated the sales counts as if the entire US had access to them for purchase. Step back and look at the resources GM is expending on traditional vehicles. Volt is hurting as a result of its own enthusiast supporting it as a niche, rather than pushing for something that actually pushes it into the mainstream. The downplay of numbers and calling this stage "*infancy*" rather than acknowledging GM's own past is evidence of that. When the tax-credit expires, the absence of that massive subsidy will make the situation even worse. We all know the effort of getting cost down enough to offset the difference is a daunting challenge. Getting down even lower to actually make it competitive with the increasingly popular small cars GM offers would take a miracle. Making it a top-seller in the line-up anytime within this decade, how would that be accomplished?

3-25-2013 **Infancy.** Imagine if Volt would have been promoted as the next generation of vehicle now available today. Rather than all the downplay & excuses, they could show us that car of the future everyone has been waiting decades for. It's that trophy-mentality holding things back. For a technology to become commonplace, to be so ubiquitous that it is seen everywhere, it cannot stand out. Enthusiasts want it to though. They are the barrier, the very thing they tried so hard to prevent. It was a self-fulfilling destiny they were warned about. Lessons of the past were shrugged off, dismissed as not relevant to the situation. Now, they are stuck, still somewhat unaware of what transpired. Saying the technology is in a state of "*infancy*" still is so counter-productive, it's hard to imagine anyone would ever do it. Computers have been in a state of advancement for decades. Each new step for them is called "*progress*" instead and that has worked remarkably well. Everyone sees what is currently available and knows more is to come, but they purchase it anyway. It's part of a natural cycle. Why are some in the automotive industry so dead-set against that with vehicles? Why not increase capacity as it becomes affordable? Forcing people to pay a very high premium to get more now makes no sense. That is certainly not what the computer industry has done. They always offered a choice, featuring the lower capacity as the option for the masses. Just think of how different things could have been. Instead of following a well-proven formula for high-volume sales, the decision to intentionally disassociate was made. Now the consequences are becoming evident.

- 3-25-2013** **Fireworks.** It certainly was exciting watching them fly today. This is what started it: *"When he said this I explained to him Toyota Hybrid technology relies on a small electric motor that is only capable of under 12 mph speeds and that the electric motor shuts down and lets the gas engine take over completely over at speeds over 12 mph. He looked shocked. It seems hybrid owners have their heads in the sand and are stuck on stupid."* That was both incorrect and insulting. Coming from a Volt owner on the forum dedicated to Volt (where I am only a lurker), several other owners sounded off. Each polite attempt to correct him was responded to with fierce resistance. It was quite clear his hate ran deep and facts weren't going to get in the way of his slander. Reality is, Prius uses a 60 kWh electric motor which operates at 650 volts. That offers a top electric-only speed of 46 mph for the regular model and 62 mph for the plug-in. Personally, I'm most impressed by my climb out of the river valley at 55 mph using just electricity. That's far more power than the 12 mph he claims. It's too bad someone didn't just refer to YouTube for a video showing how the system actually operates. I'm flabbergasted that someone would be so bold to think that such blatant dishonesty would go unchallenged.
- 3-26-2013** **Goals & Success.** Looking forward means learning from the past. That next step really can't happen until you know which direction to take. It's been a major problem for Volt and a complete non-issue for Prius. Toyota had a clear vision and set that course. A friend of mine stated GM's path as this: *"Priceless experience in developing cars that don't sell. The Volt carries on a proud tradition."* We honestly don't know what will come next. It's a huge mystery with a growing sense of urgency. Cost must drop significantly. The dependency on a large battery-pack compromises much. It's not like Prius, where you know there's a high probability of increased capacity with the next. Volt is already at the supposed end-state and somehow must rapidly make it affordable. I joined in with this: They all had something in common. Unfortunately, every attempt to point that out was met with fierce resistance. It was a simple matter of stating what the goals were. Not being able to clearly define success was a sure sign of trouble was to come. When you don't have understanding & agreement of what's trying to be accomplished and by when, there's no way to achieve any type of finality. This is why there is so much attention focused on the next generation now. It's also why there so much abhorrence for the vehicle which had goals stated and did indeed achieve them.
- 3-27-2013** **Something's Wrong, part 1.** In disbelief, I posted: Wow! With so many videos available and so many reports illustrating how far a kWh of electricity will allow the plug-in Prius to travel, it blows the mind that someone would post false information anyway. That's very encouraging. It shows there's worry about merit alone being enough. What other reason could there be for such obvious misrepresentation? We all saw that original post which clearly excluded 5 of the 11 miles of electricity available. So what if the engine starts up and runs briefly at mile-marker 6. That doesn't mean the entire capacity of the battery had already been consumed. It simply means a high-power demand was not fulfilled by electricity alone. The engine shuts back off and another 5 miles of EV travel occur. The spreadsheet omitted that fact. We all know it too. We see the concern the true information causes. No one is fooled by the effort to distract & avoid. And attempts to dismiss just show desperation. It's sad that the situation has come to this. But it's not like we didn't see it coming. Remember how success had been defined prior to rollout?

3-27-2013 Something's Wrong, part 2. Still amazing by such blatant greenwashing, I was left wondering of something was actually wrong. Why would there be such intense responses about a claim that is clearly not true? With Volt attention having diminished to virtually nothing, was this attempt to draw back attention or what there a big picture issue that I hadn't even noticed? I push hard on the hostile venues to find out, since they gladly welcome that type of participation. The members there provide lots of feedback... some of it quite valuable. But you really have to look for it... because they clearly aren't aware of the issues. It's a matter of someone exposing a clue that ultimately informs us of what's really going on. Anywho, this was my response: The battery-capacity listed by the EPA is 11 miles. The window-sticker clearly shows that plug-supplied electricity is available is for 11 miles. What the heck do you believe that 11 miles means? My guess is the group-think here has convinced everyone that the 6 means something other than what it actually does and no one bothered to actually look up what it really represents. That kind of assumption makes sense too. It's a common trap to fall into and no one wants to admit they made an error afterward.

3-27-2013 Something's Wrong, part 3. It finally hit me! What if those intense exchanges of words were based on a misunderstand? That would explain a lot. We've seen that type of passion before. When someone has incorrect information, they can unknowingly spread it. In fact, that's the basis for greenwashing. You convince someone else that a situation is different that it actually is and they end up passing along false beliefs. However, sometimes it can be even more simple than that. To test my theory, I started posting detail about the determination of Miles-Per-Gallon-Equivalency for the plug-in Prius:

$$(\# \text{ EV miles} + \# \text{ HV miles}) / ((\# \text{ kWh} / 33.7 \text{ kWh}) + \# \text{ gallons}) = \text{MPGe}$$

$$(6 + 5) / ((3.19 / 33.7) + 0.022) = 94.3$$

0.2 gallons per 100 miles

$$11 \text{ miles} = 0.022 \text{ gallons}$$

29 kWh per 100 miles

$$11 \text{ miles} = 3.19 \text{ kWh}$$

Guess what? The immediate impression I got from that was that there were a few individuals that seemed to be totally oblivious to what those numbers actually meant. It was the clue I had long been looking to undercover. Yeah!

- 3-27-2013** **Something's Wrong, part 4.** Continuing my new found quest, I interjected a dose of reality... to find out what priorities really were. After all, it wasn't clear whether or not this exchange was only just an opportunity for more bragging or if they somehow actually did envision a clear plan for the future. My question was about product-line. Rather than responding to their bait about Prius, I asked about GM's intent. Sadly, all they did was echo back the same question with: *"Damn that's a weak argument. Could you please provide an analysis of PiP sales with that of Malibu, Impala and Cruze? After you do that could you please explain your point?"* Having already done that for the same audience quite a few times in the past, I knew it was bragging. But why? Something still seemed wrong. I asked: Replying back by simply replacing Volt with PiP makes it overwhelming clear how unwilling supporters are to address the actual problem. As long as they have a scapegoat available, they don't feel the need to face the reality of the situation... Malibu, Impala, and Cruze are kicking Volt's butt in sales, despite the benefit of a large tax incentive. No matter how much you flaunt the EV range of Volt, that doesn't change. GM's only high-efficiency offering cannot compete with its own popular cars. That makes the situation very, very different from Toyota, where Prius actually does. Stay in denial all you want. Continuing to refuse to acknowledge the big picture only makes the situation worse. Have you ever considered the reality of GM getting cold feet, that Volt funding could get reduced due to low sales?
- 3-28-2013** **Something's Wrong, part 5.** It really was! I actually had figured out what was wrong. Yeah! This was the comment which ultimately confirmed my suspicion: *"And it clearly states "All-Electric range = 6 miles". That's what's been said here all along..."* It was what I had been waiting to see. Ultimately, I responded with this *"Belittling Prius won't fix GM's product gap."*, since the posting had degenerated to the senseless trophy-mentality we've been dealing with for years now. But I also took the time to be constructive and make my point: Notice how everyone stops on that? Not looking at any of the other information provided is the problem. They assume it means something it doesn't.
- 3-29-2013** **Something's Wrong, part 6.** Assumptions are often the underlying source of problems. Uncovering there are any is a major challenge though. In this case, I was dealing with an audience who didn't understand how the numbers were derived. The measurement value they kept quoting was one of many; however, all they saw was just the one. Not even acknowledging there were other quantities to take into consideration was the confirmation. In two of my previous posts, I included a link to a scan of the window-sticker itself. That showed all the numbers. They didn't address them though. They kept getting dismissed. That's called cherry-picking. You cannot just select the data you like. You must acknowledge all of it. When I provided the detail, showing the calculations and explaining how each played a role in the final result, it was totally disregarded. Outright avoidance is usually a clue that information isn't actually being understood.

- 3-30-2013** **Something's Wrong, part 7.** It makes so much sense looking back at the situation now. Not actually understanding how the Prius PHV works and believing it is trying to achieve the same thing as Volt would contribute to an endless stream of debates. No matter how many times we'd point out it was a plug-in hybrid, designed to deliver a MPG boost through the blending of motor & engine, they would always respond with how poor of an EV it was. You'd scratch your head wondering if any part of what you'd post was actually being read. It would get to the point where you'd be truly amazed how misguided some of the claims became. Why would they even make such statements, knowing they were clearly not correct? Turns out, they had no idea they were spreading false information. Their actions were without consideration of all the facts. It was thoughtless reciting. That explains a lot! Not stating goals allowed the nonsense to ensue. Bragging dominated threads because they weren't interested in detail. Fixated on just one particular number prevented any type of constructive discussion. Of course, I got quite a bit out of it. Knowing your audience is priceless. My effort to figure out who they really are made quite a difference. You cannot take that next step without.
- 3-30-2013** **Very Snowy Commute.** 17.3 mile commute today. 55 mph maximum 36 minutes driving. 32°F outside. Cabin-Heater set at 68°F. Heated-Seats off. Headlights & Foglights on. Driving through fresh snow. 10.7 miles was the EV estimate upon leaving the driveway (video-camera setup consumed 0.2 mile). Drive-Ratio reported: 9 EV and 7 HV. End result: 127 MPG. Watching that drive afterward brings back interesting memories. Dealing with wet, lumpy, slippery roads isn't something everyone does. I've done that countless times over the years though. With a Prius, the efficiency was always a nice benefit from being forced to go slower. Having plug-supplied electricity to augment the situation makes it even better. Removing a surprising amount of the stress from the unpredictability and increased drive time. Video like this will come in handy later, as people research the sale of a new vehicle. The consideration of winter commutes raises lots of questions in forums & blogs. It will be nice to point back to this particular one then. You can see it now... [Very Snowy Commute \(dashcam\)](#)

3-31-2013 **Questions.** An attempt to be constructive emerged out of nowhere. I was intrigued by the unknown poster, though disappointed since it was the same old approach. Notice how they are forced into a particular perspective: "*Why do you think that so many Volt owners would buy another Volt, as was asked by CU Reports, and why are so many of them previous Prius owners? Do you think that it is because they feel that the Volt is a reeeeaally goooood car? Or have they just drunk the Volt kool aid?*" It's the classic problem of niche owners not understanding vehicles for the masses. It was an either/or choice, no other viewpoint could be possible as far as they are concerned. I just shook my head and replied with: Volt enthusiasts don't express interest in there being a product for middle-market. So no matter how many times comparisons are made, they completely miss the point of delivering a high-volume business-sustaining vehicle. It's that simple. Enjoy your Volt, though recognize the fact that it is not configured for mainstream need. It's a specialty vehicle. In that respect, it does a nice job of fulfilling that particular role... which there's nothing wrong with. But to think that it in any way it can take on the true competition of GM's own cars like Malibu, Impala, and Cruze, you're not addressing the problem at hand. The purpose of Volt has changed; it has been recast to serve a different purpose. The original vision transformed from what was actually rolled out. The reality of cost & engineering proved much more of a disconnect with the market than GM understood. That's why the question of "*better*" doesn't makes sense to even ask. It was always this other question (to direct focus back to purpose) that irritated the heck out of some: *Who is the market for Volt?*

3-31-2013 **Expected Announcement.** We know that sales of Volt have been flat... which is a really bad sign for a vehicle in its third year... especially one so heavily hyped. With the approach of Earth Day stirring interest in affordable clean & efficient vehicles, that puts GM in a very uncomfortable position. Sales results for March will likely be released today tomorrow too... which just happens to be April Fool's Day. That makes for an interesting formula of circumstance. Based on previous history, that likely means some type of announcement will be made. After all, anticipation has been a powerful tool in the past. Of course, that has led to unrealistic expectations... ultimately contributing to mindless hype. The reputation for "*over promise, under deliver*" was well earned. Temptation was too great. Rather than keep quiet about innovation, anything related to market advancement was carelessly flaunted... despite to basis to support it. Consideration of things like cost were simply brushed aside. Having learned from the past, it's quite reasonable for that cycle to repeat. We'll likely see the emergence of such a situation soon... unfortunately. Someday a miracle will happen, right?

- 4-01-2013** **Really?** It appears as though that prediction of how events would unfold was spot on... or was it? Supposedly, there will be another model of Volt offered, one that actually addresses cost to deliver an entry-level plug-in choice. Offering more seating room along with more battery-capacity has been the magic solution that enthusiasts have long dreamed of. Doing that for a much lower cost would be the miracle part. Of course, I'm just reading the introductory portion of the blog posted today. Those are my initial impressions, documented before continuing on to read the second half of the article. Sure enough, upon reading further, there was nothing but wishes being fulfilled... a very good reason to pause for consideration of facts. (Think about the upcoming Cadillac ELR for a moment.) That's the very trap which happened in the past, taking a leap of faith without looking. You get unsubstantiated comments leading to unsupported hope. With only nuggets of info, each sounding too good to be true, you should question the situation. Yet, no one is taking the time to ask how that will actually be achieved, no one even gets a chance to ask for detail. Needless to say, the timing was likely taken advantage of. Nonetheless, even being a cruel April Fool's joke, it does still bring up the issues of concern. Why not start out the month with a sense of humor? Everyone having a good laugh would be an effective way to move on. Somehow we have to overcome the past.
- 4-01-2013** **Progress.** It can be painfully slow. Reading a Detroit article today about the New York Auto Show currently underway, it's like traveling back in time. Now that pretty much every automaker has plans to rollout hybrids of their own, the same old comments from years ago are being posted online again. They act as if there is something to prove still, like Toyota's success is somehow in an entirely different category. That's actually true in a way, since the technology itself must be different to avoid patent infringement. But the expectation of them remaining a niche for many years to come is a stretch. The misconceptions are gone. That was a major obstacle to overcome. We've successfully done that. There is the genuine problem of the moving target though. Since traditional vehicles continue to improve, it makes the introduction of a new hybrid difficult. Those other automakers have to scramble to catch up. Only Toyota is far enough ahead for hybrids to be seen as a common choice among their product line. Resistance is no surprise. The reality of internal competition is a major challenge... as GM is currently finding out the hard way. Fortunately, we have the example of Ford demonstrating how to prevail over that. Progress is difficult. At least there is now a shared effort to deliver something, rather than the past where some automakers simply didn't care.

4-02-2013 **Disappointed.** Sales results were revealed today. Tesla & Leaf did pleasingly well. Volt did so bad, enthusiasts we using "*disappointed*" as the adjective to describe their feelings. That sentiment latest 11 hours... then they turned to their scapegoat. I couldn't believe what had been posted. Someone listed monthly Prius sales from over a decade ago, generation this response: "*Wow, those number are really cool! Prius sales absolutely plummeted in summer 2003. I am surprised Toyota didn't give it up at that point.*" That's spin so desperate, it's hard to know how to even respond. Toyota was clearing out inventory then. So much interest for next-generation model coming in the fall had already been expressed, it was in everyone's best interest to ensure none of the older model would be left by the time rollout began... hence the plummet. They excluded that information though. It was presented as if Prius had become a market failure. To make matters worse, they used quantity matching to justify such low sales of Volt... as if all else was the same. Again though, a vital piece of information was withheld. In that case, it was the fact that there wasn't a tax-credit available for Prius, only a \$2,000 deduction which amounted to about \$300 to \$400 for the typical person. That's a tiny fraction of the \$7,500 buyers of Volt get. Needless to say, the greenwashing made enthusiasts feel better. Misrepresentation obviously doesn't matter to them. Any words of encouragement will do at this point.

4-02-2013 **The Real Issue.** When a leading expert makes a comment like this, you should take notice: "*I think the research in the world is largely misdirected. What I mean by that is that the conventional approach for battery research is: 'Let's find the coolest chemistry. And then we publish the paper and somebody else should figure out how to make this device cheaper.'*" That is most definitely the approach we've seen from a certain automaker, though actually a bit worse... they rolled a vehicle out that way. There was no regard for cost. There was just hope for a breakthru in the near future to eliminate subsidies and make it competitive. In other words, rather than keeping design with affordability in mind, a risk was taken that a miracle would vindicate the effort. That's quite a gamble. It's unlikely to payoff. What of the odds of a technological discovery happening soon? Implementation alone consumes a great deal of time & resources. Reliability studies (very important when it comes to warranties) cannot be hurried either. It's a recipe for disappointment. To make matters worse, reputation could be tarnished in the meantime. Too bad the industry didn't invest heavily in the use of inexpensive materials. Gambles like that would be unheard of then.

- 4-03-2013** **Downward.** Yesterday's news of disappointing sales for Volt brought owner comments to a new low. I understood the hostile replies to me directly in the past, since no matter what I said all they ever heard was "Prius", even if that wasn't what I posted about. They just assume you are somehow expressing brand loyalty, rather than actually stating a point about automaker product-line and the basic need for sales & profit. Their disregard for everything else is disturbing: *"Let's see your prius do 143mpg! I think deep down he knows the Volt is better than the prius and he just hates that he got the wrong car. Yes priuses used to be the best for gas mileage but that was the early 2000's. There are so many others out there now. I am really seeing now what people mean by how prius people are. I lost a lot of respect for my uncle. Very sad. He can take his 50mpg, I'll take my 143."* Those were the feelings expressed online about a family encountered over the holidays from a Volt owner about his uncle who had just purchased a Prius. Naturally, none of the comments following that new thread in the Volt forum addressed the plug-in model. They just reflected the same sentiment. It's all about MPG. Consideration of the usual mainstream purchase priorities, like cost or seating, are simply ignored. I'm amazed they don't see how smug those comments were. Attitude is trending downward.
- 4-03-2013** **Sales Trend.** When dealing with a group convinced you're trying to promote the competition, it's best just to post data about their own automaker. Of course, even then, they'll likely either spin the intent or just disregard the information entirely. We'll find out soon enough what the reaction is to this: Consider the big picture, GM's car offering. Notice the sales trend? 18,539 Malibu; 14,766 Impala; 23,260 Cruze; 1,478 Volt. Thinking that resources are abundant and heavy investment in Volt (as we know it) will continue, that it's just a matter of waiting, is not taking the situation seriously. Whether or not the technology delivers has nothing to do with the market... something supporters haven't been wanting to face. Now into the 3rd year of sales, it's pretty obvious the competition from within GM itself poses a very real problem. Volt is not aligned with what needs to be produced & sold. Consider what it means for dealers to sell only 1 per month. Consumers are simply buying the other choices available instead. Those offerings are far less expensive and much more in line with their priorities.
- 4-03-2013** **Topic Change.** Reaction to the sales counts was neither spin nor disregard. Instead, a topic change was attempted. When all else fails for Volt, they fallback to enthusiast appeal. The belief is the speed & handling will convince people the extra cost is well worth it. That's obviously not the case. GM numbers for March clearly show preference for traditional vehicles instead. Why can't they see that? Acknowledgement of fact shouldn't be so difficult. It boggles the mind how deep the denial runs. Oh well. I just abandoned the effort with this: So rather than address the issue, the choice is to change the topic. That's constructive. No one has asked the question about MPG itself... How much will result in high-volume sales? There is a point of diminishing returns. More isn't necessarily better. Striking a balance between MPG and cost is required. Is the plan really to just wait it out and hope for the best? What if cost isn't cut enough, for the sake of keeping MPG higher than people are interested in paying for? Where is there any proof that 200 MPG is better than 150 MPG? 125? 100? 75? Think about how people have settled for vehicles that deliver MPG in the 30's, despite the fact that gas is sometimes \$4 per gallon.

- 4-05-2013 The Announcement, part 1.** That inevitable distraction from disappointing sales results arrived yesterday. GM had a press-release stating: "*The typical Volt owner who regularly charges the vehicle is going 900 miles between fill-ups of the gasoline engine that powers the Volt's on-board generator. That avoids about \$1,300 a year at the pump.*" Not a single enthusiast or owner remembered GM's promotion from 2 years ago claiming 1,000 miles. None questioned how the \$1,300 was determined either. What was Volt compared to? How many miles per year? What was the price per gallon of gas? GM basically just threw a number out there and they all accepted it at face value. That's scary. I drove 18,477 miles last year. My entire gas expense for that was \$840. So, it certainly wasn't a comparison to another plug-in hybrid. With a regular hybrid, at 50 MPG and \$3.59 per gallon, that same distance would have been \$1,327. But that doesn't make sense, since that distance would have meant the Volt drove roughly 5,000 miles using gas. At 37 MPG and \$3.59 per gallon, that would have been \$485. Needless to say, there are countless of scenarios which could have been explored. They didn't bother though. It was all about bragging rights.
- 4-05-2013 The Announcement, part 2.** The reaction on that daily blog was quite predictable. On the big GM forum, I was rather curious. Since my focus there was always automaker success... sustainable high-volume profitable sales... they never liked me. The MPG trophy was of no interest. Their fanboi taunting fell on deaf ears. I simply didn't care. That's why they always tried to divert discussion to Prius, hoping to stir an emotional outburst. That never happened, which frustrated them. Talking about accounting matters and choices for everyday consumers had no place there. It just stirred anger. So, this opportunity to gloat & taunt about MPG was too much for them to resist. Sure enough, I personally got called out too. Fortunately, I don't play that game. It's a waste of time, though reading the posts themselves can be constructive. These are my favorites quotes from that particular thread: "*Volt is pure awesomeness. I'd buy one, but they are out of my price range.*" That's a common theme, much like autoshow desire where a person likes the showcase vehicle but ends up buying the mainstream choice. This was especially telling: "*Volt is a great idea that was total blown in execution.*" Not much else can be said about that. GM really messed up. Sales prove it. And this one summed the situation up nicely, coming directly from an owner: "*I love the Volt, but after a year I'd say a Cruze Eco or Cruze Diesel would be a better fit for how I drive and the overall cost ratio.*"

- 4-05-2013 *The Announcement, part 3.*** It sure would be nice to hear from the other automakers more. Tesla is getting a lot of attention, but that's because it's the little company that proved successful. GM thrives on the spotlight, so there will always be something from them. But doing a quick check, news from them is mostly about their new next-gen full-size trucks and the Camaro Z/28. Their ability for them to stir interest with efficiency cars is almost non-existent now. Volt is too expensive. People clearly aren't interested. Ford runs the same old C-Max television commercial endlessly, but sales of the Fusion hybrid are actually just a little bit higher. So, that situation is a bit odd. We haven't heard anything from Hyundai or Honda lately. Nissan does make a peep from time to time. But ultimately, you've got the quiet giant called Toyota leading the pack by a very wide margin... hence so much ill sentiment by others. Just finding out that Prius c is now officially the top-selling vehicle in Japan and the regular model holding the second position, there really isn't much to say. The hybrid technology is most definitely mainstream and a primary part of the business now. That's poses a massive amount of pressure on the other automakers. They cannot argue hypotheticals with such a solid example success. That's why no matter what I post, they always twist it to somehow apply to Prius.
- 4-06-2013 *Recognizing Change.*** With such strong trophy-mentality clouding judgment, seeing what's happening on the larger scale can be difficult. You get the impression of overwhelming success. Focus on engineering alone will do that. They believe more is better, regardless of cost. The idea of balance is a joke. Enthusiasts laugh at thoughts of offering less, so more people will be able to afford it. That's an unacceptable tradeoff. Strangely, they are adamantly opposed to the well-proven approach of improving capacities over time, to keep the cost-prohibitive nature of newer technology from becoming an issue. In other words, they just plain don't care about middle-market. In their mind, any well designed vehicle will become mainstream... despite the reality of that not being true and the fact that many ubiquitous products require a very, very long time to take hold... even those with short service lives. Vehicle replacement will take much longer than they care to admit, we're talking decades. Long story short, it's easy to recognize change when goals aren't clear. Simply ask questions like "*who*" and "*when*" and "*how many*". We witnessed the much hype Two-Mode fade into just a terrible memory of misguided priorities... because the answers to those questions didn't address ordinary consumers. The very same thing is happening with Volt. Its obsession with the highest possible MPG closely resembles Two-Mode's obsession with power. More was better, regardless of cost. Sacrifices made to achieve that soured its appeal. People ended up buying other vehicles instead. Sound familiar? What happened to the "*game changer*" we were promised?

4-06-2013 **Balance.** That's what makes a vehicle mainstream. Common needs of the masses are identified by high-volume purchases. If you need more than average power, you buy a truck. If you want more than average performance, you buy a sports car. If smooth & quiet is your thing, you buy a luxury car. It's not rocket science. The difference between mainstream & enthusiast should be obvious. Of course, the concept of an online forum not being a venue for die-hard supporters is a bit of a oxymoron. Somehow though, Prius was able to overcome that. Offering balance of power, performance, smooth & quiet while also delivering MPG well above average and emissions well below average frustrates the competition. Reading posts on the big Prius forum for only a few minutes is all it takes to confirm many of the participants there are not enthusiasts. They're just ordinary people with an interest in something better than the traditional choice. Look at buyers of other offerings. Is that true for them too? The imbalance is pretty obvious. Being part of a niche is fun & rewarding, but misrepresenting others to conceal that fact is harmful. Rather than pushing automakers to configure choices to match priorities, they just endorse a one-size-fits-all solution that doesn't actually match need. Ugh.

4-06-2013 **Now That It's Over.** Resources spent documenting the transition were well worth it. Many people find reading a relaxing pastime. So, it's not too far of a stretch to find out some write for pleasure. Getting back to the "good old days" of writing about daily Prius observations instead will be nice. The absurd nature of Volt craze was a unique moment in history, a time we won't ever see again. How often does a new offering ever stand alone like that? It was the only plug-in hybrid available and hype outweighed the hype well beyond anyone's imagination. Rollout turned into a disaster with new spin all the time. Keeping track of what happened when and how the claim was actually stated could have been easily lost. Looking back, situations quickly get confusing. Having noted those details as they were all unfolding was great. Witnessing plans & hopes fall apart made you very curious what would happen next. It was a real-life drama... with a predictable ending. We all knew Volt didn't match the needs of mainstream consumers. The effort to make it different from Prius meant compromising purpose. Purchase priorities for middle-market are quite particular. Convincing us that they would change so much, especially without evidence to support it, was unreasonable. Adaptation on that scale is painfully slow. There's decades of history clearly showing that. We can now look forward to automakers rolling out more realistic offerings. Heck, maybe even GM will join in. After all, there is a shared goal of increased efficiency and reduced emissions, with the need to continue to be competitive and make profit.

- 4-07-2013** **Consequences.** It's intriguing to watch Volt enthusiasts coming to grips with the situation. Snippets like this were so vague, no one is even bothering to respond anymore: "*delivers what GM promised*". We all know those supporting Volt prior to rollout were so horribly vague about goals anything could have been delivered and they would have praised it. The rest of us are well aware of what really happened. That's why a consequence we're seeing now is silence from the outside world. From the inside, on the big forum exclusively for enthusiasts, it's a different story. Reading responses to this there tells an interesting story: "*He called me a Bald Faced Liar.*" That vague nature of replies is now coming back to haunt them. How many times do you have to warning them to include detail? Enthusiasts became so smug with all those "*vastly superior*" claims they simply didn't bother with anything else. When an owner said he'd be saving about \$2,000 per year on gas, the name-calling could have easily been avoided. They didn't learn though, the advice was disregarded. That's happening now, finally. The person hearing that automatically thought it was in comparison to other choices available at the time of purchase... not his old Isuzu Trooper which only delivered 15 MPG. Well, duh! Any new vehicle is better than that. But having excluded such a vital bit of information, it was to surprise to get such a harsh emotional response in return. It's the same thing GM is still doing. Their \$1,300 claim wasn't explained at all. There was nothing whatsoever stating what the comparison was to. Intentionally, that's considered greenwashing. Unintentionally, there are still consequences.
- 4-08-2013** **That Button.** Mid 50's for MPG on the highway make using that HV/EV button a no-brainer for me, since I routinely drive well beyond battery-capacity. Saving electricity for when it can be better used is a nice option. The fact that the engine consumes electricity during warm-up to make it both cleaner and more efficient makes the replenishment of it later using gas is pretty much a wash. Adding a plug to an already well thought out system is what gives Toyota the edge over competitors. Makes you wonder when everyone will figure out why that was such a sensible approach. And memories of naysayers claiming there was no advantage of the hybrid components while cruising on the highway are still so vivid. We'll never know if they didn't have a clue of what they were talking about or were just lying to impede progress. Only now, as we start the second year and still only have rollout to 15 states, are we seeing some interest building. There's always first-year jitters anyway. Assumptions make it worse. There have been efforts to misrepresent too. Watching that change is reassuring... especially since we've seen other technologies stumble as time progresses. Long story short (guess I climbed up on the soapbox there) is that you can't go wrong just giving it a try. Not pressing that button, you'll still get great MPG. Pressing it, there's a chance of squeezing out even higher overall efficiency.

- 4-09-2013** **Photos & Video.** There's a collection of them I haven't had a chance to sort & organize yet. Slowly, I'm getting a change to go through them and pick out favorites. A highlight from Winter was a drive home after a pretty nasty snow storm. Travel was starting to resume again, after basically everything shutting down entirely, but the going was slow. That allowed the opportunity to take a few photos, capturing what some people never see and we here in the north try to forget during the warm season. There's also two sets of display screen photos. I use those to show detail of the drives captured on video. The filming has become somewhat easier too. Catching the sun when it's low allows dashcam (single camera) footage, rather than needing the complicated setup required when it's really bright out. Anywho, here's those webpages showing what I now have available to share... [photo album 182](#) and [video - winter phy](#)
- 4-10-2013** **When?** Also having hybrid counterparts, the plug-in hybrids offered by Ford & Toyota don't really include a question of when... since the choice is a package selection, a feature rather than exclusive vehicle. There is far less at stake and far more opportunity. That's only the case for them though, due to the push for high-volume production & sales. It's different with other automakers. When is being asked. There was a lot of attention on GM in the past. That was due to so much over promising of Volt. It ended up under delivered... based on their own self-imposed measure. Those events are history now, labeling the first generation rollout not achieving "*game changer*" status. Had it been presented as a niche right from the very start, a top offering rather than something that would "*leapfrog*" the success of Prius, things could have been different. We see that from the approach Tesla took. Model S has become a very popular choice outside of the mainstream. Fisker attempted the same. Results were different. Intent was the same though. Nissan is unique among the EV offerings. The hope really is to make it a car for middle-market. But unlike the others, pricing was given a very high priority and when was immediate. With Fisker about to file bankruptcy, when with it is clear. Tesla is doing fine as is, despite the high price. So, it has a "when" that really doesn't come into question either. That's what sets Volt apart. It's quite a shift to go from unrealistic promises with a firm rollout date to not saying anything anymore. The uncertainty could, if carefully considered, provide a path of less resistance for the next generation. When though?
- 4-10-2013** **Charging Stations.** By the end of the month, there will be roughly 6,000 of them available to the public nationwide. How many would be beneficial this year? How many more next year? How much should it cost to use one? How long is appropriate time for usage? How will goals be measured? How are we going to get answers to these questions? Needless to say, there's no way of knowing. The situation will change over time too. Right now, using them is for the most part a pleasant experience. There are some instances where a non-plug vehicle will park in a spot. There have been a few reports of EV owners being quite rude to plug-in hybrid owners too. Overall, it's been nice though. Even the conflicts online about Volt don't carry over to real-world encounters, since there's a huge difference between actual purchases and automaker intent. Charging stations are an uncertain topic, coming from a third-party with interest in gaining patronize by offering a plug. More seems to be a good idea.

- 4-13-2013** **52 MPG.** No complaint about that. 176 miles of almost all highway driving and still having 70% of the EV miles left, with 52 MPG as the result, is great. I wondered what that weekend escape would bring, especially with it still very much Winter here still. Tomorrow, a snow storm arrives. Today was a pleasant trip that confirmed the plug-in Prius delivers outstanding efficiency even when you don't plug it in. What else can be said? The naysayers claiming the extra weight of an unused battery (or in this case, barely used) would result in a large penalty were wrong, very wrong. It feels good having confirmation that the engineering we studied carefully delivers well in real-world implementation. The greenwashing assumption attempts are dead. Yeah!
- 4-15-2013** **Tax Day.** Like many others, I filed my federal income tax and waited the credit return from having purchased a plug-in vehicle. For Prius PHV, the maximum amount you can collect is \$2,500. Not everyone qualifies for the full amount though. Some are denied it entirely... many by mistake... since the process is still new and there has been confusion with expired credits. Some owners were finding out the money wasn't allowed for any particular reason. That's why I waited. They ended up spending many hours on the phone trying to get the error corrected. So, there may be a delay, if claims are flagged for review to avoid mistakes. My e-file went just fine, but I may have caught the process on a good day. A delay certainty is a test of patience... like many things related to Prius. Fortunately, those waits are well worth it.
- 4-16-2013** **Energi Sighting.** The C-Max emblem caught my eye. There was something different about it. Logic supports the belief that it was the plug-in model. Unfortunately, there wasn't enough time to confirm. We were both turning corners in opposing directions. All I got was just a quick glance, enough to notice and hope Ford is making some progress in these parts. Rollout has been slow. Acceptance is expected to be mild initially anyway, so no big deal. Near the end of this year, things should heat up. Until then, new market penetration takes place. I look forward to that... especially since the choice of sacrificing cargo area for the sake of increased capacity presents quite a bit of uncertainty.
- 4-17-2013** **Engine size.** Reading a thread on the dedicated Volt forum about engine size has been intriguing. The majority of participants think smaller is better... despite the proof from Prius that larger can actually be more efficiency. It's strange hearing some of the debate points. Most fall apart due to a single fact, the reality of cost. How do you justify the expense of development? Sharing a block & piston size with a traditional vehicle only takes you so far and requires lots of time to optimize for hybrid use. The components within, the valves, the timing. It gets complicated. The concern of "*too little, too slowly*" are finally being seen. The lust for EV allowed HV to be neglected. Consequences no longer need to be pointed out, they are quite obvious. Thankfully, the discussion was fairly constructive. That's progress.

- 4-18-2013** **5 Million Sold.** That's a lot of Prius. Toyota's goal to make it a mainstream vehicle, to the extent of replacing sales of traditional vehicles is difficult to deny now. I'm so glad to see this particular milestone being reached. Having to point out that purpose was maddening. All those claims of Prius only being a "*halo*" vehicle and losing money on each one were absurd, blatant denial that an automaker would ever take such a risk. Long term, it hardly seemed a risk. That was simply the natural advancement of propulsion systems for vehicles, when done proactively... prior to need. Waiting until gas prices get ugly to begin is an entirely different matter. That reactionary approach is trouble... which is exactly what we've been dealing with. Perspective & Timing making a huge difference, as did the approach. Now, it should be obvious.
- 4-19-2013** **\$3.39 Per Gallon.** We do anticipate the switch from Winter to Summer formula gas to result in lower prices. But watching the price of a barrel of oil drop below \$90 was quite unexpected. Why that happened is a bit of a mystery. You can imagine what that does for interest in hybrids. People now perceive that \$3.39 as an improvement, better than before. They become accustomed to it, settling for the purchase of a smaller traditional vehicle as a replacement for their guzzler instead of seeking out a hybrid. Perhaps that shift is what's influencing oil. Slowness of change does bring stability. Sharp demand pushes up prices. Seeing people settle for an adequate solution rather than embracing change certainly won't stir up the market.
- 4-20-2013** **291 miles.** Watching that trip from Northern Minnesota back to south of the cities result in an average of 59 MPG was great. We had to take the long way around too, since we were picking up a car along the way. It was a cold Spring day, having just got lots of snow 2 days before. Most people would still call that Winter, but it did make a scenic day for travel. I hadn't anticipated efficiency to be so good. It sure was nice though. That was my farthest single-day drive with this Prius, without having plugged in. The drive was entirely engine-only. Of course, electricity from the wall really wouldn't provide a big boost coming from only a 4.4 kWh battery-pack. So, it sure is nice having such an efficient engine. Long story short, I enjoyed the trip.
- 4-21-2013** **Trust.** It's pleasing to read posts from newbies on the big Prius forum. In the past, we've read about people going to a Toyota dealer with the intent of purchasing one of their traditional cars, then coming home with a Prius. Turns out, that's their first encounter with hybrids. Some simply never have the opportunity to see one up close. Now, the reach has expanded. We are getting reports of people going to look at a regular Prius and ending up with a plug-in. That's good news. It shows trust has been established. That's really important in a world where there's lots of greenwashing & assumptions. The worst is still the portrayal/belief that Prius PHV is a short-range EV. The large emblem on the car itself stating that it's a "PLUG-IN HYBRID" along with the information on the window-sticker doesn't get through to some people. Thankfully, the rest see the plug as an enhancement to the regular Prius experience. The larger battery offers increased electric power & range compared to the model without a plug. And since that results in lower emissions and higher efficiency, mission accomplished... since that's what middle-market has wanted all along. They trust that is what has been delivered. I trusted their sensible purchase decision-making would triumph in the end, over the rhetoric claiming EV was of paramount importance.

- 4-21-2013** **EV Importance.** The sensible is often not the voice of the internet. More likely than not, you will hear from an enthusiast instead. They deem different things of importance, most notably EV. Keeping in mind they aren't representative of the masses, there's nothing wrong with that. It is frustrating though when they don't realize their own statements don't match the mainstream. For example: *"What Toyota doesn't seem to get is that a lot of people like me are interested in the experience of driving EV mode, not so much the efficiency. They should follow Ford's example with the C-Max and give an EV mode that locks out the ICE for those who want it."* Had he qualified what *"like me"* actually meant, fine. After all, we do know that specialized configurations will be offered later. Prius doesn't seek out that audience though. So the *"Toyota"* reference is misrepresentative. Toyota does in fact know that; just look at what they reveal at auto shows. None of those plug-in vehicles carry the *"Prius"* label, but they do indeed entice the enthusiast. Anywho, I replied with: Don't overlook the reality of capacity tradeoff. Toyota's effort to reach an extremely wide base of consumers by sticking to a size that is both affordable and doesn't intrude on storage is a very big deal. Appealing to the mainstream is far more difficult than pleasing a niche. And with the price of gas is down to \$3.39 per gallon, demand for EV isn't going to be very low. There is of course the reality of battery life too. Taking advantage of the engine during times of high demand doesn't please the enthusiast, but it does ensure longevity.
- 4-22-2013** **Road Trip.** Yesterday was my longest no-charge (HV only) trip ever. The temperature averaged 40°F. The driving was almost entirely highway (55 - 70 mph). I was thrilled with the results... 291 miles, 59 MPG. That heavily supports the *"Solid 50"* goal following depletion Toyota set to deliver. It proves Prius is very much still a remarkable hybrid even when there isn't any plug-supplied electricity available. You can imagine just how uncomfortable that makes the competition, especially when you consider the affordability of a system with only a 4.4 kWh capacity. The plug-in feature can easily become as simple as a package option.
- 4-22-2013** **Redemption.** When you argue with someone over and over again, stating their estimates are missing vital points, it's reasonable to finally give up... hoping for the best. Well, sure enough. It happened. Though, the situation is still a bit frustrating. A very stubborn Volt enthusiast continuously posted his calculations, excluding important factors. But whenever I called him on it, stating without the numbers were an ideal, he'd attack. His assumption was that my intent was really a covert way of promoting Prius. Today, he posted this: *"Now that I own a Volt, I believe 55 EPA miles of AER would be more appropriate, for many reasons: 1) Many trips are longer than I realized. 2) Cold weather significantly lowers range. 3) My driving style also lowers range."* How many times should I have tried to make it clear that he wasn't taking them into account? He kept stating 40 miles of All-Electric-Range would be delivered under all circumstances. Now he knows how wrong that actually was. But rather than post an *"I told you so"*, I refrained... even though I was quite entitled. There were plenty of links and quotes I could have used to. Why bother. I simply replied with: Sounds familiar.

- 4-22-2013** **EV Estimate.** Those posts continue to emerge. For example: "*I, too, bought a PIP several months ago and every time we plug it in and then get in to drive, the "total miles charged" is less and less; starting at 11 and now down to 8.4. After reading all posts I still don't get it??? WHY???????*" We try to be constructive. This was my response: The value starts at a default value. As you drive and conditions change (like outside temperature), the value will become an estimate based upon your own particular circumstances instead. It will adjust accordingly as time progresses. It will still only be an estimate though. Primary purpose remains the same. That value simply gives you a rough idea of how much electricity is available. Whether or not it is consumed for EV or to boost HV remains an unknown and continuously different variable. MPG is still improved nonetheless. New owners tend to obsess with the estimate, which is great... since that is actually a secondary purpose. It draws you into the ownership experience, stimulating a heightened awareness of how the system actually works. That's something no manual or pamphlet could achieve. Heck, even the online exchange of "how it operates" isn't as effective as firsthand observation. Enjoy your plug-in Prius. If you want to learn even more, purchase an aftermarket gauge. Using it, you'll be able to see capacity as a percentage rather than miles. That really adds to the understanding.
- 4-22-2013** **Diesel Deception.** It's so annoying to read an article with a title like this: "*Diesel Chevrolet Cruze to get 46 mpg, matching Toyota Prius C*". As you would expect, it came from a Detroit publication. Only disclosing the highway estimate is greenwashing. No amount of spin will cover up such a blatant attempt to mislead. To make matters worse, the combined value is only 33 MPG. That's so low, what's the point? In fact, that may have been way the gas model of Cruze wasn't mentioned. With the price of diesel so much more expensive, it's difficult to imagine the car selling well. But the opportunity to spite the competition was too much to resist. The article itself seemed desperate. You got the impression of being equal on all measures. Clearly, that's not the case. MPG for Prius is far better. Prius emissions are cleaner too. It's really unfortunate. But on Earth Day, that type of deception was to be expected.
- 4-22-2013** **Freaky Old PHV.** Think about the condition of the plug-in model gas-engine many years from now. It will still have quite a bit of life remaining! We could see some freaky old PHV, especially if the owner decides to replace the battery-pack after the warranty is long past expired. Imagine how cheap 4.4 kWh would cost then. It would be a simple effort. The brushless electric-motors continue to operate just like they were new. Aging doesn't happen with those components. Only the combustion side suffers from reduced performance from excessive use. The gas-engine isn't used hard or much. It has an easy job and should be able to deliver for a very, very long time. Heck, there's no belts in the system and the timing is controlled by a metal chain. The 0W-20 synthetic oil as a lubricant will help minimize wear. It's a design that traditional vehicles simply cannot compete with. Having a plug makes it an even better hybrid.

- 4-23-2013** **First Owner.** The big Earth Day news for Volt ended up being an article which started with: *"In December 2010, retired airline pilot *** become the first Chevy Volt owner in the world. Since then, *** has racked up a decent amount of miles. But it's not the mileage on his Volt's odometer that's the story here. Rather, it's that ***'s Volt is averaging over 450 miles per gallon of gas consumed."* I was in dismay by how blatantly such vital information was just summarily omitted like that. Turns out, over the 2.5 years of ownership, he only drove a total of 13,700 miles. That's quite the opposite of decent. That's so far under the norm, it skews results heavily. Just think if I only drove 5,500 per year like that. My resulting MPG would be amazing too. It's frustrating to see misrepresentation. People cannot expect the same outcome. They get the impression that it could happen for them though. Ugh.
- 4-23-2013** **Buick Riviera.** We got a strange concept vehicle from GM yesterday. The reveal was so vague, it didn't actually tell us anything. The whole day I scratched my head wondering why the supporters didn't ask questions. Supposedly, it's just the plug-in version of Two-Mode again. That didn't make any sense... since some supporters now contradict their own original statements about Volt, saying it evolved from Two-Mode after all. Claims of starting fresh have vanished. But with that being the case, what the heck was this? It was a confusing mess. Of course, mixed messages is nothing new. No clear path is what we've been dealing with for years. Anywho, I thought I'd make mention of the concept here. It reminded me of the original announcements for Saturn hybrids. The story changed so often, I had to refer back to my logs to figure out what was said and when.
- 4-24-2013** **Spark EV.** Rather than having to deal with a concept reveal, we got an actual new vehicle rating from GM today. And with all the other automakers so quiet, this news got the spotlight. The estimate officially from the EPA was the upcoming Spark EV would deliver 82 miles of range. That's reasonable. Supposedly, price will be too. Of course, this is a total contradiction to what we were told prior to Volt rollout. Remember all the *"range anxiety"* marketing? They promoted the horrors of electric-only vehicles. Now, they'll be selling one anyway. It's that mixed message problem. Each encounter, you get a different interpretation of intent. Anywho, the rollout itself certainly will be interesting. Spark EV doesn't address the product gap (no real hybrid), but it does expand choice and further production of batteries.

- 4-25-2013** **That Never Happened.** Someone asked about the HOLD button for Volt today on the big Prius forum. I mentioned the history of resistance to it and how nice things are now that we have finally moved on. Almost immediately, there was a claim saying that never happened. My blogs are loaded with quotes from enthusiasts fighting against it, stating it was unnecessary and there would be no benefit. Over and over again, I heard that even mere mention of it was really an endorsement for Prius. It was relentless, repeating the message that it was uncalled-for. But the more real-world need became understood, the less the purity of EV from a vehicle with a gas engine available made sense. Why would you intentionally waste electricity? Knowing the button would be offered in the European market made the situation worse. The spin was that there were EPA regulatory concerns preventing the button from being offered. Today, that same claim was made, complete with a reference link. Of course, if you took the time to read that webpage, there was no such information. It's a greenwashing trick, since very few people ever actually click to check. Long story short, that button is now a standard feature for Volt and there wasn't ever any reason not to offer it... other than the fact that the plug-in Prius was rolled out with a HV/EV button, a feature very similar to HOLD. In the end, it still comes down to pride. Being similar to Prius equates to failure as far as they are concerned.
- 4-25-2013** **He's Back.** The situation of actually deal with a genuine forum troll is rare. You'll see brief attacks, when someone creates a new membership id, posts something to stir trouble, then vanishes. That happens all the time. What doesn't is when someone comes on openly & actively, but counters whatever you reply. The bait is simple, since the discussion almost immediate wonders off-topic anyway. About a week ago, the biggest problem the Prius community ever had to deal with returned. He was initially a hard-core pusher of biodiesel. Post after post endorsed that and belittled Prius. Eventually, he gave up and switched focus to Lupo, which is now known as a disaster vehicle for VW. But back then, people weren't well enough informed to understand the problems and most of the documentation & reviews weren't in English. We ended up overcoming his greenwashing. He ended up purchasing an original model Insight... which is how he introduced himself recently on the big Prius forum. He seemed to be Honda owner looking for a replacement for his aging hybrid. I knew who he was. No one else did. But I kept quiet, hoping for the best. Unfortunately, things got weird quickly. He started calling Prius owners Honda haters. He wouldn't acknowledge replies to his posts either. It was just one odd question after another. Then things really took a strange turn. Supposedly, just yesterday his Insight just get rear-ended by a Prius. What are the odds of that? Now people are starting to wonder. I still haven't pointed out his trolling history, though I did search the old forum to have a few of his old posts handy for reference just in case.

- 4-25-2013** **Spring Expectations?** That question is far more complicated to answer than you ever imagined, still fulfilling to learn about though. The fact that Prius PHV is a plug-in hybrid means some plug-supplied electricity will also get used for HV driving, not just EV. Seeing blended miles like that make interpreting the improvement associated with warming weather extremely difficult to quantify. Fortunately, you will notice the change, but getting detail from everyday observations is quite a challenge. The transition from Winter to Spring to Summer is something I was privileged to document last year. Looking at my daily driving graph, you can see the EV miles were all over the place. There most definitely is not any pattern whatsoever. Electrical resistance & capacity improve with warm temperatures. I've seen my continuous EV-miles distance (actual not estimated) nearly double from 9 in the depths of Winter to a high of 17 on the nicest Summer morning commute. Seasonal change is part of the ownership experience. MPG improve & degrade for Prius even without a plug. It because a refreshing reset every year, especially even when low the efficiency is still quite a bit better than traditional vehicles. Having a plug enhances that. You find it even more rewarding.
- 4-25-2013** **More Spark.** Some detail of the Spark EV was released today. It's rated at 82 MILES and 119 MPGe from the 21 kWh battery-pack. Finding that out marked the next chapter in GM history moving away from Volt as a "*game changer*" vehicle. Between this and all the attention Cruze Diesel got last week, the once heavily hyped plug-in hybrid has almost totally vanished from online discussions. That competition-from-within reality has become all too real. It's the "too little, too slowly" concern playing out right before our eyes. Measure of success comes from looking at each automaker's own offerings. Their own product-line speaks for itself. Diversity is great, but lack of direction is not. Emphasis is not focused on anything in particular. Of course, as always, it comes down to cost. Production simply won't be there if cost is too high. Mainstream volume requires the vehicle to be affordable, making a profit without dependency on subsidies is vital. It's what enthusiasts don't want to hear; they thrive on bragging rights, not accounting. From my perspective, I'm intrigued about how this will stimulate the market as a whole for plug-in vehicles. With so many "me too" and compliance rollouts, it's difficult to know how mainstream consumers will actually react.
- 4-26-2013** **Hooray!** The commute to work this morning was wonderful. 201 MPG with 0.4 miles of EV remaining from my usual route (just under 17 miles with half at 70 mph) was a welcome improvement. The warmer temperature outside made a huge difference. It was an amazing 57°F outside. That's 20 degrees warmer than it's been in months. Hooray for spring! I still remember exceeding 400 MPG on the way to work. That seems so long ago, I feel sharing those experiences requires me to start the story with: "*Once upon a time*". Fortunately, the snow does eventually melt away. And even with having to deal with the cold, having a plug clearly improved upon the great MPG already provided by Prius. It did indeed raise the bar as a realistic solution for the masses.

- 4-26-2013 Grille Blocking.** Watching the temperature climb into the 60's today was amazing. We haven't seen warmth that nice here in Minnesota since last Fall. It has been quite a long Winter here. Spring will be incredibly short as a result. We will basically jump straight to Summer. Anywho, the new high meant removing the grille-blocking from the Prius before the commute home. Since all I do is use the squeeze method, just squishing form pipe-insulation between the slots, it only took a minute. Done. Yeah! Doing that means there's no need for extra heat-retention anymore. Engine warm-up will be rapid. Of course, it's not like the blocking was a big deal. It only took 20 minutes and cost less than \$2. The dark gray among the black didn't even make it noticeable. The benefit was though. With the low temperatures we get around here, that extra heat was nice.
- 4-26-2013 No Arguing, part 1.** We're in the stating-the-facts stage. The time to reflect has arrived: Debt & Obligations dismissed. Many problems self-inflicted. Little concern for the future. 200 Million shares purchased by our government, then later than wanted sold back at a loss. 300 Million shares still owned by our government, stock prices still under the purchase price. All that makes accepting the consequences of the circumstances GM is in now difficult. Volt was promoted as their flagship, the technology leader intended to pave the way. 2.5 years after rollout, it's barely talked about anymore. S o many goals fell short, the decision to explore other options is becoming obvious. We hear about eAssist, diesel, and EV offerings instead. Meanwhile, the "Voltec" system continues to follow the very same path as Two-Mode. There is no clear purpose or intent anymore. GM's own production is competing with itself and there's a massive product gap, no high-efficiency choice that's affordable for middle-market. What are we supposed to expect at this point?
- 4-26-2013 No Arguing, part 2.** When a discussion focusing on bailout & sales emerges, you just keep on providing information: A quick search of dealer inventory for new Volts available provides a list of 8,543. That's a heck of a lot of unsold to worry about, especially considering there are 285 used also listed. Just think what will happen when those amazing 3-year leases begin to expire 6 months from now. It sure would be nice to see Volt on the path to becoming a business-sustaining vehicle, providing profitable high-volume sales like GM's other popular cars... Malibu, Impala, and Cruze. Heck, even their Equinox has much greater demand, despite being a small SUV. The situation isn't pretty and Volt owners are getting tangled in the mess. Sure, the technology works and it's proving reliable, but cost makes it unreachable for the masses. They just end up buying some other GM vehicle instead. That worse part is we saw this coming, but hope clouded judgment. Now what?

- 4-27-2013** **Keeping It Simple.** The current approach of restricting inventory to the initial rollout markets is proving to be a wise choice. Reasoning for that should be obvious. Think about how many times we see a new thread started here by a new owner absolutely insisting something is wrong with their plug-in Prius because their EV-mile estimate value has dropped. Those are from people who have firsthand experience driving one. Think about the scores who are only just reading posts and stumbling across hearsay. Imagine how busy that's been keeping service & training personnel. Misconceptions are quite a challenge to deal with. Keeping them from spreading makes sense. After all, Toyota has 2 major markets to deal with... the 15 states here and the sales over in Japan. Working toward clarity prior to expanding makes a lot of sense. After all, the first owners are only starting to report their first-year results now. It takes an entire annual cycle to properly represent real-world driving. The collection of that data cannot be accelerated. We must wait for it. But the reward is huge. Owner endorsements are far more influential than automaker promotion.
- 4-27-2013** **Discontinued?** A strange new thread started yesterday. It asked whether the slow progress of PHV rollout would cause it to be discontinued. That was an odd question, since each new generation caused the prior to be discontinued. Curious what was actually meant and the use of the word "*solution*" among the comments, I chimed in. After all, we know there will be something with a plug offered and we know how Toyota strives to keep Prius a product for middle-market. I posted: No one has said it was a solution. For that matter, there's a 100% chance of it being discontinued. Each generation gets progressively better. The next will offer a variety of improvements which may not necessarily resemble the prior. Heck, think about how expensive lithium-based batteries are still. Expecting better models with new or modified technology is quite realistic. Consider the state of the market, the diversity of consumers, the cycle timing, and the overall goals. What we currently have is on target. A few years from now, we'll see advancement of the system bringing us closer. The automotive industry is mimicking the computer industry now. There are on-going upgrades with changed priorities and different approaches.
- 4-28-2013** **10-Speed, Dual-Clutch.** Offering variety through product diversity is usually an excellent decision. In case one approach fails to catch on, you've got something else to rely upon still. There's a catch though, cost. In the case of VW last week, they announced their effort to offer a 10-speed, dual-clutch system for their diesel vehicles. How does increasing complexity to that extreme make sense? Adding more gears adds cost up front and warranty expenditures later. Some consumers have expressed displeasure when a vehicle shifts often. With 10 gears, there's clearly going to be more shifting. The expectation is the new system will deliver a 15-percent improvement in efficiency. That would equate to their latest 33 MPG combined estimate climbing to about 38 MPG... which still doesn't compete with a gas hybrid. Being competitive is important too.

- 4-30-2013** **Collision Avoidance.** It was one of those mornings, things could go either way. The highway merge was with a slow-poke just leaving the ramp and not a sole on the highway itself from behind. So as I got on the ramp, my pushing of the HV/EV button came with a thought. How fast could I accelerate while still within that first minute, where you get a substantial amount of electricity from the battery? That temporary state protects the engine from stress by limiting RPM. What the heck. I gave the system a substantial amount of pedal. Not having floored it, my curiosity was peaked. RPM went up to 1571. That's it. Speed jumped to 76 mph. Then, with the radio blasting and the front windows open, I heard an alert. The radar had automatically (collision avoidance is always active) detected danger and warned me of the approach. It saw the slow moving vehicle, but had no idea I was going to just shoot into the next lane. That was cool. The acceleration boost from the electricity was too.
- 4-30-2013** **Restoring EV.** I followed a thread on the big Prius forum for awhile. Some owners were saying they didn't see a recovery of EV miles resulting from their push of the HV/EV button. That electricity from the battery-pack used to ease engine warm-up is slowly restored as you drive. I've seen it many times now... and have recently paid closer attention to detail. That has indeed happened for me. In fact, the entire amount is accounted for prior to exiting the highway. That means the recharging which comes from the ramp is a bonus, making the charge-level a little higher than what I started with when the button was pushed. My guess it the small loss some have been seeing is the result of not driving far enough at a steady cruise, especially if the A/C is being used. It's nice having the option of choosing when to draw heavily from the battery-pack. Getting 50 MPG on the highway makes it a no-brain saving the electricity for suburb driving later instead.
- 5-01-2013** **Wow!** Today certainly got off to a wild start. I was beside myself when I read the daily blog with this title: *"2014 Chevy Volt: anticipation and mystery surrounds newest model."* It went on to say: *"The array of speculation surrounding the newest Volt varies from wild and imaginative rumor to more reasonable and realistic assumptions. The combination of passionate fans along with the technological possibilities associated with the car has created a platform for some interesting notions regarding the features and specifications of the upcoming vehicle..."* Funny thing is, not a peep has actually been said about next year's model, nothing at all. No one has mentioned anything whatsoever about a mid-cycle upgrade. In fact, it's been dead quiet ever since the disappointing reveal of the Cadillac ELR which will be coming at the very same time. It just plain does not make any sense... until you think about GM's approach of distracting sales results with something that will stir lots of attention. This is what sets GM apart from the other automakers. They stimulate hype. Substance can be totally absent, yet enthusiasts gobble it up anyway. It's where the *"over promise, under deliver"* reputation came from. Needless to say, the expectation is that Volt sales for April were well below that of GM's other offerings.

- 5-01-2013** **It Finally Happened.** Clearly, wanting to be constructive is no longer of any interest. The enthusiasts are in damage-control mode now. That daily blog for Volt has now officially become a venue for only posts that are cheerleading (positive) in nature. Nothing casting a shadow on the future of Volt is allowed anymore. Posts like that are rapidly deleted by the moderator. We wondered how long the status quo would last. It was 2012 year-end for the big GM forum. The blog took longer, mostly because many topics were no longer about Volt. Now, 2.5 years into sales, what else can be said? Someone brought up sales, with this snippet: "*undersold the Volt's credentials by quoting sales*". I was very curious how the numbers for last month, released just a few hours ago, would be responded to. Finding out the following reaction would be deleted within minutes was no surprise: Put in perspective, since automaker production & profit is very important, consider sales: 23,260 Cruze; 18,539 Malibu; 14,766 Impala; 1,478 Volt.
- 5-01-2013** **Debates.** Pretty much any discussion about a Volt purchase turns into a debate. It doesn't even matter where. Each venue ends up stirring plug-in attention. It's the unwillingness to consider the big picture that gets me crazy. That usually comes about from generalizations. On one particular thread today, it was: "*Why do PiP advocates always downrate the Volt and uprate the PiP in their assumptions.*" It didn't take long for someone to sound off saying they don't. Naturally, I joined in too: I'm another who doesn't. I use real-world data too, not assumptions. As for patterns, notice how Volt advocates include the tax-credit without concern about what happens when it expires? That's what sets the debates apart. There's the support in the here & now for an individual purchase being treated the same way as business diversity & profitability on the high-volume scale. They are fundamentally different. Volt holds its own on the individual level. On the business level, it has been a struggle with growing pressure. Acknowledging that would be progress. It will relieve some of the pressure, paving the way for GM to reconfigure Volt for it to appeal to the masses. Enthusiast admiration doesn't pay the bills. Do you want a praised niche or a ubiquitous vehicle?
- 5-01-2013** **Wearily Optimistic.** That's how a GM supporter stated their feelings about Volt, based on the comments made by the CEO yesterday. "*We're losing money on every one.*" was a key quote from the interview. It's confirmation that the expectation of the first generation being profitable didn't happen... and vindication of the "*too little, too slowly*" concern those well informed about Prius development & rollout had, as well as the automotive task-force in charge of GM's bankruptcy recovery. We wondered how the heck that bold claim from January 2010 could possibly be achieved with such a complex system depending upon such a large battery. Now, there's concern how this statement made yesterday will be achieved: "*This next generation, we think we can decrease the price on the order of \$7,000 to \$10,000.*" For that to be realistic, Volt will have to transform in a way some enthusiasts won't be too happy about. Becoming profitable is a very big deal. It requires compromise, something certain people have stood firmly against. Delivering a Volt that competes with GM's own inventory is required. That means it must take on attributes associated with their high-volume selling cars... Malibu, Impala, and Cruze. The longer it takes, the more difficult the challenge. MPG continues to improve for traditional vehicles. Making Volt competitive with regard to MPG after depletion increases cost. Then there's the issue of the tax-credit expiring. A reduction of \$7,500 simply holds the price at the level it is now. To make matters worse, people are growing used to paying more for gas. Time is very real problem.

- 5-02-2013 Pinched Gasket, Oil Everywhere.** I took my Prius in for a free oil-change & tire-rotation. Last time, they overfilled. The oil was 1/2-inch over the maximum mark. That's frustrating. I was obviously going to check this time. To my surprise, it was perfect, just a little under maximum! Cool. All but the last 10 minutes of my driving that day was on electricity. So, the engine had it pretty easy. But with the pouring rain coming down, I didn't notice anything... until the next morning. The garage had slight oil smell. I wanted to double-check the fill level anyway. The oil was at the minimum mark. Huh? I tried again. Same thing. Oh! Oh! Sure enough, I backed out of the garage to discover a large puddle of oil. Grrrrr. Fortunately, I wasn't stranded anywhere and the engine was just fine. Within about 20 minutes of calling the dealer, they had a mechanic on his hands & knees cleaning up the mess in my garage. We then jumped in the Prius and drove to the dealer. Only needing electricity to get there made that part really easy. Needless to say, they were extremely apologetic and very attentive. Gotta like that. I enjoyed getting to chat with the mechanic for awhile too. Long story short, the gasket (that rubber o-ring around the filter canister you replace each time) had been pinched. That allowed oil to squirt out. I lost almost all of it in just a matter of minutes. Be attentive of this when changing oil yourself. Also, be aware that the shop could mess up too. This is a very, very good reason to check the level afterward. Mistakes happen.
- 5-02-2013 Product Gap.** That's the ultimate source of the on-going conflict. Each month stirs the same old thing... some focus solely at plug-in vehicles, others consider Prius as a whole. We're lucky if a "*limited availability*" disclaimer is included. But then again, that's horribly vague. For April, the total sales of the Prius family in the United States came to 19,889. That should be enough to warrant a closer look as to why. Instead, the number is pushed aside and only PHV is discussed. It's overwhelming evident that the topic of cars for the typical consumer isn't being addressed. That's the product gap. Toyota offers something for the middle, those who want improved emissions & consumption but don't have a large budget to get that. Ford is striving to deliver the same thing. GM has a big problem in that category; there's nothing for consumers with such priorities to purchase. Fortunately, that's becoming rather obvious. The hope was the performance aspects of Volt would make it a product to fill that gap. We now have confirmation that it isn't. The choice of a model with a smaller battery-pack and/or one without a plug is clearly needed.
- 5-02-2013 Sales?** I liked answering this particular question: "*You keep saying that but what do the sales numbers tell you?*" 158,069 Toyota division. 19,889 Prius family. 12.6 % of their US sales in April were Prius. Demand remains steady and a decent chunk of traditional production has been replaced by Prius. As for Volt, it desperately needs to diversify. The current configuration falls well short of the mainstream minimum (5,000 per month). It alone (no battery-size choice, no hybrid-only version, no midsize model, etc.) is clearly not enough. Also, let's not overlook the reality that there are 8,612 new Volt listed as dealer inventory right now. That's roughly a 6-month supply unsold. There's also 272 used Volt listed. Lastly, consider what will happen with the 3-year leases begin to expire the end of this year. What does that tell you?

- 5-03-2013** **Who?** Through all the spin, that question persists. It's very important. I restated the significance with: When a technology matures, being capable of delivering high-volume profitable sales, business calls it "*mature*". Enthusiasts label that very same situation "*obsolete*". The usual trophy response is no surprise. We've dealt with it for years. They see affordability as a low priority, an engineering effort that will come later. In the meantime, they downplay that cost shortcoming and belittle the competition. Fortunately, that approach has proven to fall apart about 2.5 years into the rollout. At that point, the market begins to lose interest and moves on to something else... which is exactly what we're seeing with Volt now. That's why audience is so important. For sales to grow, it must appear to the masses. There's a disconnect between enthusiasts and middle-market. Evidence of this come from the raising-doubt tactic, when sales don't meet expectations. Looking at Prius, we see that the C and V models did not steal sales away from the regular model... despite countless claims that would happen. Instead, they reached out to a new variety of consumer. The plug-in model will do the same thing. The mature technology enables that growth. Looking at Volt, we don't know what the heck to expect. Hearing the next-generation goal of price \$7,000 to \$10,000 lower makes you wonder how it will actually be configured and what that will do to new & used sales in the meantime. Knowing that the tax-credit of \$7,500 will expire by then, there's still the question audience still remains. Who?
- 5-04-2013** **Expanded Rollout.** As nice as that sounds, there are some things to consider. So when I encountered this, I gave it some deep thought to make sure all the most recent elements were taken into account: "*You want to boost PiP sales? Sell them across the country!*" Knowing that PHV is actually just an upgrade option, the economies-of-scale and real-world data benefits still apply even with rollout limited. I pointed out the situation with: As much as I'd like to see more around here, that's not really a good idea yet. Just look at how many "*range*" discussions there are still. Only within the last 2 weeks have we been able to get a handle on effect winter has on capacity. Prior to that, there were only a handful of us (literally) that had any real-world data to share, and that data was extremely limited. Waiting for an entire annual cycle to pass is mandatory. There's no way to accelerate that collection process. Then there's the act of actually spreading the word. It means we couldn't realistically expect the next phase of rollout until Summer 2013, which would be complicated by end of model-year clearance. To further complicate matters, we have Volt, Leaf, Tesla, along with the C-Max and Fusion plug-ins all sending their own particular marketing messages to consumers. Sadly, waiting until Fall really is a sensible choice. In the meantime, we can establish some clarity about what to expect from a plug-in hybrid.

- 5-04-2013** **Sales Reaction.** It was summed up with: *"This does not bode well for the volt."* I contributed: Two-Mode followed the same path. It faded away at the 2.5 year mark, when sales fell far below expectations and there was no clear next step. The technology did actually work. But it was complicated, expensive, and wasn't as efficient as hoped. It ended up being abandoned. Being told things are fine and we only need to be patient is allowing that history to repeat. Rather than giving GM a kick in the right direction so it stands a chance of meeting ordinary consumer needs, there's an effort to prevent conclusions from ever being drawn in discussions. Wanting success (profitable high-volume sales) means being willing to adjust. Not making an effort to try to align with market priorities is a red flag. Some simply didn't care. They preferred the gamble on hope. Standing firm with the range & horsepower regardless of cost was a dead giveaway of trouble to come. Now, sales are a struggle and there's no alternative available.
- 5-05-2013** **Abandonment.** Sometimes, there are a few who just don't get it: *"The two-mode hasn't been abandoned."* It stems from all the polarization, resulting in a perspective of absolutes. Not allowing for anything between success & failure contributes to all kinds of problems. Imagine if that was the way children were graded in school. No more A, B, C, or D. Either you did great or you did horrible. Seeking out opportunity to improve should be obvious. Though, that does require taking what you learned and leaving the rest behind... which is abandonment. Scary, eh? No. Anywho, this is how I replied: As for Volt, it won't be abandoned either. What has been is the *"game changer"* motto. Volt supporters commonly argue *"failure"* and *"cancel"* to distract from the goal of this generation becoming a mainstream vehicle. They'll bring up Prius as a change of focus and keep conclusions from being drawn. The purpose is to prevent the pattern from being recognized. Reality is, Volt enthusiasts are going to be disappointed with the next generation. GM will come to terms with what is actually needed and transform accordingly. The required balance will finally happen. If it doesn't, Volt will be one of those vehicles people admire, but rarely ever actually buy. 5,000 sales per month is quite a challenge... and only the minimum criteria. To have a vehicle become a source for business-sustaining profit, quite a few more must be purchased. Like Two-Mode, we now see the current approach is not capable of achieving that. Sales at the 2.5 year mark make that overwhelmingly clear.
- 5-05-2013** **Diesel Desperation.** When you don't have any data to support a claim, it's a bad sign. When you make a generalization you know isn't true, that's desperation. It's amazing how many times this same assertion comes up: *"The diesel does well in the city and much better than the hybrid on the highway. Don't go by EPA ratings as the hybrid ratings are extremely optimistic and the diesel ratings are very pessimistic."* Reading the forums, it's easy to see that numbers are all over the place. What basis could you confirm findings anyway? After all, what does *"hybrid"* actually refer to? Notice all the adjectives? How do you quantify *"well"* and *"better"* and *"extremely"*? The complete lack of effort is a dead giveaway the comment is emotional, not scientific. Fact is, I haven't encountered a diesel able to do 50 MPG in both city & highway. Mine can, without plugged supplied electricity. And of course, taking advantage of the battery-pack, there's no contest. My overall average for last year was 77 MPG. The emission rating of PZEV is another fact to consider. The diesel vehicle doesn't achieve that clean of a rating... not even close.

- 5-06-2013** **Priority Change, exposed.** Remember the "*Who is the market for Volt?*" question? The outcome to asking that question yet again (Google shows I already did 43 times on that website) was a link clearly stating it is Leaf, Prius, Prius PHV, and Fusion hybrid. That seemed rather odd. Normally, nothing of substance ever results. Checking the publication-date, it was obvious what had happened. GM's strategy isn't the same anymore. All that vague "*game changer*" spin had caused a new plan to finally emerge. Originally, we were led to believe Volt was the future of the automotive industry, that the first-generation model would take the market by storm... easily achieving the 60,000 annual sales rate by the end of the second year of sales. Since that obviously wasn't going to happen, and apparently not even feeling confident about the 45,000 revision either, focus was directed outwardly at the direct competition instead. Notice how shortsighted that was. The plug-in hybrids from Ford weren't even mentioned. Tesla was outright dismissed too. I got a kick out of how the new plan was exposed. It was intended as a rebuttal. I used to confirm priorities changed.
- 5-06-2013** **Priority Change, response.** Hearing today that our government will finally be selling back the remaining 300 million shares of GM stock (at a substantial loss), it was worthwhile to poke the bear. I responded to this: "*Why do you suppose these guys come here and go through this schtick?*" The Volt owner's distaste for Prius is blatant, referring to it as the "*P-word*", that his effort to prevent discussions about it actually causes people to do exactly the opposite. I used it as an opportunity to post: Since we answer that question on a regular basis, why keep asking? Notice that the following has absolutely nothing to do with the "*P-word*", yet it was treated as if it did: "*Wasn't the market for Volt those who would otherwise purchase a GM car like Malibu, Impala, or Cruze?*" We know the answer to that too. The first generation Volt was intended to become a mainstream vehicle. That's why annual production capacity of 60,000 was discussed so often and the ability to ramp up to 120,000 mentioned. Now well into year 3 of production, that hope has been abandoned in favor of a second generation Volt reconfigured to attract the buyers it intended to reach originally. Do we care that the "*too little, too slowly*" concern came true? Not really, unless the next offering doesn't meet the needs of middle-market either. Not understanding the reason why reinforces the posting, until the true problem is finally acknowledged. GM is competing with itself. That should be overwhelming clear at this point. Strong interest in their traditional offerings is pushing Volt out of the minds of consumers. They see it at the dealer as a curiosity, then end up buying a GM car instead.
- 5-06-2013** **Priority Change, attention.** The other reason GM is getting so much attention today is that all of the eAssist cars built before December 2012 were just recalled. That's 38,197 of their second-generation BAS hybrid... a good reason to distract with talk of the second-generation Volt instead. Oddly, if it puts the design on the right track and changes priority to actually be something for the mainstream, that type of greenwashing is acceptable. After all, no supporter wants to admit having made a fundamental escape. Providing them with an avenue of escape is a sensible. They switch focus to the future by allowing current problems to pass with argument. It does make you wonder how far the system changes will go. GM is not afraid to rename a technology to make it appear to be new. That's misleading, but most consumers only focus on details in present anyway. The point is to get the automaker back on track. And though a terrible approach, it could still work.

- 5-06-2013** **Priority Change, analogy.** I really enjoyed reading: *"This reminds me of the shop that added toppings to their hamburgers at no cost. It still was a lousy hamburger! I prefer steak, even if it cost more. Same for the Volt against the pip. Toyota added a plug to the prius but it is still a lousy car!"* References like that often backfire. In this case, it most definitely did. All along, my point has been that mainstream consumers are ordinary people who don't have the same purchase criteria as enthusiasts, who are willing to pay much more for their vehicle. Of course, my drive to the coffeeshop today without any EV available, delivered 62 MPG. On the way back, it was 64 MPG. My overall average for the day, recharging at home at work and driving a total of 51 miles, was 114 MPG. I could have pointed out how un-lousy all that was, but didn't bother. Instead, I responded with this: Thanks for the analogy. It perfectly fits the situation. Most of GM customers only buy hamburgers. They aren't going to purchase a steak, no matter how delicious it is. Why Volt supporters still don't accept that is baffling. Fortunately, GM seems to have recognized the priority difference and will be adjusting their menu accordingly. Enjoy your steak. The rest of us will be eating hamburgers, with plenty of money left over for fries, a frosty drink, and dessert.
- 5-07-2013** **Priority Change, reality.** It came crashing down yesterday. They didn't want to address goals. They didn't want to discuss need. They didn't want to face reality. We're returning back to the days of unsubstantiated hope, where being realistic wasn't required. GM will somehow deliver a significantly less expensive Volt without any decontenting. As if by magic, the current problems will be solved and the other automakers won't be able to match. Bring up the fact that the competition was actually GM's own traditional vehicles infuriated. Their anger was quite clear. The challenge of actual change was simply too much; instead, they chose to stick with bragging rights. It's an unfortunate position. Rather than supporting the automaker by making the tough decisions easier, they played the smug card. Predicting how that will play out is trivial. We've seen this very same situation unfold several times now. The signs are obvious. Yet, they don't see them. Priority change is a sign of weakness, an admission of failure. The decision is to just hope for the best.

- 5-08-2013** **Television Commercials.** The advertising of C-Max is getting annoying. It's not the fact that there's always a comparison to the v model of Prius. In fact, that's quite welcome. Having Ford indirectly point out that Toyota has more than one Prius size available is nice. The trouble comes from "*47 MPG Combined*" message. Knowing how much of a stretch that is, the pending lawsuit, and the misleading EPA numbers in general, you'd hope they wouldn't put emphasis that. Setting more realistic expectations is better for everyone. Heck, they could even just safely claim the MPG is better than Prius v. But to flaunt the value like that, it could do more harm than good. After all, such mismatches are why the 2008 revisions were introduced in the first place. Unfortunately, the measurement adjustments didn't go far enough. Besides the high-speed and stop & slow driving conditions not matching real-world well, the fuel used for testing is pure gasoline. Very few use that anymore. Almost everyone is using E10 now. So no matter what you do, your results will always be lower. As a basis of comparison, the numbers still work. But consumers are using them for that; they believe those big numbers represent an expectation... even though the smaller numbers and the including explanation clearly state they should not be. So, it's easy to imagine how little information is actually conveyed from a 30-second television commercial. Of course, that is the nature of promoting a product. Marketing doesn't usually have much educational value. It's used to draw attention.
- 5-09-2013** **Monthly Stir.** This time, it was drawn out. Bad monthly sales results stir lots of online debate. We got the usual flurry of excuses from Volt supporters attempting to draw parallels to early Prius history. You know how it goes. They only sight the bits of history they like and dismiss anything you attempt to remind them of. That keeps the posts flying for awhile, then activity abruptly ends. The inclusion of what's now being referred to as the "*\$10,000 price drop*" got far more attention than it deserved. There was nothing of any substance. It was just like in the past when claims of "*nicely under \$30,000*" were gleefully tossed around. Not having anything to support that goal actually being achieved should be worrisome; instead, they celebrate. The hope for 50 MPG and a 40-mile range were looked forward to the same way. It's the "*over promise, under deliver*" playing out again, right before our eyes. Yet, they don't see it. They believe it's all quite realistic and those saying otherwise are just attempting to undermine that success. Factors like cost are simply dismissed. Examples of the past are considered unpatriotic. The attitude is quite troubling. Lessons of prior shortcomings were clearly not learned. Rather than setting reasonable expectations, it's the same old hype all over again. Unfortunately, the monthly stir makes it even worse. Ahhh! Here we go again.

- 5-10-2013** **EV up & down, seasonal effect.** How many threads have you encountered over the WINTER complaining about EV range dropping? Only a handful of owners last year had the opportunity to experience the climb SPRING brings. As a result, there was a lot of frustration from many and very little real-world data to work with. To make matters worse, Prius PHV is a plug-in hybrid, not an EV. So when we'd try to get MPG information from a new owner absolutely convinced there was something wrong with their car, they'd get defensive saying we weren't taking their range concerns seriously. Now, we have the real-world data available. My own EV estimate & range has increased as a result of the seasons changing. Winter literally ended just last week (bad snow storms). Spring has sprung here. The last 3 days, the estimate has risen from 11.3 to 11.6 to 12.1 miles. The resulting range has increased as well. Not as consistently matched, but range is well above the 9 miles of EV that I experienced during Winter. The previous three days have been 14.7 and 14.2 and 14.1 miles. Spring has clearly ushered in much better results. It makes me wonder how those who had complained will now respond. Getting an endorsement from them would be great. We need owners who closely observed the seasonal effect.
- 5-11-2013** **Smug.** Some never learn, holding firm with their perspective. As a result, the same missteps are repeated over and over again. Thankfully, there are very few of such individuals now. Here's one, who made this comment yesterday about Toyota: "*Their pathetic attempt at a PHEV, that only gets minuscule EV miles, is pointless.*" Calling the choice of limiting battery-capacity to an affordable size that tells us the product-gap GM has will continue to remain unfilled. This particular Volt owner simply doesn't care though. Those adjectives make that overwhelmingly clear. You don't say "*pathetic*" and "*minuscule*" and "*pointless*" without being smug. They are meant to insult & belittle. Using them is no surprise. Car enthusiasts magazines wouldn't be caught dead endorsing a family sedan back in the days when Prius was first rolled out. All of them, the entire category, was looked upon with the same smug. They simply weren't interested in middle-market vehicles. This is why Volt is so difficult to promote. They treat it as a niche but want it to be mainstream. That's a direct conflict. Those enthusiasts are their own worst enemy. Endorsements much come from ordinary vehicle buyers instead. That's why I provide so much real-world data, complete with logs, photos, and video. Seeing all that, people can decide for themselves if my driving resembles their own. They can make judgment without any influencing adjectives. It's only those who are desperate that choose to disparage in such a way.

5-11-2013 **Up To The Chore.** Remember that saga a decade ago? There was a debate on a single thread that went on and on and on. It was the status quo (anti-hybrid) fighting Prius, attempting to prove it wasn't up to the chore. After nearly 2 years of failing to do so, the moderator finally declared that it was. The same type of thing has been going on for Volt; however, it's proving not to be. After years of excuses, the most important factor still hasn't materialized. Sales are just stumbling along. Without consumer support, what's the point? The goal of replacing traditional production with the new technology hasn't been achieved. The annual quantities were not met. Volt is really the second-generation design of Two-Mode. Looking closely at the system, it's pretty easy to see how GM took what they learned from the first and implemented improvements. Admitting that was painful for enthusiasts, since it meant confessing that the effort to compete has actually been going on for a very long time. But now that details of the next Volt are emerging, it's quite evident the design is really third-generation Two-Mode. In other words, there's another redesign on the way. GM will take what this rollout taught and use it to deliver a system better matched to market need. Volt wasn't up to the chore. This is why no matter what is said about GM's own product-line and the gap they are attempting to address, Prius is always brought up as a rebuttal by Volt enthusiasts. When nothing is even said about Toyota, that success is mentioned anyway. It's quite an endorsement for having reached the mainstream... overwhelming proof that subsequent versions from GM will be aligned to middle-market priorities. The current attempt to entice & convince didn't work. Too few were willing to pay the premium to satisfy want; instead, there will be a shift to focus on need. It's about dang time.

5-12-2013 **Facing Reality.** Middle-Market consumers don't have money available to purchase a Tesla. If they did, the automotive industry wouldn't face such a big struggle to make high-efficiency technology affordable. This is why the example of Prius is so often discussed. Toyota's effort to deliver a plug-in hybrid using only 4.4 kWh of battery met the objective. Going from 35 to 75 MPG, driving the standard annual distance of 15,000 miles, you'd use 229 gallons less of gas. At \$3.89 per gallon, that's \$891. Using my own real-world data, including recharging losses, that comes to about \$206 worth of electricity at 0.12 per kWh. The difference is roughly \$685 per year. That easily covers the goal making the system cost-competitive with traditional vehicles. As price drops for lithium battery-packs and the price rises for gas, the appeal of 35 MPG fades. GM is now painfully aware of how important that affordability aspect of a vehicle really is. They thought the thrill of EV driving alone would compel mainstream buyers to spend more. That didn't happen. The sacrifices made for range & power weren't enough. Even the explanation of savings hasn't worked. There's quite a challenge being faced and we are stuck waiting several more years for the next attempt to attract the masses. In the meantime, people are just purchasing 35 MPG vehicles with the intent of driving them for the next decade. This is what the *"too little, too slowly"* concern was all about. The *"we'll find a way to lower costs later"* approach is clearly not working. The design must address cost right from the start, initially rolling out with an affordable configuration, leaving the opportunity for capacity increase later when prices drop.

- 5-13-2013** **What's Next, part 1?** Reading that daily blog for Volt as a lurker now, rather than an active participant, is interesting. Like on the big GM forum, discussion depends heavily on enthusiast spin, due to lack of new content. They'd provoke those who supported something other than the status quo to keep threads from dying out entirely. When that begins to fail, they speculate about the future. Attempts in the past ended up stirring unfounded hope, a sense of triumph without actually having accomplished anything there even being support detail. That's what got me blogging about Volt so much in the first place. Enthusiasts would bet the farm on a long-shot. Despite terrible odds, they'd pounce on anyone who questioned their judgment. Needless to say, I certainly don't want to get involved with that again... especially now, with so much real-world data available. Though, I am curious what they have to say. Watching mistakes repeat is quite educational.
- 5-13-2013** **What's Next, part 2?** Despite today's topic asking the question of what's next, no one brought up Volt's own past. Having come short on so many goals, validating the vaporware predication, learning from the past is pretty much taboo. It's simply not talked about. They go to great lengths to avoid discussing it. We know that Volt came about from Two-Mode having many shortcomings of its own. Ironically, the heavily promoted "in transmission" design simplicity (intended to make adaptation into other vehicles easy) ended up far more complex than ever imagined. So, GM decided to abandon the approach. Rather than redesign, start fresh. It was a sensible move. Too bad cost wasn't a priority. They ended up with an expensive system that was still inefficient. Needless to say, GM is choosing to abandon again. That's great; however, enthusiasts are unwilling to acknowledge the steps actually needed to achieve that. The reality that Volt will become quite different isn't welcome news.
- 5-13-2013** **What's Next, part 3?** Watching Prius prevail yet another rollout cycle was obviously rough for those who genuinely thought there was a chance of catching up. Unfortunately, rather than wanting to participate as partners, they became combative competitors. We knew that wouldn't end up well. Since the very beginning, it was made quite clear that the actual competition was traditional vehicles. They didn't want to hear that though. Finding out firsthand that was indeed the case turned out to be quite a painful lesson to be learned. The Volt enthusiasts simply did not want to listen. The idea of GM competing from within seemed too absurd. The advice was dismissed as attempts to promote Prius... even though Prius was clearly at the forefront of the battle against traditional vehicles. Now, they know. GM's own product-line, cars like Malibu, Impala, and Cruze, are attracting consumers away from Volt. The evidence is overwhelming. The numbers easily confirm it. Loyal buyers aren't interested in such an expensive plug-in hybrid.

- 5-13-2013** **What's Next, part 4?** Having to wait very long times for Prius advances is always worth it, but what happens in the meantime certainly is a test of patience. This Fall, rollout of Prius PHV will proceed to the other states. That's what is next for Toyota. That's what so many have been waiting for. Of course, those interested have also been waiting for data. Getting that takes time. We all knew it would require an entire year of collecting. Each season must be experienced... and posted about in great detail online. Only now are we seeing the results of that. First anniversaries are being celebrated. Of course, even those owners must wait until Spring concludes. You cannot judge midseason either. All 4 must be consecutively observed in full. Then, proper conclusions can be made and stories compared with others. There are so many variables involved, the 12-month minimum is a necessity... which is why so much emphasis was placed on the second year for Volt. Now being halfway through the third, results speak for themselves.
- 5-13-2013** **What's Next, part 5?** Basically, we see both GM and Volt enthusiasts stepping away from the spotlight. Tesla is shining brighter than ever. It's quite remarkable how sales & stock are so strong now. Heck, I have even seen the Model S twice recently. I see Nissan Leaf on a regular basis too. To my surprise, even two C-Max Energi have caught my eye already. When Prius PHV joins the mix, it will be a joyous occasion. It's been quite lonely. But I certainly have enjoyed gathering so much real-world data in the meantime. We'll see both the variety & quantity grow. Eventually, the Honda Accord plug-in should make an appearance around here too. That's not expected until after the hybrid model gets rolled out in early Summer. The outlook is definitely changing. With Volt having reeked so much havoc, this new stage certainly is a welcome one. There was much worry that the rhetoric would damage the market. Thankfully, not much harm seems to have been done.
- 5-14-2013** **Chaos.** It's like watching a train wreck. You cannot help but to be fascinated with the disaster GM created for itself. We already knew Volt was a mess, a collection of misplaced priorities. Enthusiasts love it. Mainstream consumers aren't interested. The next plug-in hybrid to be rolled out by GM will be the Cadillac ELR. Turns out though, it won't be identified "Voltec" technology. In fact, there's already a marketing effort underway to make it clear that ELR is not a variant of Volt. Talking about mixed messages. What the heck is it then? Of course, with the CEO of GM having recently confirmed that Volt is not profitable, what difference does it make? Knowing money is lost on each one, it's a good bet that GM production won't grow. It was a declaration of niche, a clear statement that the next generation will be quite different. Think about how much will have to change for that \$7,000 to \$10,000 price drop to be achieved. The change will actually have to be more, to rework cost from being a loss to profit. Accomplishing so much, in so little time, without the expectation of the design or configuration or operation being fundamentally altered would truly be a miracle. That's not realistic... and the enthusiasts can no longer deny it... hence the chaos. That have no clue what to endorse anymore. Today's daily blog was an amazing array of uncertainty. This is why I lurk now. There's no need to post. Their failure to state goals has left without a clear purpose. Conflicts from within is a big problem, exactly as they had been warned about... but chose to dismiss.

- 5-15-2013** **\$4.19 Per Gallon.** One rather thought-provoking sign of the economy recovering is the price of gas shooting up. That reason typically is stronger demand. Knowing that the DOW has exceeded an all-time record high and continues to climb tends to support that as well. I certainly wasn't expecting a spike like \$4.19 though. It may very well be the highest I've ever actually seen it. Since our oil comes from Canada and the ethanol is produced local, prices are usually lower than just about everywhere else in the country. Despite that, we still have a surprising number of Prius on the roads around here. Seeing gas expensive now will add to it. I get people driving by giving me the thumbs-up sign already. I can't imagine when more discover the plug-in model. It will be like back in the good-old-days, when I'd get stopped in the parking lot to answer a fluffy of questions from someone who was curious about Prius. PHV could end up proving to be timed perfectly. Summer usually keeps the price of gas high. Building up demand for the national rollout would be great.
- 5-16-2013** **Much Ado.** For awhile there, the most common response to addressing business need was asking a rhetorical question. That's when you know they do actually see the problem but simply don't what to acknowledge it. Studying the market worldwide, it becomes easier to see. For example, Toyota won't release the plug-in model of Prius until 2016 in Australia. That information to easy spin. Rather than point out how the market there has always experienced a delay or pointing out that they are just waiting to rollout with the next generation model, those hoping to mislead & undermine claim the wait is due to sales elsewhere. Another example is looking at what purchase priorities are in other countries. Here in the United States, there is still an obsession with speed & power. That allows focus to dwell on average price, rather than middle-market price. There's a big difference. They draw you into arguments. They claim all the huff is much ado about nothing, that we just need to be patient and things will just naturally work out. Preventing conclusions from being drawn is a big concern when things aren't going well. It's an effort to stall. They know a business decisions must be made. The next step cannot be based on just hope.
- 5-17-2013** **\$4.39 Per Gallon.** Seeing the price of gas continue to rise was quite unexpected. Fortunately, I'm focusing more on plug-in observations. Actual EV is holding up well. 14.6 miles yesterday and 14.7 miles today. Estimate EV has climbed to 12.6 miles. So far with this tank, I'm at 532 miles with an average of 115 MPG. The driving-ratio is 53% EV and 47% HV. That's good stuff. It excites me to see such great results from a small battery-pack. Being able to squeeze out efficiency like that with 4.4 kWh from just ordinary driving is very encouraging. It's easy to scale a system up. Adding more capacity doesn't take much effort. The other way around doesn't work the same way. A system like Volt is heavily dependent upon the battery being that much larger. That's because it wasn't designed to blend well. Using its engine is much less efficient than with Prius. That means reaching mainstream consumers is a much greater challenge. With an abundance of time available, no big deal. With the price of gas already at \$4.39 in an area of the country where is it normally much less, that's a big problem. Think about how much a gallon costs on the West Coast. Solutions that are both high-volume & profitable are needed today, not years from now.

- 5-18-2013** **Desperate.** A long article from a Texas publication concluded with this paragraph: "*What did we buy to replace the 2003 Prius? A new Honda Fit, Sport model. It doesn't get the 40-plus miles per gallon of a hybrid, but at \$20,000 it cost about \$10,000 less than most hybrids. It's also fun to drive, has great visibility and very flexible seating/storage. We figure the \$10,000 difference will buy a lot of gasoline.*" Withholding vital information is just plain wrong. I don't know how else to describe such blatant misleading. That type of greenwashing is shameful. The base price of c model of Prius is \$19,080. That's less than his \$20,000 choice and delivers better efficiency. The disturbing part though is it was presented in a misleading way. This was the title: "*Hybrid went the distance, and then some*". From that, you get the impression it was the sharing of a positive ownership experience with along with an endorsement. Instead, it ended up being a recommendation not to purchase a hybrid. Sadly, we're likely to see more of that type of desperation to keep traditional owners from switching to hybrids. The price of gas is influencing what people say and do.
- 5-18-2013** **Arguments.** Reading quotes like this fascinates: "*There are two die-hard Prius owners who frequent the home page main article section that will argue with anyone they can that the Prius and the PiP are far better than the Volt. The rest of the world simply does not agree with them.*" Knowing that isn't true, what is the appropriate response? They just plain don't care. The actual arguments have been that GM must alter Volt to become attract sales from ordinary people. Even when Prius is never mentioned, that's what they hear anyway. The idea of offering a model of Volt with a smaller battery-pack and a more efficient engine for blending horrifies them. It's the typical enthusiast reaction. They fear what they cherish will vanish. The idea of diversification scares them. So, they argue against those who appear to be fighting them... basically, lashing out at anything they can to prevent change. Their perspective actually makes sense too. From their point-of-view, engineering is all that matters. They have no idea how big of a role economic or accounting factors actually play.
- 5-19-2013** **Drawing Conclusions.** Now being 2.5 years into rollout, it is appropriate to draw some conclusions. Too bad if it angers a few individuals. That next step won't be successful unless you look back at the previous thoroughly. Buy patterns is the topic today. A constructive look at the numbers isn't encouraging. Hopefully, we'll actually get some decent discussion. Wanting to see the next step taken is a good reason to allow the past be analyzed. No more pointless resistance would be great. I stated the situation this way: Autotrader has 293 USED and 7,808 NEW listed. Cars has 259 USED and 9,294 NEW listed. That's roughly a 5-month inventory of new and a reason for concern as used leases begin to expire. Volt enthusiasts tell us to continue to be patient, wait for the next generation... which should be offer system improvements and much lower cost. Doesn't that tell us that new sales will be flat in the meantime and resale values will later plummet? It's quite obvious that GM needs to diversify. The thought that power & speed would stimulate strong sales clearly didn't work. Those traits didn't appeal to the mainstream enough to justify the purchase. We hear from countless scores all saying price must be lower. The best-case scenario has been stated as \$10,000 less. Taking into account the \$7,500 tax-credit won't be available then, that isn't promising. Knowing history, expecting best-case isn't realistic. Also, let's not forget the climbing price of gas and the upcoming efficiency & emissions regulations. As automakers add more hybrid & plug-in choices and pressure from traditional continues to grow, what should we expect?

- 5-20-2013** **Finally.** Remember the IPO of GM way back in 2010? The government selling back those remaining 300 millions shares of stock helped to push the market over that original \$33 price today. The news made headlines on quite a number of publications. Investors liked hearing that. Good thing too. The uncertainty left people hesitant. There had been much disappointment along the way too. That concern of "*too little, too slowly*" came true. The money lost was officially considered a bailout. The automaker can finally move on now though. We're all better off with it being over. Of course, there is still the mess of what step to take next, but financial recovery is done. The struggle to remain competitive will get proper attention now... at least we hope. This year will be pivotal. With other automakers already leading the way, their "*game changer*" plan will obviously need to be revised. It took far longer than many expected. We're glad some type of resolution happened. Let's take a constructive look at 2014 now.
- 5-20-2013** **Lithium Batteries.** The other big news today, this morning before the stock-market opened, was a reassertion that Toyota will be expanding their use of lithium based batteries. That's a big deal. In my Prius PHV, even without plugging it in, efficiency is higher compared to the regular model... despite the additional 123 pounds. That primarily comes from the Li-Ion pack being able to capture & deliver more power. That means the regular model will see an improvement by simply switching from the current NiMH pack. The report today was that the production will soon be increased six-fold. That translates to 200,000 units per year. It's hard to know exactly what that means in terms of usage & availability, but any type of expansion is good. Currently, only the plug-in model and the 7-seat model use lithium. What else will. Perhaps there will be a big PHV push later. After all, economy-of-scale often results in cost reduction. Having a design which doesn't compromise cargo area sets Prius apart from the other plug-in choices. A drop in price would stir more interest. That's a good thing when reaching the mainstream is a major priority.
- 5-21-2013** **Best Tank.** I've been watching the MPG climb. It's been around 120 for several days now. That's fantastic! Of course, this morning's commute was somewhat unpleasant. The temperature went from the upper-50's and lower-60's we had been enjoying lately to just 46°F. Fortunately, that didn't affect the average MPG much. With nearly 800 miles on this current tank, I'm still going to see a jump in lifetime MPG anyway. Watching the value drop over Winter was unpleasant. I know, complaining about efficiency at 75 MPG is a bit on the absurd side. But then again, this could have been my best tank ever. Seeing the efficiency that high without doing anything special is really exciting. I'm just driving it. I even let the battery cold-soak before plugging in again. At work, that's minimum of 4 hours. At home, it's a wait of at least 1.5 hours. That allows the chemicals to rest, which contributing to longevity. Anywho, I'll be filling up the end of the week. I'm looking forward to it.

- 5-22-2013** **Coffee Talk.** Once a year, I met with a friend from the West Coast. With his extensive automotive background and my interest in Prius, we usually talk about that as the coffeeshop. In the past, lots of it involved the drama known as GM. It was like watching a train wreck. You're horrified that anything could be so bad. But now that the disaster has long passed and there is no hope for current efforts, we simply talked about other stuff instead. 2.5 years into Volt sales, it's quite clear executive decisions made a mess of what could have been a contender. Consumers certainly haven't endorsed it as a "*game changer*" and just 3 weeks ago the CEO stated each was losing money. Not being profitable means not much will happen until the next-generation rollout. In the meantime, I'm having a blast with my plug-in Prius and we're looking forward to availability in the other 35 states coming this Fall.
- 5-23-2013** **Range Anxiety.** Nothing is being said about it anymore. At one point, GM was about to bet the farm on "*range anxiety*", to the point of protecting the slogan with a trademark. It was the fundamental selling-point for Volt. That's why there was no intention of selling an EV in the United States. The idea of an electric-only vehicle was preposterous. Nissan was laughed at. Since then, reality has set in. Not only has Volt lost the spotlight for GM, it's to the point where pricing is competitive right from the start. Chevy Spark EV is getting all the attention now. It will roughly \$2,000 less than Leaf. Of course, it's a smaller car. But at \$28,305 before the \$7,500 federal tax-credit, that's definitely going to fall into the affordable category. Long story short, the philosophy & approach GM took in the past has completely fallen apart. It's an effort to diversify and pave the way for a realistic model of Volt later, not the trophy vehicle we currently have. Change is difficult. But steps are now being taken.
- 5-24-2013** **Next-Gen Prius.** A spy photo surfaced on the internet today. It was just current model with camouflage, but that didn't stop people from speculating what it concealed. Realistically, testing out new design, operation, and features this early is to be expected. That's not a big deal. All automakers take their prototypes out into real-world conditions for detailed verification. Testing the major revisions is complete and they are now in the tweaking stage. That sure excited some people. Needless to say, on the big GM forum, it provided an opportunity to slander Toyota. Nothing constructive whatsoever came out of that. It was just a sad stream of insults. But now with Volt rarely being discussed there anymore, that type of reaction was to be expected. Comments posted about this mule sighting were quite sensible on the general automotive blogs, sprinkled with ugly comments, of course. There's no getting around the "*judging a book by its cover*" problem. Realistically, it doesn't matter. We still have another year before any information will actually be revealed. The thought is the next generation Prius will be a 2015 model. So, waiting is still involved.

- 5-25-2013** **Too Small.** Another Volt owner gave into the reality that the seating room in back is too small. This one wouldn't be caught dead in a Prius, so naturally the switch was to a C-Max instead. Oddly, it was just the regular model rather than the plug-in. But then again, we do know that Volt leases will begin to expire later this year. Most of them were for just \$199 per month. Finding another deal that low isn't at all realistic. There is a growing chorus of those considering the rear legroom and the lack of a middle seat a problem for Volt. That's a very good sign. It shows a sense of acknowledgement that consumer priorities are different from what GM delivered. Realigning to better match is a win for everyone. It's really unfortunate it took so long. But then again, it should have been obvious that a compact couldn't compete directly with midsize cars.
- 5-26-2013** **Receiver Hitch.** The strap-on bike-rack has worked great on my Iconic, 2010, and PHV model Prius. Each functioned flawlessly on many long vacation trips with 3 bikes on that high-adjustable plastic rack on back. There was never any concern about stability or spoiler contact. The ability to easily disassemble it for in-car storage/transport could be handy at some point too, especially since my group of biking friends is growing and we'll need a second car. That being said, I just bought a 4-bike hitch-rack on Friday, to go with the hitch I ordered on Thursday. Having that larger capacity with the ability to lock was a nice upgrade. Back with my Classic Prius, I had a hitch rack. It was convenient, but the rack itself was quite primitive compared to what's available nowadays, if willing to pay... which should be a no-brainer for exercise/recreation equipment I'll have for the next decade or two... especially with early-season discounts. It will be nice being able to easily load the bikes & cargo at the same time, since the hatch can open & close with the hitch. That's obviously not the case when it's physically resting on the bumper and pulled up against the glass with the strap-on type. Transporting 4 people means lots of cargo to carry inside. So, that's handy. I'm really excited about the increased opportunity a receiver hitch offers.
- 5-27-2013** **2014 Outlook.** With the 2014 Car & Truck guide from GM now available and the size of unsold 2013 Volt inventory roughly 5-months in quantity, the outlook isn't good. We know the design isn't profitable and there are no changes coming for next year. Adding to that the reality of leases expiring, causing a used inventory of low-mileage Volts to enter the market without tax-credit assistance, there's nothing supporters can say anymore. Enthusiasts still belittle & insult, but they aren't constructive and disagreement with supporters is rather obvious. It's quite a mess... the very thing we had concerned about. That "*too little, too slowly*" is overwhelmingly confirmed at this point. Just like with Two-Mode, sales proved to be the ultimate decider of how success or failure. On the Volt forum, the situation is described as a "*fizzle*". Rather than being a game-changer and leading the industry, it is struggling to survive. On the big GM forum, the sentiment is marketing made a terrible mistake with its push of Volt as an EV with a backup generator. Publicity should have called it a "*reinvented hybrid*" instead. After all, having an engine and blending at times very much makes Volt a hybrid. Needless to say, sales are expected to remain well below the mainstream minimum of 5,000 per month.

- 5-27-2013 **Battery Longevity.** The topic came up today. It's different with Prius PHV than electric-only vehicles. With them, there's no engine to protect the system and you want to utilize maximum capacity. You won't see that from a plug-in hybrid. They have a design capable of protecting & prolonging. It gets confusing those. Operation of electric-only vehicles isn't well understood by most people. They make assumptions. That in itself is difficult to deal with. Translating how that differs in a plug-in hybrid becomes quite a challenge, especially when they aren't aware of what to look for. Highlighting the basics is what we're attempting to do now.
- 5-27-2013 **Battery Longevity, HEAT** is the biggest enemy, as many have already sounded off about. Obviously, parking in a situation that will cook the car should be avoided. I face the windshield toward the sun and place a reflective insulated shade in the window. Cracking the windows is also a sensible idea. While driving, take advantage of the A/C. It's remarkably efficient. When you're comfortable, the battery will be too. Remember, it uses cabin air to cool itself. Heat contributes to aging.
- 5-27-2013 **Battery Longevity, DRAW RATE** is another very helpful longevity suggestion pointed out. That's good advice that's easy to overlook. You should keep the draw from the battery low. Seeing the bar on the Eco-Meter higher means you're putting greater demand on the battery. Speed doesn't matter either. 60 mph is no big deal if you're only using a small amount of power. Acceleration from a stop is the heavy-hitter. Avoid that by taking advantage of the engine. Don't be afraid to press the pedal hard. The engine will shut back off surprisingly after it's been warmed up.
- 5-27-2013 **Battery Longevity, COLD SOAK** is something you can do to prolong battery-life as well. A battery ages from stress of use, that includes the charging process, not just usage. Toyota made this easy by providing a recharge timer. Many owners don't realize the benefit the delay provides though. Allowing the chemicals within to cool & rest after use is what "*cold soak*" refers to. If you will be plugging in immediately after use, use EV upfront and finish off your driving in HV mode. That way, the battery is only used lightly prior to recharging.
- 5-27-2013 **Battery Longevity, CHARGE LEVEL** is an aspect of battery-life you don't have to be concerned about. 100% (the "FULL" level) is what most owners won't ever encounter. Recharging automatically stops at 85% and that's all the higher the indicator shows. That 15% buffer at the top protects the battery. 23.5% (the "EMPTY" level) is when the plug-supplied electricity is fully depleted. That protect the battery at the bottom, preventing deep-discharge from ever happening. So unless you routinely drive down mountains after plugging or drive after having run out of gas, there's no reason for concern.

- 5-28-2013** **Each Month.** The results of plug-in sales show how the market is taking shape. Dedicated electric vehicles, like Tesla's Model S and Nissan's Leaf are doing well. Ford's Focus and Honda's Fit are almost completely unheard of. That begs the question of how GM's Spark EV will be accepted, especially knowing how small it is and how competitively priced it will be. Both Ford's C-Max & Fusion plug-in hybrids (the "Energi" models) seem to be off to a good start. But then again, there's always that initial surge prevents determining actual demand accurately. We have Toyota's Prius PHV too (obviously), but that is still only available in 15 states. The intentional rollout delay that seems more and more sensible as time progresses. Rather than deal with all the mixed messages being set now, continue to refine sales & support first. That should help avoid some of the confusion currently taking place in the market. Understanding the 9-month is easier. Each month brings increased clarity about market perception & reaction.
- 5-29-2013** **Climate Change.** Witnessing the outcome of that monstrous tornado in Oklahoma has brought out the worst in some people. They still use "*global warming*" as greenwashing proof, claiming that doesn't make any sense considering how cold Winter is still. They'll even go as far as admitting Summer storms are more powerful and more frequent. All they need is that "*not warmer*" information to dismiss everything. In reality, we know that misnomer must be acknowledged. They don't want to though. Fear of change is powerful. And now with the sales of Volt really becoming a struggle, there's yet another excuse to not bother trying. It's amazing. It's like we've been transported back to a time when people absolutely insisted the world was flat. Without 100% of the population agreeing, they felt they can claim it's all just a shame. We're back to the "*raising doubt*" situation. Reading recent comments online, it's easy to see the same old "*environmental hazard*" rhetoric. But what's different this time is the number of Prius owners sounding off about how many years of clean, efficient, trouble-free driving they've experienced.
- 5-30-2013** **Tomorrow.** Toyota has already pre-released sales information about Prius for May. No specific quantity was actually disclosed, since there's still one day remaining for the month. But it they did state was that results would be better than May last year, which supports the strong demand we've been observing. That makes tomorrow a day of great anticipation. Of course, we won't know details until the start of next week. But with the inventory of Volt such a hot topic now, everyone is well aware that this is a turning point. In fact, even GM's monthly distraction from sales confirms it. Today, their big news was the first Cadillac ELR coming off the production line. Volt has vanished from the spotlight; sales results have been well under expectation. Additional proof of that came from the Spark EV price announcement. Honda immediately responded with a very enticing lease offer for their Fit EV. Toyota's approach of heavy emphasis on cost is clearly paying off. GM's decision to delay cost-reduction until the second generation is not working out to be a wise choice.

- 6-01-2013** **Intentional Distraction.** Sales of Volt falling well below the mainstream minimum of 5,000 per month has been making the path to profitability an extreme challenge. When the tax-credit expires, then what? The efforts to reduce cost aren't expected to even cover that difference. Without a hybrid counterpart, how will volume be achieved? Short production runs make sales even more difficult. Needless to say, the situation is a mess. To make matters worse, GM now faces a similar situation to what Toyota did years ago... and they are well aware of grossly blown out of proportion that got. The dashboard layout was setup with cosmetic appeal more of a factor than practicality. That resulted in the placement of the power & mode buttons very close to each other. Pushing the power button twice shuts off the vehicle. Guess what owners have inadvertently been doing while attempting to change modes... shutting off while driving. That's dangerous. GM's response has been to not acknowledge it and focus (intentionally distract) on their other offerings instead. Hopefully, that means a fix will rapidly be deployed. We'll see. The last thing they need is a stream of bad press from not addressing the issue. Knowing a solution can be just a software change (and well aware that this suggestion is to make it work like Prius does), I posted the following: Improving it shouldn't be a big deal either. To force the power off on a computer, you hold the power button for a few seconds. Why not update Volt to do the same thing?
- 6-03-2013** **It Happened.** The estimate value we've been using to determine how many months of inventory there were remaining of Volt turned out to be almost exactly what the actual sales were. That number was 1,600. The sales for the month of May were 1,607. The amount available for sale was 9,100 still. That's not good. In fact, it is so far below the needed 5,000 per month, all we can do is expect excuses and talk about the next generation. This model is a disaster. To make the situation even worse, there's the possibility that the Osborne effect may have been deliberate. That's a consequence of focusing too much what comes next, killing the current product as a result. Oddly, that would be a good way to restart Volt, just establish it all over again because the original version faded away. Anywho, there's no chance of "*game changer*" hope anymore. That particular dream is dead. There will be a mix of choices available from a variety of automakers. Heck, even the "*halo*" effect won't apply. Too much emphasis on engineering and almost total disregard for business spelled doom right from the start. Lack of balance like that rarely ever turns out well. We said it would happen and it did.
- 6-03-2013** **New Hitch & Rack.** SI tried out my new receiver-hitch & bike-rack this evening. It's quite solid and the hatch can still be opened, even with a bike on and its handlebar sticking out. That setup should do well carrying 4 light to medium weight bikes. I really don't care about a MPG penalty when it comes to recreation. Summer is way too short to let opportunity slip away. I have a plug-in model Prius too, so efficiency is kind of wash. Clearly there's going to be a big hit with 4 bikes on back, 4 people inside, and a bunch of cargo. Today's drive was 24 miles with about 4.5 miles of suburb driving, the rest on the highway. I also had 6 miles of EV available. The result of that one-way drive with a single bike on back was 65 MPG. It's a nice alternative for those who want a handy 4-bike lockable rack that doesn't make contact with the car. It's expensive though, about three times the price of a 3-bike strap on rack.

- 6-04-2013** **Failure.** No more spin or arguing. The horrible attitudes are gone too. Just like Two-Mode 2.5 years after rollout began, it's easy to see how things went wrong and the lack of demand. However, with Two-Mode, there was a profitable platform to leverage from. That meant the high-efficiency purchase choice for consumers was a model option, not an entirely unique vehicle. Prius uses that approach with PHV. The plug-in is just a package variation. That provides lower risk and higher potential. It's a win-win. GM certainly could use that now too. Sales of their Silverado pickup are amazing. 43,283 were purchased last month. Malibu does offer the package variant, with the eAssist system. Sales of the regular model were 18,899 and the hybrid at 1,695. That alone puts the situation with 1,607 into perspective. Looking at the rest... 23,055 for Cruze; 22,918 for Equinox; 16,061 for Sierra; 10,841 for Impala; 9,523 for Sonic; 9,243 for Tahoe; 7,929 for Camaro ...you can see the numbers for their variety of popular offerings are far outselling Volt. The reality of GM competing with itself is quite clear now. Those smug enthusiasts see that traditional vehicles are indeed the competition, just as some of us have been saying for years. Their hostile attacks on Prius owners who understood what the market needed are now an embarrassing part of an ugly past. It's too bad we had to endure their lack of willingness to consider the big picture. Now, they cannot avoid it.
- 6-05-2013** **Simple Statistics.** I let that daily blog for Volt have it today. This is what set me off: *"Gasoline saved by the cars that are being tracked to date, Chevrolet says, is in excess of 10.42 million gallons."* Compared to what? Put in perspective, there were 23,461 Volts sold last year. It's extremely difficult to offset the 237,758 Cruze; 210,951 Malibu; 218,621 Equinox; and 169,351 Impala from the same year. Then when you take the 418,312 Silverado and 157,185 Sierra into account, the rosy picture painted looks rather gloomy. Consider the impact the 81,247 Sonic made when it comes to saving gas. Consumers obviously have. That's just traditional vehicle comparison. Take into account the impact regular hybrids models contribution. The 147,503 Prius; 40,669 Prius V; 35,733 Prius C all obviously use less gas. Even without a plug they have a noticeable influence compared to the industry MPG average that was used to calculate that 10.42 million gallons. Adding a plug contributes to greater saving, but diminishing returns and cost required makes high-capacity unrealistic for the masses. There's pressure growing to take that reality seriously. The first generation of Volt clearly did not address those factors. It's becoming quite evident what the *"too little, too slowly"* concern pertained to as well. There's a variety of growing competition now, resulting in missed opportunity for GM. The situation can no longer be dealt with by stating a few simple statistics.

- 6-06-2013** **Simplistic Replies.** That posted resulted in rather explosive reaction. Pressure had been building up. It was a great way to wrap up the sales results for the previous month. My favorite quote from the thread was: "*A journey of a thousand miles begins with a single step.*" Two people posted it. No one participating actually wanted to address it though; instead, they use comments like that to dismiss your posts. I find their brutish refusal to consider the big picture confirmation that there is desperation to hold on to the few bits of what remains. Admitting that there were missteps is difficult. Facing the need for change will inevitably include emotional outbursts. All that was expected. I'm thankful it's over. Phew! They attempt to simplify the situation. I point out there are many other trees in the forest. In this case, I did it like this: Haven't you noticed when I ask for details about that journey, the request is evaded? That cliché makes the situation sound like there is no competition and an abundance of time available. Reality is, there is no guarantee the destination will be reached. How do you know it is the correct one to invest so many resources into? After all, the need for diversification informs us that there is more than just a single journey.
- 6-07-2013** **Done.** The effort yesterday, as the personal attacks were coming to a close, was to direct all focus onto the next generation of Volt. Naturally, they wouldn't acknowledge any advancement of Prius. It was exclusively about how GM will be making a superior product. Taking place on both the big Prius forum and that daily blog for Volt, it was quite intriguing to witness the same comments from the same people getting replied to in two very different ways. The one was loaded with bragging & insults, nothing of any constructive nature. The other, there were attempts have a true discussion. Sadly, the hypocritical nature of certain responses and the rather obvious use of favorite greenwashing techniques caused that to breakdown rather quickly. This morning, all that came to an end though. On the blog, the fixes GM needs to do to make to improve Volt were given "*simple*" labels were looked upon with the same type of hope that led to the problems they have now. Strangely, that is actually a tiny step forward. At least they are now acknowledging what we said prior to rollout. The blog stated the shortcomings this way: "*Price is too high*" and "*Interior room is too low*". That's progress, even though we had to wait for them to learn that the hard way. And of course, they won't admit it was what we had been saying all along. Acceptance only comes from the enthusiasts feeling they drew the conclusion about what needed to be done on their own. I find it quite a relief. Distracting from problems which have become so obvious at this point wasn't worth their effort. They see that now. So, we can call this decade's round of "*up to the chore*" postings with a different conclusion... No.

6-07-2013 **Higher Sales.** It's very much a mixed blessing not having PHV in the spotlight yet. Collecting lots of real-world data prior to that is by far the preferred approach anyway. But it's rather lonely with so few of us. But then again, those few become well versed in how the system actually works in the meantime. With so many misconceptions still, some being intentionally spread by those who want to undermine the greater spread of batteries & motors, having that is rather important. Fortunately, word is slowly getting out. My 17-mile commute includes 9 miles above the 100 km/h (62.1 mph) threshold. People assume that the battery-pack is only used during the slower portion of the drive. That certainly is not the case. You still get a substantial plug-in boost even at the faster speeds. That's pretty easy to see too. My first 0.5 mile is EV. The following 9 miles is in the 65 to 70 mph range, depending on traffic. Today, the screen displayed 119 MPG when I finally slowed down where the highway changed to 55 mph and the engine stopped. I ended up parking with the average having climbed up to 205 MPG. But the assumption that EV is limited and MPG is low as a result isn't an easy belief to overcome. Sales will climb as the people discover how PiP actually works. Higher is better. Faster isn't necessarily a good thing though. The catch is what sells. For Prius, it's simply the plug-in model of the existing generation. For a certain other plug-in, this current generation isn't expected to see a sales increase. Much of the industry experts are expecting numbers to remain flat. No growth is bad. As Prius PHV is rolled out to the 35 states this Fall that still don't have it yet, the hope for sales climbing even in the current 15 states is realistic. Meanwhile, this temporary lull while we wait for the first owners to finally celebrate their first year of ownership is a test of patience.

6-07-2013 **Scare Tactics.** Here in Minnesota, I remember the fear most of the rest of the country had when E10 was rolled out to other states. At that point, we had been using it for over a decade. All the claims of engine problems to expect never had any merit. If they did, we would have already encountered them. Instead, nothing. E10 worked fine. It reduced emissions, but at the cost of a minor MPG drop. Studies showed the MPG difference would plateau with higher blends. So as we moved to E15 and E20, there wouldn't be that aspect of impact. That meant research could focus on the long-term effects of using those higher blends. Turns out, there weren't any. Nothing ever emerged revealing problems. Yet, the association representing Big Oil recently stated this: *"E15 could leave millions of consumers with broken-down cars and high repair bills. It could also put motorists in harm's way when vehicles break down in the middle of a busy highway."* I was amazed to read that. What are they implying will happen to the engine? Not a shred of detail has been provided. What could possibly be so bad increasing the blend by 5 percent? Why aren't they just presenting the evidence to support the claim? Convincing people to fear something with showing them what to actually be afraid of isn't the slightest bit constructive. It scares me that some people will actually believe them without question. Accepting claims without knowing why is scary.

6-08-2013

What Really Happened. The approach for high-efficiency vehicles using batteries with more than just a tiny integrated motor was to develop a competitive hybrid, something with a traction motor strong enough to propel the vehicle at suburb speeds. Toyota figured out how early on. Ford took awhile, but then followed in similar fashion. Honda is only now doing that, after having struggled for years. Then there's VW with a first model that's actually worthwhile. We think Hyundai & Kia have potential in that regard too. Nissan chose to go all EV instead, abandoning their plans. The only other mainstream automaker is GM, who chose a very different path. They won't be offering anything in the category without a plug. That's why there has been so much pressure lately. That's also why the enthusiasts haven't cared about engine efficiency for Volt, expecting no model to ever be available with anything less than a "40 mile" capacity is a necessity. That's quite a gamble. But it does provide bragging rights so intense, MPG results can drown out any attempt to reason. Concern for joe consumer simply isn't there. They are the ones who never understood "*too little, too slowly*". The economic aspect still doesn't matter. So, when discussion turned to what the other automakers were doing, the posts became hostile. Fortunately now, there are nothing but pointless arguments. But 6 months ago, *whoa!* The reason is easy to see now too. Prior to that, Toyota was the only player of consequence. Including Ford didn't make any difference. Then came C-Max Energi, their first plug-in model of a hybrid. Mentioning that, just Ford alone excluding Toyota entirely, invoked rage I hadn't ever encountered before. It was ferocious. Up until that point, the supposed enemy was an automaker from Japan. Mocking them was easy for GM supporters. But to have a fellow Detroit automaker make GM worry, that was a very different matter. Now Ford offers another plug-in hybrid, Fusion Energi. That too is attracting unwanted attention. That situation makes basically anything you say about GM status not of a cheerleading nature a statement of hate. The Volt enthusiasts are baffled why there isn't praise for their plug-in anyway. Rather than looking at the big picture, taking into consideration business & consumer needs, they are truly amazed how anyone could question the success of Volt. Of course, some are just simply looking for a fight. Winning battles is much more important to them than ending the war itself. Fortunately, there are far more quietly happy Volt owners who couldn't care less and welcome other plug-in hybrid offerings. They see the real need. They recognize what must be done. To them, I thank. Their support is appreciated. To the few who refuse to embrace change, goodbye. Mainstream consumers are still waiting.

6-10-2013 **Endless Debates.** They are a sign of change on the way. When the same old argument is brought up again and again, even though clear evidence to the contrary is repeatedly provided, you know the person is desperate to prevent conclusions from being drawn. Only a handful of such individuals remain anymore. Their persistence to challenge well established principles would be admirable if there was something to support their claims. But then they bring up the same old talking points and nothing else, you have to wonder if they ever took the time to actually study the situation. Being guided by principle alone doesn't work. They're learning that the hard way. The market is far more complex than they ever imagined. It's what happens when you take a class like economics or accounting. You have no idea how many factors are at play until being taught what to look for. This is the very reason why venues, like online forums, are typically a poor mechanism for sharing detail. They are great for research. You'll stumble across all kinds of issues you'd never imagine otherwise. But the short nature of posts and the difficulty to follow a topic presents a great challenge... and fuels the opportunity for endless debate. Fortunately, one of the things you are taught to look for is that type of repetition. It's a sign something isn't right.

6-11-2013 **12.9 Estimate Miles.** The EV estimate value was a hot topic up until recently. Those miles kept dropping. New owners absolutely insisted something was wrong with their new plug-in Prius. They wouldn't accept the fact that the number was only a generic default. They wouldn't accept that the actual miles would change as the seasons changed either. They refused to accept the fact that they purchased a vehicle that didn't deliver consistent results. In other words, they came from the naive world of traditional vehicles where owners believed MPG was consistent all year long. Not having a gauge in the vehicle to display such detailed performance information is a totally new concept to them. Now they know. Now they understand. Now they enjoy. But to see their panic & frustration of the past, you'd never believe it was the same person. This change of heart came from there now being a large enough set of owners to have experienced a full annual cycle. They confirm what the few of us had been saying all along. We'd watch our estimate values plummet in Winter. My dropped to less than 10 miles at the worst of the extreme cold, here in Minnesota. Now, I'm seeing 12.9 estimate miles. The actual miles are even further. For those who have the opportunity to live in warmer climates, they routinely see estimate values as high as 17 miles. Batteries are sensitive to temperature, just like combustion engines. Knowledge is power. Lack of it can lead to confusion & anger. It's best to study. Research, rather than just complain. Fortunately now, there are enough posts on the same topic to make that easy.

- 6-12-2013** **250,000 Sales.** Just a few months ago, we were told the hope for a quarter-million sales of Prius in the United States for 2013 didn't look realistic. Boy, have things changed. Recent growing interest has put expectations back on track. That is now looking to be quite doable. There's a new advertisement campaign starting and the confusion caused by Volt is subsiding. To think of how much of a mess GM made of things... That situation is why Toyota held back. It was frustrating. But then again, the delay allowed time for the rewards of having real-world data readily available prior to nationwide rollout. After all, that is exactly what the Volt enthusiasts insisted upon anyway. They were quite adamant we wait a full year first. For Prius PHV, the extra 9 months is a bit annoying... but benefits of not having got snarled in the GM mess should be obvious. Marketing a hybrid as an EV was a big mistake. Even some of the once hostile supporters now acknowledge the damage that choice caused. Seeing the success Ford has been having recently is what made them come around. Admitting Toyota had anything to do with the outcome simply isn't going to happen, ever. Mention of "Prius" still upsets. But with a family of them demonstrating growth and the ability to sustain sales, that makes sense. That measure of success is what true change is all about.
- 6-14-2013** **30 Months.** That duration marks judgment time for the success or failure of a rollout. We watched the mighty Two-Mode evaporate at that point. Every argument and support effort imaginable had been done to keep it relevant. Nothing worked. It was simply too expensive. Cost was by far the biggest shortcoming. Having inventory piled up was confirmation sales weren't able to meet expectations. How can a product not making a profit and heavily dependent on tax-credits possibly become a regular offering? Needless to say, it faded away to become just a page in history books. Volt faced that very same trouble, and more. Beside the problem of cost, it came up short on seating room and depleted efficiency. With an inventory of over 9,000 unsold, we knew something rather drastic would have to happen. It did too. 3 days ago, GM slashed prices of 2013 models by \$4,000 and 2012 models by \$5,000. That was an undeniable sign the hope to reach the mainstream minimum of 5,000 per month isn't going to happen. What was shocking was finding some 2012 models still available. Clearly, there are a few dealers simply aren't interested. Why bother? Seriously. Everyone is abandoning this generation of Volt. Even the die-hard supporters have given up. It certainly has been a shock to see those who had been fiercely disagreeing with defending just last week become silent. GM produced a vehicle they wanted to sell, not what they needed to sell. The evidence is overwhelming now. Purchase priorities cannot be dismissed in favor of trophies. Reality can be cruel, but it's not like warnings weren't abundantly provided.

6-17-2013 **Stopped Production.** We all knew there were serious problems with Volt demand. The large price reduction to deal with the massive build up of inventory overwhelmingly confirmed that. Finding out that GM is no longer sharing production information takes us to an entirely new low. It's amazing things could be so bad. But witnessing the denial of the situation certainly made it clear the issues were not being addressed. It started 3 years ago with the design itself, when the direct-drive ability (HV mode) wasn't revealed until someone inside accidentally mentioned it and there was an immediate refusal to clarify. Then came that absurd publicity event, where a Volt was driven 1,776 miles over the 4th of July weekend. GM absolutely refused to reveal what the MPG was. That didn't make any sense. Why in the world would they withhold information so vital to a high-efficiency vehicle? We didn't find out the answer to that until just before rollout began. The numbers showed a very heavy dependency on plugging in. Without that electricity, Volt was just an ordinary car. That's why the idea of a smaller battery-pack was so intensely fought against, despite the reality of cost being much too high for mainstream consumers. Then came the plug-in Toyota Prius, the plug-in Ford C-Max, the Nissan Leaf, and Tesla Model-S. Heck, maybe even the plug-in Honda Accord had an influence. With the choices growing, each showing more market potential than Volt, the loss of interest became an inevitable reality. It was only a matter of time before the supply issue could no longer be explained. We were told every excuse imaginable. The hype is gone though. There's nothing left to promote it as "*vastly superior*". The end has arrived. This chapter is closed. Will GM be able to rollout a new Volt in a few years that actually addresses middle-market need. Who knows? All we know now is that this was did not.

6-18-2013 **Few Sales.** The failure of Two-Mode to take the market by storm, despite years of hype, was something that Volt enthusiasts staunchly evaded. That just plain did not want to acknowledge their favored efficiency technology could have the same outcome... even though it was clearly following the same path. The similarities were blatant. The biggest match was the complete disregard for cost. Both systems were expensive, doomed to lose money on each sale until the next generation was rolled out. That dependency on lower cost without unambiguous means of how that would be achieved was a dead giveaway the struggle to overcome such a shortcoming would bring intense pressure. But rather than learn from the past, they chose to hope for the best instead. That failed miserably. How could the same approach result in a different outcome? The belief was this market would immediately embrace plug-in vehicles, to the point where consumers wouldn't hesitate... even in the face of a high sticker price. They were wrong, very wrong. Not having a non-plug model of the vehicle made that bad situation worse. Fighting against the idea of second offering with a smaller capacity battery-pack for rapid cost-reduction basically sealed its fate. The lack of enthusiast endorsement for such a simple rescue effort was so ironic, I was beside myself. They chose the high-risk course, rather than support automaker attempts to widen appeal. They claimed they had no influence on GM decision-making, despite overwhelming evidence to the contrary. They demanded patience instead. Don't react to the growing problems. Stay true to the original concept, regardless of the benefit change could bring. As a result, few sales have caused a wide-array of problems... without any suggestion of how to recover.

- 6-18-2013 Looking Back.** Put blatantly, Volt was a disaster. Sure, it worked. But sales fell far short of expectations. Remember the assurances from GM that production capacity was able to deliver up to 120,000 per year. That was assurance to keep people from worrying about fallout from supply not being able to keep up with demand. Instead, quite the opposite happened. Inventory piled up with any interest from mainstream consumers. That hope of being a top-selling vehicle didn't materialize. It was a bad situation that continued to get worse. There was an intense desire to appeal to middle-market without any support to actually make it match priorities. In other words, the expectation was change on a very unrealistic scale. The idea of taking smaller steps, rather than just one large one, didn't have any backing. After all, being able to flaunt awards is much more rewarding than seeing the parking lot at the grocery store filled with their vehicle... so common, it wouldn't stir any praise or even recognition. They wanted the success of Prius but not the standpoint being ubiquitous carries. That conflict of interest prevented progress. There was no agreement upon goals. It was a situation with no next step available. Looking back, that's easy to see now... so much so, few will admit to ever having contributed to the problem. It's difficult to acknowledge you were actually the barrier to success. Of course, it's not like they weren't warned. Those who don't understand history are doomed to repeat it. You cannot overcome without addressing directly. Think that will finally happen?
- 6-18-2013 Silent Schooling.** I got out of work early today and to take advantage by stopping to get a haircut. The barbershop is located in a strip-mall, next to an off-campus classroom for local high school students. When done getting my hair cut, the Prius was surrounded. None of the kids were paying close attention though. They simply stepped aside as they saw me approach. I didn't say anything. I just got in the Prius and silently backed away. Suddenly, one of them looked up with a bewildered look on his face. The lack of engine sound replaced by the pedestrian warning had him captivated to the degree that others stopped and looked too. Since I had the window open, I smiled and yelled out: "*Yes, it's electric!*" They replied back with smiles. That was cool, an educational experience they hadn't anticipated... which was ironic, since the class taught there was driver's education.
- 6-20-2013 Downtown Commute.** I work in St. Paul, the smaller of the Twin Cities. I'm able to sneak in from the south, avoiding most of the metro area traffic. That's really, really nice. I'd despise having to deal with the nightmare conditions countless thousands of others have to face routinely... which pales in comparison to other areas of the country. I couldn't imagine long, frustrating drives like that. Anywho, today my girlfriend had a concert performance clear on the other side. That meant punching straight through the Minneapolis commute during the peak of rush-hour. I decided to delay my departure a little. Turns out, that was a wise move. It took here and extra 30 minutes by leaving earlier. Nonetheless, I had 2.5 miles of crawling through painfully slow, dense traffic. It sure was nice doing that with only electricity. Funny part was, the relief of having cleared the mess, I forgot to turn the engine back on (switch to HV mode). That left me cruising along at 60 mph in smoooooooooth silence. It sure was a happy ending to a nasty experience. The craziness of the constantly changing speeds and all the people coming & going through lanes would be maddening on a regular basis.

- 6-21-2013** **EV Estimate.** That value continues to climb as the temperature climbs. It is now up to 13.3 miles. That hasn't affected actual EV miles of travel though. That seems to have leveled off at 14.6 miles for my morning commute. As for the drive home, I have no idea. The afternoon high finally feels like Summer now. Temperatures in upper 80's to low 90's is becoming routine. It's about time. I've been looking forward to using the kayaks. Anywho, that heat means using the A/C, which consumes electricity. It's important to keep the battery-pack comfortable the same way you'd like to feel. They are cooled by circulating cabin air through the case. So, I use the A/C when cruising out on the open road. It's remarkably efficient too. Even when in HV mode, efficiency on the highway still averages about 55 MPG. When using EV-BOOST mode at high-speeds, the MPG is well over 100. That makes tracking the actual efficiency a challenge... not that detail matters. The point of delivering a significant increase is clearly fulfilled. Long story short, complaints from Winter have overwhelming been confirmed as unnecessary concern. There really wasn't anything wrong. That truly is what's expected to happen with each seasonal cycle.
- 6-21-2013** **Hype.** It's what Volt thrived on. That daily blog depended upon vague & exceptional claims. The essential component of survival depended on people believing in the unbelievable with no way of actually checking information... a situation doomed from the start. The facts simply didn't match the hope. Disregard for need made those bad circumstances even worse. How could so much be achieved in so little time at so little cost with so little actual real-world experience to support it? Enthusiasts truly thought a miracle would be delivered, an answer to their prayers. After all, the engineering itself was sound. But with so little business backing to make the desire feasible, the expectation of high-volume sales made no sense. It was mismatch of want & need to an extreme that would require a true miracle to succeed. Risk was too great. That risk was taken away. It turned into a disaster. What a mess. Now the price of used Volts is dropping. There was a Detroit article today pointing out how quickly value has been lost. Depreciation at a rate much faster than both traditional vehicles and hybrids is not what you want when attempting to build a reputation for a new standard.
- 6-22-2013** **Celebrate?** I've made it overwhelmingly clear that I won't endorse any vehicle offering improved efficiency. Improved emissions has always been the higher priority. That's why I was against diesel from the very beginning. Lack of potential is another. That's why I was against ASSIST hybrid from the very beginning. Both proved to be wise choices too. The FULL hybrid has been cleaner and offers plug augmentation. It's been a winning solution. Anywho, this comment was made today about the plug-in Accord hybrid: "*In my view, any car with fuel economy 2x above the national average should be celebrated.*" Obviously, I couldn't resist interjecting some comment: With a base price over \$40K, we should hold off on the celebrating. A certain other plug-in taught us how critical being affordable is as a priority for the masses. Mainstream acceptance requires a business-sustaining cost. It cannot have a dependency on tax-credits either. The new approach to hybrid design & efficiency obviously shows promise though.

- 6-22-2013** **Thoughtless Responses.** There's nothing like hearing this at the gas station: "*Hey, I didn't think that car took gas.*" It was an experience a Prius owner recently had. Encounters like that are sticky situations. You aren't sure how the person saying it will actually react. More often than not, they'll blow off whatever you have to say. That can be good if the message is still conveyed. All you need to do is just leave them with something to think about, something they hadn't ever considered. Change is slow. You have to start somewhere. I joined in the discussion with: Quotes like that come from those who never bother to take even a moment to consider how Prius actually works. They typically dismiss it as small & weak without any other thought. That's a huge improvement over responses of the past. Back in the early days, over a decade ago, I encountered some people who absolutely freaked out. They honestly believed the government was going to force them to give up their monster-size SUV. It was a genuine fear that resulted in anger and unwilling to listen. Of course, still to this day, detail isn't being addressed. But at least the general message is getting through. That parting comment of "*it takes me 5 gallons to start this Tahoe up*" may have made him laugh, but the upset of his wife was confirmation that the choice to guzzle isn't acceptable as it was in the past.
- 6-22-2013** **Super Hybrid.** I liked reading that description of PHV. It derived from this: "*Avoid much more than 40 mph during this stage, because then fuel consumption will spike for relatively little gain in speed.*" The discussion was about modes & efficiency. I posted: In most cases, that is indeed the case. However, there is the exception of a well-timed switch from EV to HV mode. As already pointed out, the system strives to maximum use of the battery-pack during cold engine warm-up. With the regular Prius, this is difficult to quantify without having a tachometer available. With the plug-in Prius, the behavior is quite pronounced. It's obvious. I've been taking advantage of this, waiting to push that button until just prior to the approach a steep hill climb or highway entrance ramp. That way, the engine speed is restricted to 1500 RPM, rather than exceeding the usual 3000 RPM that type of power demand would require. It's been working well. I can get up to speed without the engine straining (high emissions & consumption) and still have reserve power, just in case. I have dropped the pedal to the floor in those scenarios, to confirm the system will override that green behavior. It does. Calling Prius PHV a "*super hybrid*" seems a very effective way of conveying the design objective. You have a larger battery and a plug, but the intent of the system is still very much one of delivering significant improvement at an affordable price rather than calling it a short-range EV.
- 6-22-2013** **Still Trying.** When you read this, what are your thoughts: "*Volt combined economy of 37, Prius Plug in 50 . ' Very misleading journalism. The PIP is using electricity blended in to achieve this rating. If the Volt blended in the electricity it would be 65 mpg.*" That's greenwashing, twisting information to make it seem like misleading so it will be disregarded. Without plug-supplied electricity (regular HV mode), the plug-in Prius does indeed deliver 50 MPG. With electricity and the engine running (we call that EV-BOOST mode), the MPG is well over 100. As for Volt, where the heck did that 65 come from? The reference is literally the first I've ever seen. Of course, we have absolutely no clue what was actually meant by "*blending*" in this case. That's how greenwashing works. They are excessively vague, hoping you'll make an incorrect assumption. Long story short, certain Volt enthusiasts & owners are still trying.

- 6-23-2013** **Gone.** Even that daily blog on the Volt website isn't about Volt anymore. The discussions, debates, and arguments of the past are gone. This is exactly the way things played out with the demise of Two-Mode. The pattern is so remarkably similar, even that isn't talked about. The design approach didn't reach the masses. It did not reach mainstream sales volume by the end of the second year. What we currently know as Volt has become a vehicle for those interested in unique historical opportunities. There's no doubt the next generation model will be quick different. What GM wanted to sell did not match what consumers needed... for that matter, what GM needed. Thank goodness that is over. Such a misalignment of priorities was a fiasco in the making. The best we could hope for was a graceful conclusion. Let this model fade away into memory. So when the remake is rolled out, it won't have this ghost from the past holding it back. In other words, rather than being "*vastly superior*" as all the hype had endlessly proclaimed, this new model will be a member on the team. The true opponent was traditional vehicles, not other plug-in hybrids. Hopefully, that lesson is learned. Most likely, those enthusiasts of the past will remain silent about failed goals & reputation and will simply focus on what needs to be done instead. After all, letting pride dictate decisions again will only set them down the same path again.
- 6-24-2013** **Struggle.** Without Volt being the headlines from GM anymore, we're seeing more attention on the pickup market. In fact, Chevy is capitalizing on that by launching an advertising campaign. The new Silverado is well timed with the recovering economy and people's general loss of concern toward gas prices. With a towing-capacity of 11,500 pounds and the reality that fact that 43,283 of the older model were sold last month, it seems as though there's a new breed of guzzler about to emerge. Reading through a "first-drive" review of this next generation model, there's nothing but this single sentence mentioning efficiency: "*It is rated at 16 mpg city/23 mpg highway with rear-wheel drive and 16/22 mpg with 4-wheel drive.*" Unlike most reviews, this did not include observed MPG. It makes you wonder who will be purchasing the pickups and how they will actually be used. Will we see these as daily commuters like we did with SUVs? It certainly does present challenges for efficiency improvement, like Honda's effort to rollout a new two-motor hybrid system. Fortunately, we do still see Prius PHV as well positioned for those who are looking for an affordable package upgrade to Prius. But Ford's attempt to do the same thing doesn't have the same advantage of there already being a popular model to compare with. There is the reality of battery uncertainty too, which naysayers will attempt to greenwash about for years still. Keep raising doubt. Tell people there's plenty of oil still. Support the high-profit vehicles. It's a recipe for continued struggle. Makes you wonder what the heck the Volt enthusiasts are thinking about now.

6-24-2013 **Just 4.4 kWh.** The importance of significantly reducing emissions & consumption in a reliable & cost-effective manner was a lesson learned a long time ago. In fact, the first hybrid rolled out in the United States suffered from not meeting those goals. Sure, the Honda Insight delivered great MPG, but the smog-related emissions were no different than traditional vehicles and the all-aluminum body & frame made the cost too high. It was the "*science experiment*" the greenwashing always claimed the Classic Prius to be. That wasn't actually what Toyota had delivered though. Prius was intended to compete directly with traditional vehicles... which is indeed what ended up happening. GM didn't do that. Volt clearly is a niche. In fact, it is still getting recognized that way. Just today, the ranking from the Sierra Club put it at the top. No one is talking about it being part of the mainstream anymore. All hope of that has been postponed, abandoned until the next generation is rolled out. Meanwhile, there's Prius PHV. It actually is a mainstream contender without any modifications. Toyota worked really hard to deliver a plug-in hybrid using a very small battery-pack. They achieved their goal of 20 km using just 4.4 kWh. That means when the cost of lithium-based batteries finally drops to the industry expectation for mass-market, Toyota will already have a well-proven system available. Having real-world data already available from a wide array of owners is a very big deal. There's nothing to change. They keep selling it, but with a lower price. That won't work for Volt. The 16.5 kWh battery-pack is over 4 times more expensive. (Remember, it is liquid-cooled instead of air. That makes it even more expensive.) A cost drop alone won't be enough to make it competitive with traditional vehicles, especially with a hybrid system (HV mode) not delivering MPG any better than one. Enthusiasts didn't want to face that reality. They thought by now, they'd be looking forward to the rollout of the first upgrade. Instead, they are witnessing clearance prices. In other words, they now realize how vital it was for the design to have placed a much higher priority on cost... a mistake they'll end up waiting years to be rectified.

6-25-2013 **Carbon Emissions.** For awhile now, I've been referring to the refusal to acknowledge the obvious growing problem we have related to climate change as the "*flat worlder*" perspective. The rather blatant rise in water-level in our oceans and the increase volume of water being precipitated is a clue something has changed. Evidence of other aspects, like storm frequency & magnitude is much more difficult to nail down. But with respect to the water, we have gathered enough data to see a new pattern emerging. That in itself should be enough to be taking the reduction of carbon emissions seriously. It isn't necessary for dramatic change (yet). But the flat out dismissal that anything at all needs to be done is absurd. Denial to that degree is a terrible thing to do to our children. Imagine how ashamed they'll be when they find out we didn't bother, even though we had the technology. To not try is a horrible waste to lead-by-example as well. How are developing nations, like China & India, going to address climate change if we don't? If we have already implemented & refined solutions, they are far more likely to begin using them too. But to just say the world is flat... Needless to say, I was thrilled when President Obama used the very same reference I've been using. We all know that cleaner electricity is possible; however, the effort to clean emissions from coal consumption to generate electricity has been faced with intense resistance. That's been part of the problem with EV acceptance. Dirty electricity has a very negative impact on promoting them as green. The same problem is being to get attention with respect to plug-in hybrids now too. It's a situation we must finally deal with. The cost of reducing carbon emissions is far less than the massive expense our children will face decades from now if we don't.

- 6-26-2013** **0.7 Miles.** To my intrigue, I saw something quite unexpected today. When the SOC (State Of Charge) level indicated 27 percent, the EV estimate distance displayed 0.7 miles. That seems perfectly normal, quite expected in fact. However, that only happens when driving in EV mode prior to depletion. What happens when driving in HV mode following depletion? Living in Minnesota and not having taken the PHV to any of the extreme altitude changes from our remote river-valley canyons, I didn't know the answer. My guess is after a few miles of decent, the regen would reflect a build of EV miles. What happens in minor situations? In my case today, the engine had started up just prior to a climb up my tiny valley. Though small by most people's standards, the climbing to the summit is pretty nasty on a bike. Sunsets from up there are spectacular though. Anywho, the act of warming up a cold engine, even on a climb, results in the generation of electricity. That meant I reached the top of the hill with 8 bars for HV mode. Rolling back down from there to my house, what would happen? Turns out, nothing. Even though the SOC said 27 percent, no EV mile value was displayed. The system is programmed to just present that as "*full*". Getting to confirm that today was nice. It keeps the interface simple... and will raise the curiosity of owners new to the exploration phase of ownership. Educational stimulation like that built into the design is sweet. There's just enough to compel the curious to dig deeper to learn more about what's actually happening. Gotta like that.
- 6-27-2013** **E15 Fear.** Were seeing more of it. Minnesota made the switch to E15 years earlier than everyone else, so it was quite educational to read about the fears people from other states would post. We already had evidence there wasn't anything to be concerned about. Supposed horrors stories coming from the E10 rollout nationwide never actually materialized. It turned out to be just fine. Seeing a label or warning about E15 is a simple case of liability. If they tell you not to, there won't be any argument about later about warranty coverage... which has uncertainties even there's no ethanol involved. Think of the contaminants that come from air & oil already. For that matter, what about those additives coming from gas-station brands? Why accept greater exposure when you don't have to? What evidence is there that going from E10 to E15 represents a tipping point? For that matter, what would actually happen? There isn't anything backing up the claims. Reality is, ethanol can be derived from waste. Economies of scale will allow us to transition from the current crop sources the majority still use. Some people are fighting that change without evidence to support it. The effort is to spread fear to impede the progress. That's really disappointing.

- 6-27-2013** **Compares.** Responses to the automotive enthusiasts magazine reviews are annoying. I thought that nonsense of the past was just an unpleasant distant memory... apparently, not. It looks like we are seeing this history repeat again. Ugh. Though, it is actually a good sign. Seeing that they cannot avoid including Prius in compares means their obsession with speed & power is again being threatened. Normally, they wouldn't be caught dead even mentioning a middle-market offering. Vehicles intended for the mainstream are not what their audience ever cared about. They were the voice of niche. Being uncommon was what they thrived (and profited) on. Prius most definitely does not fit that mold. Yet, it's getting attention anyway. They feel threatened by change and left out by not including to. Doing that increases circulation of their publication as well. So, that's what we are seeing... again. This was my response to the content itself: The short-sighted compares are troubling. When has the one-size-fits-all approach ever worked? Connect a battery with the capacity of Volt to a vehicle using the larger HSD configuration. What happens? Reduce the capacity of Volt's battery to make it affordable for the masses. What happens? What about the overall emissions? What about the reality that Volt is smaller inside than Prius? There are so many problems with comparison, it difficult not to address the reality of cherry-picking. What will replace traditional vehicles? Isn't the point to become mainstream, not to win trophies?
- 6-27-2013** **Next?** It's really difficult to see what will happen next. The end of May, unsold new Volt inventory available was about 9,100. As of this moment, it's shown to be 8,245. Based on those numbers, it looks like even just matching May's sales of 1,600 will be a problem. Despite the \$4,000 price-drop, sales didn't increase. In fact, they did the opposite. GM's decision to build what they wanted to sell rather than what was needed is clearly backfiring. Sure, the system itself is winning awards, but what the heck is the point of that? GM consumers are still buying their traditional vehicles instead. Mission not accomplished. GM has a long-running "*over promise, under deliver*" reputation. How do they avoid falling into that same trap again? With so much pressure to overcome the shortcomings of this generation, telling people they will and false hope leading to unsupported hype like it did last time is very easy. Being realistic about expectations doesn't attract headlines. Dealing with lots of unsold inventory makes a bad situation even worse. What's going to happen?
- 6-28-2013** **Dead Giveaway.** Some don't take defeat well. They attempt to alter goals & definitions to make it look like they are still doing ok. We see that as desperate. I made that quite clear when the question of "*mainstream*" was asked yet again: For over a decade, the measure of "*mainstream*" has been a minimum of 60,000 per year (5,000 per month). That is how the Iconic Prius was gauged. It met that volume criteria and enraged those who attempted to label it as a "*stop gap*" solution. In fact, that is the very reason why GM set the Volt goal of 60,000 for second year sales and stated production capacity of 120,000 would be available for the third year. Knowing that large automakers, like Toyota, Ford, and GM, each sell a number of models of traditional vehicles easily exceeding 5,000 per month, it only makes sense to measure hybrids the same way. After all, the point is to replace those traditional vehicles with hybrids. The fact that this information conveniently gets forgotten and re-asked on a very regular basis is a dead giveaway there's an effort at play by some to undermine. We are being overwhelmingly clear & concise: *5,000 per month*.

- 6-29-2013 Audience, dying.** That question of "*mainstream*" stimulated constructive discussion. That certainly was a welcome change. But then again, the staunch antagonist that had been harassing (more than just trolling, personal attacks) those on the big Prius forum has vanished. The assumption is that he was banned. Whatever the reason, not being there anymore makes civil exchanges of thought & observations much easier. The first example was this question: "*Is the prius slowly dying?*" It came about from seeing some well known Prius owners trying out Volt and Tesla. Being well aware of how a mature technology is often labeled as "*obsolete*" by competitor enthusiasts, I responded with this: Knowing your audience is vital. Seeing some enthusiasts or supporters switch to something with larger battery & motor doesn't represent anything with respect to ordinary consumers. That's why there are different grades of vehicle. It's also why claims of "*shortcomings*" don't actually make any difference. If you're simply looking for an improvement over the regular Prius, the PHV undeniably delivers. It's not attempting to be an EV, which is why direct comparisons to a plug-in like Volt don't make any sense... they clearly aren't intended to appeal to the same audience. BTW, what speed is the traditional vehicle dying?
- 6-29-2013 Audience, cues.** This was posted as a follow-up to the discussion on that thread: "*All this means is that Toyota will have to take cues from their competitors and decide which way they want to market their vehicles.*" I was happy to add: Hence the delay of the nationwide rollout. Volt made it quite clear that high-capacity plug-in hybrids won't be accepted by the masses anytime soon... low sales, even with tax-credit and price-slash incentives. There's obviously a market for them, but that category is a niche for enthusiasts rather than a solution for the mainstream. It's a long-term effort that leave a massive product-gap in the meantime. Toyota is well positioned to fill in that gap. Prius PHV is an augmentation of the existing platform. The under-utilized 60 kW traction motor gladly gobbles up the extra electricity the bigger battery provides. It's not a paradigm shift either. Consumers easily understand the capacity increase and plug pushes MPG quite a bit. They'll enjoy the EV mode as they do now with Stealth mode... because it's a Plug-In Hybrid. Much of the current struggle Volt is dealing with was self-inflicted. That sounds like a harsh assessment, until you realize that also means there is an opportunity for self-correction. GM will take cues from its own mistakes to reach the audience it couldn't on this current attempt. The catch is, they must be clear about who the vehicle is intended. The cue to us from supporters was the "*Who is the market for Volt?*" question continuously being evaded. That unwillingness to answer was a dead giveaway audience expectations were not being met.

- 6-29-2013** **Ranting.** It's starting to get bad, not the slightest bit constructive and without any merit. It's hard to tell what the intent actually is. But I thought I'd humor this particular rant that included "*isn't worth the money*" and "*if PPI was that great, why didn't Toyota*". You never really know what the person's motive is until attempting a discussion, so I tried with: That's called anecdotal reasoning. Step back and look at the big picture. There is currently no way to justify any plug-in vehicle. For that matter, even the "*worth*" of a hybrid continues to be challenged. Sadly, part of that comes from giving no value to the reduction of emissions and non-renewable resources in those "*worth*" analysis calculations. Fortunately, purchase priorities are changing for some. Toyota took the balance of battery & cargo sizes was taken quite seriously. As with the cost of gas, battery cost will swing in favor of that configuration. Without any incentives, the approach will be profitable and reach the masses. That's a very, very important aspect typically dismissed by those only looking at the immediate present. The current effort is to establish the existing rollout markets and to better spread the word about real-world experiences. Introducing more new owners at dealers who are also new would be counter-productive. Expansion prior to finishing up with the first batch of owners would spread resources too thin, especially when dealing with an ever-changing mindset about plugging in from the political arena.
- 6-30-2013** **Bike Rack.** 106 miles yesterday, my first long trip. 2 bikes on back were on back. Since I have the plug-in and there was 5 miles of EV available, my resulting 51 MPG doesn't directly apply to the regular model. But I can comment on how well the rack itself performed. It's definitely the way to go for convenience. Being able to easily load and lock the bikes while still having the option of opening the hatch is great. The rack connected to the Prius via only the hitch mount works well. It's secure, doesn't impair visibility much, and won't ever make contact with the car itself. It stashes away inside the hatch well too, an unexpected benefit I can take advantage of. It is expensive though, nearly triple the cost of a strap-on rack. But I consider it worthwhile if used often over the course of many years. Long story short, I pleased with the choice.
- 6-30-2013** **0.8 Miles.** I finally got an opportunity for some serious regeneration observation. My girlfriend and I went out on a biking trip. There was a plunge into the river valley. It was spread across about 3 miles and dropped a few hundred feet. Starting in HV mode with nothing left in the battery for EV, the decent began. When it got to that 0.7 miles of mystery I encountered the other day, my attention was peaked. Sure enough, that next tenth-of-a-mile increment did the trick. The indicator on the display switched over from showing a full HV battery (8 individual bars) to a solid presentation stating 0.8 miles of EV. That was cool. I still wasn't at the bottom yet either. It ended up recharging the pack to 1.4 miles. The remainder of the drive to the parking area for that long, beautiful trail out in the country along the river, shrouded by large trees, was all in EV as a result. The drive back out later was too. That sure was nice. For those who actually live in areas with rolling hills or mountains can actually do what has been coined as "*stacking*". Where rather than using up that EV right away, they save it and continue regenerating. The miles keep going up. That's something I'll never see around here, but I could simulate the same by saving the regen that comes from braking. On a road trip, that could come in handy. Around here though, I'll just plug in.

- 7-01-2013** **Change.** We went from being "*vastly superior*" to direct comparisons of plug-in hybrid with more seating & cargo room, greater efficiency following depletion, nearly a quarter the battery-capacity, a third the tax-credit, and only available in a third the states. It wasn't too long ago that a few outspoken Volt enthusiasts had described it as "*pathetic*". Things have undeniably changed. Reality of business need has become difficult to avoid. The mighty have fallen. We all know middle-market consumers don't have purchase priorities that match what Volt has delivered but do match Prius PHV. That's an ugly fact that caused some to insist we now wait for the next generation and hope for the best with nothing but vague claims that cost will drop substantially and configuration will not be compromised. How is such feat possible, especially without the competition also achieving similar results? It doesn't add up. It's time to get serious. The rhetoric isn't getting any traction anymore. Inventory piling up without a plan "B" available is putting a lot of pressure on Volt. There isn't a smaller capacity or a non-plug model to offset. It's a one-size-fits-all gamble that hasn't been paying off. Enthusiasts can argue that point all they want, but it falls on deaf ears... since that only confirms what we had been saying even before rollout began. GM must offer something for the masses that's profitable and doesn't depend on tax-credits. It's essential those requirements are met. Good luck with that next generation.
- 7-01-2013** **Lithium-Sulfur.** That was this month's distraction from upcoming sales numbers. The release of those counts always causes a stir. So, focusing on something else has become the routine. There was actually a really well done write-up this time too. It was an article detailing the potential of battery technology currently being researched. Lithium-Sulfur was the type showing the best opportunity. With roughly 4 times the capacity of the current Lithium-Ion, that would indeed be good news. Something like that is many, many years away still. We won't see automotive-grade availability until long after the rollout on small recharging portable devices first. They pave the way, since cost & longevity is so much less of an issue for them. Like everything else, there's waiting involved. The topic itself is more of a curiosity than anything. But it is compelling enough to be a worthwhile distraction... which is what was wanted today.
- 7-01-2013** **The Wait, tomorrow.** Sales results get posted tomorrow. The mark the end of senseless battling. With the "*game changer*" hope clearly not being fulfilled, it's over. The electric-only plug-in, Nissan Leaf, has kept in pace with the plug-in hybrid Chevy Volt. We expect that to go unchanged, despite the heavy discounting. The market isn't ready. Hybrids should do well, which is why Prius stands out. Adding the option of a larger pack with a plug doesn't change the equation much. The formula for success (penetration into the mainstream) doesn't require any major rework. Volt enthusiasts don't believe that though. They're still hoping for a miracle... soon. With the production of the 2014 model starting in just 2 weeks, the inventory listed online of over 8,000 still is a very real problem. Needless to say, using scapegoats to keep discussions from drawing any conclusions is the key for them. I simply responded to their undermining efforts with: Regardless of what I post, it just ends up being twisted. The pattern is easy to see. I'm done playing the game. It's overwhelming clear that Volt does not match consumer needs. No effort to divert attention will change that.

- 7-02-2013 The Wait, competition.** Shortly after the numbers were revealed, it was clear there would be major problems. Online arguments would get intense if we allow them to get off-topic. After over 2.5 years, it is clear that waiting is the only option for Volt. That means allowing the plug-in Prius to catch up in the meantime. And since its audience is middle-market, rather than being for niche buyers, that's a very real problem. Awaiting a sleeping giant isn't what the enthusiasts had in mind. It's their own fault. They always considered Prius PHV the competition. Now they fear when it wakes. I responded with: Traditional cars have always been the competition, not other automaker hybrids or plug-ins. Cruze, Malibu, and Impala continue to dominate. That's the reality of the situation.
- 7-02-2013 The Wait, wake up.** Needless to say, they were angered. I simply added: So as long as sales of Volt are better than Prius PHV, all is well? Wow! Some have definitely lost touch with reality. Here's a wake-up call, other GM sales for June: 32,871 Cruze; 23,645 Equinox; 21,288 Malibu; 17,255 Impala; 43,259 Silverado. Attempts to divert attention away from the cold hard fact that those profitable traditional vehicles are absolutely crushing Volt won't change anything. They are just excuses to feel better about a really bad situation. GM doesn't have an alternative available. Want to compare to Toyota? How about acknowledging that they could easily follow Ford's approach of sacrificing cargo room for more battery, which would increase both range & power. Then there's the fact that Toyota already offers an HSD system which pairs a larger motor with a larger engine. There is also the reality that the system is extremely efficient even without plugging in, as well as profitable. Take all that and offer it in a body built as an alternative configuration. What will GM do?
- 7-02-2013 The Wait, hotcakes.** Ignoring the spin coming from Volt support, I shifted to the problems by one particular new Prius owner. He was lied to by a salesperson. Being misled about a purchase hurts. All that incorrect information steered him away from the plug-in model. His lack of willingness to acknowledge how far off some numbers we resulted in a series of posts with generalizations and emotional outburst... not exactly what we call constructive. But considering his thread was titled "*Plug-in Prius is a rip off*" there clearly has been some improvement. Fortunately, the moderators quickly took down his thread, seeing how it lacked any effort to address facts. Rants aren't welcome. Questions are though. He finally came around and posted: "*There has to be a reason why they are not selling like hotcakes.*" That's far more appropriate. We can be receptive to that. Still, there is worry that the message will get through. Dealing with buyer's remorse can be a problem as well. But at least there is now an attempt to exchange information. I provided: There has been a major greenwashing effort to convince people that the plug-in Prius is an EV with just a 6-mile range and the battery is useless at speeds faster than 62 mph. Seeing that and confirming consumers were misunderstanding how plug-in hybrids operates, Toyota decided to slow down the rollout. Focus on initial markets has become the priority now. Real-World data has always triumphed over efforts to mislead.

- 7-02-2013** **The Wait, more is better.** No more waiting. It's over. I was actually surprised how quickly the Volt enthusiasts backed down. Their antagonistic efforts on the big Prius forum seem to have been abandoned. Not getting what they had hoped for allowed the constructive discussion to begin. I liked reading this: "*Unfortunately, the original question about what would cause the PiP sales to improve is still elusive.*" True, we did provide information about that many, many times already. But finding it amongst the rhetoric is tough. So, I was happy to restate it again. Of course, that too involves waiting: Time is needed more than anything. The first-year jitters combined with simply not being available are barriers that will overcome themselves. No redesign is needed. Prius PHV is already configured to match middle-market purchase priorities. We knew the misconceptions related to batteries would be a challenge to deal with. Fallout from the first attempts was the uncertainty, hence the delay faced now. Fortunately, just the act of taking that next step of national rollout will stimulate sales even in the markets already established. Selling a car that will basically be thought of as an appliance will never make an enthusiast happy. Acceptance of vehicles they consider dull & boring to achieve business-sustaining sales isn't taken seriously. Arguing with them is a futile endeavor. The only thing it actually accomplishes is to provide confirmation that priorities were correct. As the dust settles, those who didn't understand what was needed will grow silent. Dealing with that more-is-better nonsense is a pain, but it's nothing new. We've been through it many times in the past.
- 7-03-2013** **The Wait, rehashing.** Today's discussion was pointless. It was just the same old questions being asked again... the ones already answered in that very thread. They literally don't have anything worthwhile to say anymore. The antagonists are aren't stirring attention and those who want to help aren't accomplishing anything. It has all come down to the need for real-world data from ordinary consumers. That means Volt faces quite a challenge. Many of those owners take great pride in the fact that they are not common. They have a special vehicle that they have consistency promoted as "*well worth it*" for quite some time now. That contradicts the goal of being affordable. It's a self-defeating effort which has finally been take in. At least the wait for that is over. As for the rehashing of content we have covered countless times already, we're not going to bother. It's pretty clear the time would be better spent on things like educating new owners instead. They share experiences and request feedback. It's fun to fill in the blanks for them too. They gobble up information from owners who have had their Prius longer, especially when it comes to the plug-in model. Needless to say, that's what I'd rather focus on anyway.

- 7-03-2013** **3 million.** That was the big number published today. It's how many Prius have been purchased worldwide. I find the number and the timing thought provoking. Exactly 3 years ago, we were suffering from the extreme smug. Remember that "*Freedom Drive*" publicity stunt for Volt? The hope that stirred was truly remarkable... but was filled with red flags. We got little warnings during that event that things weren't quite right... but were assured that 3 years from now, the "*vastly superior*" vehicle would triumph. Turns out, the opposite happened. Prius is holding strong and Volt is just barely hanging on. It never ceases to amaze me how evading priorities ends up costing supporters dearly in the end. Sure enough, we watched that very thing unfold. They didn't want to address what achieving middle-market acceptance would take. They were excited about a niche, hoping it would somehow become a mainstream vehicle without having to change to meet the priorities of those consumers. Prius was designed with "*middle*" audience in mind. The 3 million sales confirm that goal of matching their needs was fulfilled.
- 7-05-2013** **Disappointment.** How do you respond to this: "*My disappointment with Toyota is they dragged their heels and let the other guys jump out ahead.*" The expectation was that Toyota would have rolled out a plug-in hybrid that took the market by storm and followed up with an equally impressive electric-only vehicle. To this particular individual, cost didn't matter. He figures a worthwhile product will justify its price tag. I strongly disagree with that, obviously. But he doesn't see the importance of directly targeting middle-market. That doesn't leave to debate with. His perspective & goals are simply too different. That meant reflecting back upon the tried & true instead. So, I posted: How do you know? PHV is a mid-cycle release. It didn't make sense to go all out, especially knowing there's lots of great feedback to leverage from by limiting the release. After all, that approach worked extremely well with the Classic model. The next generation isn't too far off when you consider when design finalization must be completed.
- 7-07-2013** **Reviews.** They certainly stir a lot of attention. The addition of a plug to Prius is most definitely doing that... especially since there is no standard whatsoever on how the electricity usage is actually reported. They write whatever the heck they want, without any detail, and just label it as an "*observation*". That's extremely misleading. But then when you consider the lack of any standards when it comes to comparing MPG anyway, the situation is understandable. Basically, the automotive reporters are still geared toward appealing to emotion rather than focusing on being practical & affordable. This is the quote that got a number of us riled up: "*But in normal hybrid mode, fuel economy dropped to 43 mpg, one less than the regular Prius.*" Needless to say, we didn't know how that conclusion was being drawn. My response was: I just got back from a 425-mile vacation, without ever plugging in. 270 of those miles were with 2 bikes on back, 2 people inside, and a bunch of cargo. The A/C was on the entire time. The other 155 miles were driving around, sight-seeing and stuff. The A/C was on the entire time. 8.87 gallons were used. 47.9 MPG was the end result. Even that extreme example delivered better fuel economy. It's frustrating to read such reviews that mislead & confuse. They clearly don't have an informative method of comparison established yet.

- 7-07-2013** **Blocked Vent?** The temperature was in the 90's. The Prius had been baking in the sun while we enjoyed a long lunch. We jumped in, I fired up the A/C, then we headed out. About a minute later, the dashboard lit up with warnings. Hmm. Was it that misleading door-ajar message? I had only encountered that one time ever. It was so easily rectified, I wasn't able to confirm either. I pulled over, asked everyone to open & close their door, then restarted the Prius. That would have been a nice observational opportunity. But unfortunately, I noticed the back passenger had also shifted position at the same time. I asked if she had been leaning up against the door. Her response was "*Maybe.*" I asked if she was aware that the vent could have been blocked. Her response was "*Want vent?*" Needless to say, the restart had already shown all was well at that point. So, there wasn't anything else left to observe. My guess is the battery-pack had sensed it wasn't able to breathe and sounded off a warning concerned that it wouldn't be able to cool itself later as I drove. The lesson learned was to raise awareness of the vent adjacent to the back seat. Mention of it in the past obviously wasn't enough.
- 7-08-2013** **Silence.** *"It's interesting how tight-lipped GM has been on the 2014. Either there is nothing to report, or they don't want to show their cards. Production starts next week, you think we'd hear something."* That quote posted by a die-hard enthusiast of Volt on that daily blog sure caught the attention of some people. June sales were strong, due in large part to the price-reduction, but that provides no indication of what to expect for July. It could have easily been a surge, the opportunity some sitting on the fence had long awaited for. After all, we know some PHV owners did the same thing. We know also though that the effect is temporary. We know that won't result in a large quantity either. GM won't be able to unload roughly 8,000 Volt still in inventory soon enough. Call me anti-GM or anti-Volt for pointing out the facts, but don't disregard that in the process. Toyota has the flexibility of just producing regular models instead. The ability to switch battery-packs offers a big inventory protection (profit retention) approach GM simply doesn't have with a plug-in only Volt. Prius doesn't have a one-size-fits-all risk like that... which is why we hear anything but silence from it. This is an important time in history. We truly don't know what will happen next... other than the inevitable spin that will follow from those who will claim the choice was an obvious one. What will it be? The silence makes us wonder. The outcome of what happens in the near future is very important.
- 7-08-2013** **Avalon Hybrid.** I saw my first today. It was quite unexpected too. I was just walking along the street and noticed that the car I approached was a new large Toyota sedan. I looked close at the interior space and dashboard arrangement. It wasn't until I backed up to look at the entire side of the vehicle that I noticed the hybrid emblem. Cool. I like seeing the HSD system implemented on a larger vehicle so covertly. It provides Toyota with lots of real-world production & support experience well ahead of the anticipated demand. They can refine the system in the meantime, improving efficiency and reducing cost with little to no attention. That's preparing for the future. Just think what that larger system could offer when the price of battery capacity finally drops significantly. Having something already well proven waiting for the upgrade is a good plan. It helps out a lot with product-diversity too.

7-09-2013 **Perspective.** There certainly is a wide variety now. Much of it stems from goals. When they differ, typically you'll find that the person isn't seeing needs the same way. The influence of urgency never matches either. For example: *"I just see Toyota's handling of the iQ has evidence that they aren't taking a plug-in market seriously."* That little electric-only vehicle is a niche offering, not intended for the mainstream. True, the audience is middle-market, but plan isn't for it to become a business-sustaining product. Not all vehicles must be profitable and sold in high-volume. Volt gets a lot of fallout because it was intended to be just that, but came up well short. That isn't the purpose of iQ. It is the purpose of Prius though. This first implementation of PHV will not only establish expectations, it will also pave the way for easy rollout of the next generation, while at the same time deliver sales well in excess of iQ. Needless to say, I did respond, but there really wasn't a whole lot to say: Compared to what other traditional automaker? Nissan is basically alone. None of the others have made any dent in the market. We also know that attacking middle-market head on rather than approaching via a niche pretty much always gets the same assessment. So, it's somewhat of a red herring until the cost drops enough to make either viable for high-volume.

7-10-2013 **True Colors.** It didn't take long for the owner who was supposedly making an effort to be constructive to finally show his true colors: *"I have nothing against the PPI or the technology. Pay for your own car, losers."* Calling out in an insulting way like that and claiming we were stealing enraged those who had been patiently trying to discuss issues with him. I posted: We've been through virtually every angle, to no avail. It started off with a thread claiming the plug-in model was a *"rip off"* and got worse from there. When you express no interest or value in our reduction of emissions & oil-dependency, that's one thing. But then when it turns to flag-waving & insults, that's quite different. We all see how much employment Toyota vehicles generate in the United States just with the traditional & hybrid vehicles. Add to that the opportunities the plug introduces, it simply makes no sense for such terrible attitude... especially when there was a very clear effort to make the design match purchase priorities of the masses. At least there is this thread now to voice opinion, rather than deal with off-topic interjections within other discussions. The big question though is: Why? My guess is not having any background information about how the market actually works. After all, many enthusiasts don't. That experience with a dishonest salesperson made the situation certainly didn't help, but lashing out at us doesn't either. To specifically address the *"loser"* comment, haven't you noticed that no matter how much some of us have an issue with other automaker offerings, we always make a sincere effort to treat owners nicely without stooping down to name calling? Use ignore if you don't agree. Post information showing your stance actually does address the needs of both business & country. Provide suggestions for improvement. Just don't resort to vague generalizations, disregard for the big picture, or remarks that clearly aren't constructive.

- 7-10-2013** **Scapegoat.** The follow-up to the "losers" insult was: *"So basically, you guys are getting someone else to pay for your expense to make this feature look like it's a good buy."* The logic of considering the true cost of gas and the penalties of the resulting pollution fell on deaf ears. He just plain did not care. He got misled by a salesperson, missed out on the discount opportunities, and now wanted to take out his frustration on us. He needed a scapegoat to feel better. We weren't happy about his short-sightedness. But making it personal took the "rip off" argument to a whole new level. I tried to remain constructive though: The point of the tax-credit is to help rapidly establish the market. If used well, by the time it expires, that cost differential will have been eliminated. In other words, the \$2,500 some of us get will be matched by a \$2,500 drop in cost. The so-basically fails to acknowledge that purpose... which is realistic for Prius PHV to fulfill. Enough, or should we also point out oil is still heavily subsidized?
- 7-10-2013** **Decontented Volt.** Those few still left on what remains of that daily blog for Volt aren't happy when someone else echoes the same message I've been conveying for years... The current configuration of Volt isn't enough; another model must be offered. Of course, whenever I expressed that, they'd spin it to mean GM should abandon the current model entirely. Even though that most definitely not what I have said, that is what they hear. After all, posts are always assumed to somehow be related to Prius, despite that never have been mentioned. They don't want Volt to become common, since then it won't stand out anymore. That loss of being special undermines all that they've worked so hard to endorse. It's a losing battle. Becoming mainstream requires uniqueness to be forfeited. That's too great of a penalty in their mind. So whenever an affordable model is mentioned, they get very defensive. I finally chimed into the discussion with: This group has been dead set against GM offering a second model of Volt for years. They know something affordable & profitable for the masses to purchase is a necessity, but they'd rather gamble on the next generation than address product diversity. Of course, the current inventory situation and the topic at hand (upcoming 2014 models) will force change anyway. So, it's a basically a moot point at this stage. The time for being proactive has already expired.
- 7-11-2013** **Fundamentals.** How many times can the same comments be brought up? The purpose of antagonist is to undermine, to prevent conclusions from being drawn. So, any kind of doubt that can be raised or point that is no longer in context will be exploited for that purpose. It would be quite maddening if you were willing to play that game. I do only for milking out information that otherwise wouldn't be surrendered. They get desperate sometimes, unwittingly revealing a weakness for the sake of winning an argument. Sacrificing the war for a battle never makes sense. But then again, their intent isn't sensible anyway. My choice was to post: Still trying to buy time and completely disregarding all the other excuses, we are finally down to the fundamentals. Prius was configured to achieve profit without change, and it did. Volt most definitely was not, and will not. Quite a bit of reconfiguring is needed still. That's a fundamental difference you cannot just overlook or dismiss.

- 7-12-2013** **EV Confusion.** Sometimes, a bit of exposition is helpful: Prius PHV is a plug-in hybrid. That means the engine shut off when it isn't needed. While in EV mode, you are telling the system to draw as much electricity from the battery-pack as possible. While in HV mode, you are telling the system to draw less. Switching modes changes tolerances, it doesn't prevent. As some have pointed out, even while in HV mode, estimated EV range will slowly drop. The system is seeking out efficiency opportunities and taken advantage of them when they are found. That's what is supposed to happen. This is why there is still an "EV" symbol even while in HV mode. When it illuminates, that informs you some capacity which would otherwise be used for EV is being consumed. Technically, that actually is EV mode, since the engine isn't running. To avoid confusion, as it is a feature of HV mode available in both the plug-in and regular models of Prius, those of us wanting to keep things straight call that STEALTH mode.
- 7-12-2013** **Direct Confrontation.** A new discussion thread was created to deal with the problems we've been having with the "*rip off*" poster. His attacks on PHV quickly turned to lashing out at individuals. We wanted to know more, but not at the expense of other threads. So, a new one was created exclusively to address the issue. I joined in with: This thread has turned out to be quite informative. I was scratching my head wondering what in the world motive could be. The ardent nature of messages didn't match the words actually being posted. Facts were being dismissed and ignored. It didn't make sense. Why lash out at owners rather than just the technology itself? We ended up finding out there is a strong resentment for those having received credits & rebates for their purchase. Since he didn't have that opportunity, the reaction is understandable. It's not reasonable. There's simply no place for insults like that. But having those feeling is though. Paying more for less happens sometimes. It's frustrating. Being a victim of misleading makes the situation even worse. There isn't much we can do to make things better. Life isn't fair. That sucks. You have to focus on positives. Make the best of the situation. After all, having a regular model Prius is still quite nice. Resale value stays high. MPG is well above traditional vehicles and all the other hybrids without is plug. You are still contributing to reduced emissions & consumption.

7-12-2013 **Stuff happens.** It's hard to believe some posts come to this: "*But you are not entitled to make up your own 'facts'.*" It's not surprising though. Some people make up their mind and you are stuck with them unwilling to even consider anything else. A number of us have had it. He has declared PHV a failure and that's that. I sounded off with: Rather than just provide information, we get conclusions drawn for us and they presented as "*facts*". Toyota hasn't even expanded rollout beyond the initial markets. Yet, we are told the game is over already. The outright dismissal of purchase priorities, like helping contribute to a better world by supporting the effort to reduce emissions & consumption, there's nothing but arguing about financial return. That type of absolute isn't constructive. Add to that the childish name-calling and complete disregard for consumer understanding, it's basically a futile effort to attempt reason. This isn't anything new to Prius. We've been through it many times in the past. What makes it different now is the scale. Offering a plug-in model changes perception of the regular model. That's great for the ordinary consumer driving a traditional vehicle still, but it puts those who considered the purchase the plug-in and ended up getting the regular instead in a difficult position... especially if their decision was heavily based on financial points and they now see their original calculations in error and substantial rebates reducing price. Long story short, the resulting spin is a manifestation of buyer's remorse we simply cannot do anything about other than allow him to vent his frustration. Those "*facts*" will be drowned out by the real-world data contradicting them. So, there really isn't much to be concerned about.

7-12-2013 **Excluding Business.** Sometimes it is rather pleasant to just deal with PHV outlashing. The rhetoric with Volt is really getting old. Some just plain don't care about the business aspect, so they exclude it entirely. It boggles the mind that anyone could intentionally be so short-sighted. But here it is: "*We (not you) are talking about the technology and engineering here. This is what has leapfrogged the competition.*" It's that same definition of success they've evaded all along. You ask for goals, they respond with praise for the design. I've had it with this too. So, I posted: That trophy-mentality is what pushed Volt in the wrong direction, encouraging GM to deliver a car enthusiasts will praise. The consequence is a vehicle not drawing interest from the mainstream, piling up as unsold inventory on dealer's lots. Had that "*we*" embraced the idea of GM diversification by offering a second model of Volt, one much less expensive and configured to match purchase-priorities of the masses, the situation currently being faced wouldn't be so dire. Focus on technology and engineering only has consequences. That blatant dismissal of business need is now proving to be a poor choice. In the meantime, the competition is striving to deliver what GM did not. The leapfrog opportunity was missed. We could see GM join in with the next generation offering. But there won't be a trophy for that. They'll be a partner in the effort to phase out production of traditional vehicles. To those who that upsets, just do a search of 2013 models still available for purchase. The majority of consumers, middle-market, simply aren't interested. Their needs & budget are quite different from the "*we*" here. Those of us here referred to as "*you*" will continue to remind about the realities of a business needing profit and what happens when the tax-credits expire. As for the frog, notice how hot the water is getting?

7-13-2013 *"too little, too late"* I couldn't let that particular summary slip by. Those defending GM on the big Prius forum are basically just providing damage-control at this point; there's nothing to actually hope for anymore. It's counter-productive not drawing conclusions at this point anyway. But pride is a big barrier to overcome and anything we say to that effect ends up making us sound smug. So, I tried to convey the situation with: *"too little, too slowly"* was the concern expressed by the auto-taskforce when the bankruptcy recovery was being planned and throughout the years that followed. We were assured there was nothing to worry about. Now all we get is a stream of excuses without any plan. Neither Two-Mode nor BAS/eAssist were able to reach beyond initial rollout. What makes this effort with Volt different? We see small cars and diesel as the current push from GM. How does a hybrid offering fit into the mix now? The clock is ticking. When the \$7,500 tax-credit expires, that difference must be made up for by GM... since even with it, the main complaint is price is still too high and no profit is being made. Many people, especially some participating on this thread, forget that traditional vehicles are the true competition. GM is competing with itself.

7-13-2013 **Absolutes.** You gotta like this: *"If the car is not capable of electric only max power then there is NO all electric range. The EPA, CARB, etc, should see it this way. They should only provide blended MPG and gas only MPG numbers."* That effort to support purity is still going nowhere. Being horribly vague, it won't. But that's what those pushing generalizations do. They want you to think in terms of absolutes. The hybrid approach of taking advantage of whatever the situation presents messes up that effort. Nonetheless, I had to respond with something: Finally, something constructive to discuss. Thank you! With everyone else -1 voting to make comments disappear rather than actually address them, that is a welcome change. Unfortunately, the term *"max power"* doesn't actually mean anything. For that matter, there is no *"max speed"* either. It's all quite vague and differs amongst audience. No standard has ever emerged. The measure of maximum doesn't reflect upon real-world results anyway. As for your suggestion, the *"blended"* would need to be divided into 2 separate categories... before & after depletion. The latter is what we currently have available from the EPA. They don't provide anything direct with respect to MPG while plug-supplied electricity is being used. That's because you wouldn't be taking into account all fuel consumption, only what the engine is doing... hence the MPGe value. While blending with plug-supplied electricity, I see efficiency averaging well over 100 MPG. What does that number tell the consumer wanting to know more about how the system works?

- 7-13-2013** **Blended & Purity.** There are a handful of bitter & resentful Volt enthusiasts still. Having lost the ultimate test of success, achieving mainstream sales, they seek out ways to vent their frustration. You can tell their emotional distress runs deep too... which means reasoning won't work. Logic is outright dismissed. They just want someone else to suffer at this point. Having been proven incorrect is an uncomfortable place to be. But to attack others makes the situation unacceptable. The way this has manifested itself is in the form of misleading. Among Volt's strongest traits prior to the actual design having been revealed was the belief of purity. The engine would only be used as an emergency backup and would never provide power directly to the wheels. Well, that obviously fell apart. It never had any substance to support it anyway, but hope is a mighty powerful influence. Anywho, those few individuals still frustrated are lashing out at the plug-in Prius by attempting to create a misconception about blending. Succeeding with that would make Volt still stand out. They want you to believe blended operation causes an extreme MPG drop. It doesn't. But making people assume there's a huge penalty is there hope. I simply responded with: Think about what "*blended*" actually means. It's just an indication of at least 1 injection of fuel was utilized. That's all. So even if the engine shuts off just a few seconds later, the drive is no longer considered pure electric. What about when the heater is needed? In other words, the EPA estimates don't tell us the whole story. Notice how there isn't a usable-capacity listed?
- 7-14-2013** **Unwatch.** They did every possible thing they could think of to prevent conclusions from being drawn. It didn't work, since my purpose was to draw conclusions. I wanted to know who the troublemakers were. With the venue the big Prius forum, it was important to find out who would keep trying to raise doubt and would ask the same questions over and over again. They clearly didn't want to be constructive. They just wanted to level the playing field, to undermine success to allow time for mistakes to be corrected. Well, too bad. I now know who those Volt antagonists are and have put them on ignore. That's not something I like to do. I want to have very good reason not to listen to what someone has to say. But when there are so many others would genuinely want help and these particular individuals are just wasting your time, it's ok. So, I did. They I draw a conclusion they hadn't anticipated and could do nothing about. I simply ended a post with "*unwatch*". There's no way for them to respond to that. They knew I had moved on. And since virtually everyone else had already, there was no audience left. The thread came to a screeching halt.
- 7-17-2013** **Sick Week.** I came down with something nasty and have been stuck at home the past few days. My driving is for nothing but food, mostly runs to keep dehydration from becoming a problem. The convenience of not having to leave your car to get a tasty drink sure is nice, doing that using nothing but electricity is even better. Anything I desire is easily within range of the battery-capacity. I'll be sick for a least a few more days. So, this week is going to be really odd for the statistics. Getting out for some fresh air is a plus. Not having to deal with the daily commute is too. Missing out on Summer activities due to being sick sucks. The weather has finally taken a turn for the better, perfect for getting out on the kayaks. Yet another thing I can do with only electricity, though I'd gladly use some gas for the sake of recreation. Taking advantage of when the outdoor conditions are beautiful and your health is good really will be important to me this year. In the meantime, cough & snuffle. Blah.

- 7-18-2013** **Battery Longevity.** It's nice being able to switch over to answering newbie & research questions. Today's was about battery longevity: The careful avoidance of both high & low for battery-level is a major contributor to longevity that other rechargeable devices just plain don't have. Using the timer, to take advantage of cold-soaks, is another. It could take several years before even a small drop is noticed. I certainly haven't seen anything. In fact, the consecutive EV miles from driving my morning commute with a cold engine seems to have increased a little. I'd attribute that to break-in of the drive components. The battery itself hasn't ever raised any concern. Of course, I never immediately recharge and the interior of the car rarely ever gets super-heated from the sun. The system is designed with long-term use in mind. Only recharging to 85% rather than 100% is obvious confirmation of that. The same goes with the low-end, always starting the engine at 23.5% to ensure deep discharging never takes place. It's intended to deliver many, many years of service without much degradation.
- 7-18-2013** **After All.** Hearing that GM has formed a committee to watch the competition is no surprise. We already have confirmation that the huge price-slash on Volt resulted in a surge of sales, nothing to show sustainability was achieved. Looking at the online inventory, the purchase-rate has slowed to a crawl. GM clearly has reason to worry about high-efficiency sales. On the traditional side, GM just announced the intent to significantly increase production & sales of their vehicles like Cruze & Sonic. There was also official word that the next-generation of Cruze would be delayed by a year to capitalize on recent strong consumer demand for it. In other words, that question of knowing your audience is coming back to haunt GM now. They didn't understand who the consumers were and truly believed the "*if you build it, they will buy it*" approach would do the trick. That obviously didn't work. This market isn't what they had anticipated. Turns out, some of the naysayers really were contributing good advice after all.
- 7-19-2013** **Finally.** All the nonsense coming from Volt is over. With inventory on dealer's lots still high, despite deep discounts and high tax-credits, there's nothing to spin anymore. The blind hope that was impairing the market is gone. Toyota intentionally steered clear of it. Many misinterpreted that choice, which is why there was an endless stream of comparisons with GM rather than evaluating each automaker's own product-line. Now, it is confirmed as having been a wise move. I was truly amazed how misunderstood the market was. So many enthusiasts didn't have a background in economics, all arguments ended up focusing solely on engineering... which ultimately meant having to wait. The world today clearly reveals what GM wanted to sell is not what GM needed to sell. Those same enthusiasts who were horribly smug have stepped down, admitting that the "*vastly superior*" approach didn't work. They see the next-generation of Volt as being quite different. We are finally transitioning to constructive, far from the hype of the past.

7-20-2013 **Tesla's Influence.** There's a new thread on the big Prius forum stirring the pot in a new way. This was the post I especially liked: "*That article brings up no surprises at all. GM is nervous with Tesla, plain and simple. Yeah, one could call Tesla a disruptor, so be it. Innovations like Tesla is good for business and consumers.*" It made things clear the mixed messages of the past are even more of a problem now. I chimed in with: That lack of acknowledgement for the obvious is what has made Volt a topic which attracted so much attention. Enthusiasts went to extremes to tell us Volt was not the same as the plug-in Prius, then contradicted that very claim with direct comparisons. So, you'd ask who Volt was intended for. They'd evade the question. Eventually, when sales faltering could no longer be denied, focus on audience changed. We were led to believe the purpose of this generation all along wasn't to reach the mainstream, it was to tap into a new "*electrified*" market. That sounded reasonable... until Tesla's success became apparent. WHO IS THE MARKET FOR VOLT? That's the question Volt supporters have come to despise, since they truly don't know. The fear is that GM is completely reconfiguring the next-generation, sacrificing certain design aspects enthusiasts praised for the sake of it being able to appeal to middle-market. It's what should have happened originally. They just didn't want to admit the disconnect in priorities, hoping circumstances were change in the meantime. Seeing Nissan, Toyota, Ford, and Honda all taking the need for high-volume profitable sales seriously, while watching the success of Tesla, is far more of an influence than any of our preventative advice prior to rollout. GM knows now. The uncertainty of who is costing them quite a penalty. Forming that committee to observe confirms the worry they should have had all along. Better late than never?

7-21-2013 **Customers.** There are only a handful of Volt defenders left now. The others have shifted over to the how-can-we-change-for-the-better side at this point. To those who insist they know better, our posts are few and far between. Today's was started with: "*When a manufacturer launches a product, it is mandatory that the organization KNOWS and UNDERSTAND its' customers. GM is struggling with this all along.*" I contributed: Prior to rollout, Toyota established direct relationships with those hoping to become owners. They'd provide detail about how the system operated, intended goals, and targeted audience. We'd become the well-educated contacts to assist with the rollout process. It was a win-win situation. We had the opportunity to ask both the lead executive and top engineer of the Prius project questions. They worked surprisingly hard at being as forthcoming as possible. Concepts very new to the industry, like in-motion startup of an engine using a motor-generator and emission-cleansing to achieve the SULEV rating, were carefully explained. I was delighted by the level of information they were willing to share. It was fantastic... and a very different approach from what GM chose to take. The relationship held strong throughout sales of the Classic model. When the Iconic model was introduced, we still had an open communication line to ask questions and get answers. By then, Toyota's own internal education program tapped into that owner relationship to ensure everyone knows and understands. That proved to be extremely effective too. Who did GM include in the committee they just formed? Will there be an opportunity for consumer input? Or is this just another example of "*only GM itself*", leaving those who don't work for GM but have helpful insight without any way to provide input? A post this week from a die-hard Volt owner who previously owned a Prius stated the situation this way: "*We all know Volt's problem is price and profitability.*" That type of candid feedback is long overdue, something Toyota went to great efforts to avoid and successfully did. Cost was treated as a very high priority and continues to be. The design was configured to be enhanced overtime, as pricing would allow, rather than necessitating a new generation. Pointing out the risk taken and the lack of flexibility doesn't achieve anything anymore, nor does identifying the product-gap. It always boils down to knowing and understanding customers. Just look at how "*want*" and "*need*" are defined to see the lack of clarity still. The struggle will continue until those mixed messages cease.

7-21-2013 **Cost of Gas.** Here in Minnesota, we get our oil from Canada. That makes the "*paying terrorists*" argument about oil dependency self-deprecating, immediately informing us the arguer likely didn't actually research the situation. It's a handy credibility measure. That's important, since here coal is quickly being replaced by natural gas and ethanol is produced locally. We've been experimenting more with wind too. It makes the state more accepting to change than others, which is clearly confirmed by the number of Prius on the roads. Gotta like that. Anywho, the Keystone XL pipeline controversy has recently revealed a new problem for us here to seriously consider. The purpose of that pipeline is to provide a means for Canada to export their oil to other markets, like Europe and Latin America. Doing that would open up demand, resulting in the discounting of supply close to the source (like here in Minnesota) to come to an end. The price of gas would go up. The prediction is somewhere between 20 to 40 cents per gallon. Seeing that happen could easily result in even more of a boom in the effort to drill in North Dakota. This certainly puts some perspective on the need for hybrids by the masses. Our obsession with oil isn't a comforting thought. We're still not taking the cost of gas seriously.

7-21-2013 **Diesel.** He asked: "*What is the future? I think it's still better than the plain old gasoline engine. I live in the present and diesel works fine for me here.*" Knowing he was a diesel owner, I could resist joining in this particular discussion: Diesel = Fine = C. Getting a grade of just status quo isn't exactly a good sign for the future. We really need to strive for a better tomorrow. Comparing to plain old gasoline isn't constructive. Some of us have been driving hybrids for over a decade already. Hybrid = Very Good = B. Plug-In Hybrid = Great = A. Let's not overlook how dirty diesel actually is either. Requiring a urea system to cleanse emissions just to bring them to the level clean enough to meet minimum allowable criteria is embarrassing. We shouldn't have to lower our standards for diesel that much when SULEV & PZEV ratings are so easy to achieve with hybrids. As far as the "*Fossil-Fuel Mileage Champ*" title of the article (for this discussion) goes, excluding hybrids fueled only by gas is quite an omission... especially when the regular Prius delivers greater efficiency in every category... not to mention that it offers a larger interior than Cruze diesel too. And with such a massive difference between highway & city efficiency, overall MPG is going to be far lower than the advertising will inevitably lead people to expect. 46 highway. 27 city. Combined is only 33 MPG from the diesel. That's dramatically lower than the 50 MPG combined from Prius. What makes diesel compelling? The reality that it costs more per gallon than gas is a big deterrent (not to mention refilling the urea tank, roughly 7.5 gallons every 15,000 miles, or the upfront premium). That makes the fun-to-drive argument a wash when there's a gas version of the same vehicle available.

7-21-2013 **Ethanol.** Even though I've driven each of my Prius over the past 13 years using nothing but E10 for fuel, some people just plain don't like the idea of blending gas with any ethanol at all. There's a fear it will somehow damage the vehicle (despite no evidence to actually support that) and the frustration of losing about 3% of your MPG potential. Fortunately, mixed in among the message a constructive question emerges. Today it was asking why pure gas is still used for EPA estimates. That's a legitimate thing to consider. Several of us replied back with information. This was mine: Listing the wide variety of Ethanol blends would quickly become a nightmare, especially when E## only indicate an up to value, not an exact quantity. It can differ from fill to fill. E15 and E20 testing has been going on for years now, due to upcoming mandates. Including them next to the E0, E10, and E85 values currently in play wouldn't really benefit anyone, nor would the extra expense for the testing. The situation is confusing enough already anyway. Keep the ultimate purpose in mind. The EPA estimates don't actually represent a MPG expectation. They are really only provided as a standard basis for comparison.

- 7-22-2013** **Wow!** I recently compiled a list of posters simply not worth wasting time on anymore. They'll end up on ignore. If something worthwhile comes from them, other members will point it out. Then I'll join in; otherwise, it's clear their motive is to simply just keep discussions from ending. Remember all those years ago, back when that wild "*up to the chore*" debate captivated so many? That was their goal... preventing people from drawing conclusions. Today, there was a fresh attempt with this: "*I thought you said when prius phv sales started gm sales would stop.*" It was a completely fictitious comment. I never said any such thing. He knew it too, since the next post twisted the words with the hope of getting me to respond... hence the term trolling. They just keep trying. I'm simply not interested. There are so many newbies, those researching hybrids, and those deep into the ownership experience that I'd enjoy responding to instead. It's exciting to be able to help them out. Sadly, they too have to make an effort to ignore the rhetoric. That's why the more experienced try to quickly squash their attempts to undermine. I must admit, today's provoke was a good one. I was surprised anything so blatantly obvious would be tried.
- 7-23-2013** **Short Trips.** There was a strange new thread started recently. After a number of people got frustrated with the new member's behavior toward replied, I joined in: It's always fascinating to see someone attempt to bring about new discussion by presenting something already well proven in a new way. Antagonists do that to raise doubt and prevent conclusions from being drawn. They enjoy the ongoing exchanges, but their polarized views and credibility attacks make it pretty easy to see intent. Newbies are a different matter. You don't know if they are simply poorly informed, don't have the background to follow technical detail, or just feel the need to prove something. We do our best to get the facts out and hope for the best. In this case, the "*short trip*" problem has always been the efficiency penalty caused by the first few minutes of driving, due to the engine warming up. It meant a brief drive somewhere, like just a few blocks to the local store, would result in really low MPG. The only way to avoid that was doing short trips while the engine was still hot. Of course, with the availability of a plug-in model, those nearby errands can be run with just electricity. In other words, there is no myth.
- 7-24-2013** **Not Right.** When you get the feeling something is wrong, how do you respond? "*It isn't something we could avoid no matter how far we drive on any given day. So my point was why some people would give false impression that short trips are bad. Well, short trips are bad, I agree to that but it is not something anyone could avoid.*" Reading that left many frustrated, including me. It was as if the poster simply didn't care what you had to say. Being that close-minded is really odd, especially in the forum venue. Owners try to help each other out, not provoke each other without any clear purpose. Me, I ignored the banter and attempted to draw focus back to the comment actually made with: That's the rub... you can avoid them. We tell owners to run their errands while the engine is still warm. That will result in less gas being used than driving later after the system has cooled down. You plan to stop by the store on your way home or combine several trips into one. Also, don't forget that the plug-in model provides a solution to the brief drive penalty. So, there really is a difference that is being directly addressed by the upgrade. The thing we can agree on is how poor of an efficiency measure MPG is. It doesn't represent how much fuel is actually being consumed. It's just a end-result calculation with no reference to distance traveled.

7-24-2013 **Each Month.** We know that is the ultimate goal for every vehicle; it's either niche or mainstream. Each category has its own merits, but they are mutually exclusive. A niche vehicle doesn't have to generate business-sustaining profit, but a mainstream vehicle does. So, it's quite appropriate to treat them differently. A select group of individuals introduced a new category, the "*early adopter*" phase. These are the particular individuals who stir trouble every single month, which is really getting annoying. The rest of the Volt supporters have acknowledged Volt is actually the second-generation design of Two-Mode. Having seen that information in great detail, it wasn't be a deal for them. But the antagonists just plain don't like that, since it puts this stage into perspective. Remember how different expectations were back in 2007? Remember how they changed dramatically in 2010? Think about how much they've changed since then. How are they going to convince the world the third will cost dramatically less without having undergone a major transformation? Resistance to even the idea of a second model (a smaller battery-pack and more blending) is quite intense. No matter what you say about the importance of profit & choice, it just gets twisted into a series of excuses... each month. We want that to end. Ignoring posts doesn't work though. They just attack Prius PHV to stir attention. It's why this moment now is so important... prior to national rollout, while Ford is beginning to gain traction, and GM is attempting to clear out old inventory. The 2014 model years represent change. Unfortunately, this is how we have to deal with the situation in the meantime: Volt is a polarizing topic. The suggestion of offering a second model gets labeled as "*hate*" and is treated as if you are calling the current model "*failure*". It's an absolute. There's no in between. You are either for or against. Long story short, we will continue to see that until GM breaks out beyond the one-size-fits-all approach. The need for diversity causes a lot of pressure. It's a normal and quite predictable response by supporters & enthusiasts. Prius PHV is not like that. It coexists with other models. The idea of altering battery-pack capacity is commonly posted about. There aren't the avoidance issues as we see with Volt. There isn't worry that all will be lost when differences are later introduced.

7-25-2013 **Growing Pressure.** I'm delighted to see Nissan Leafs popping up here all of a sudden. I saw 3 today. One of them is now sharing the charging-stations at work. The others sightings were just random on the road. I've seen a few others throughout the week too. As you could imagine, that does contribute to the frustration Volt supporters are feeling. That particular electric-only vehicle was supposed to have the "*range anxiety*" shortcoming. Turns out, some consumers don't see that as a problem. Consumers obviously don't see a problem with hybrids that don't even offer a plug either. That growing pressure from both ends in the mainstream arena is becoming uncomfortable. The question of "*Who?*" is being answered by them, with a response that contradicts their arguments in favor of Volt. To make matters worse, that's a good endorsement for PHV when it finally rolls out nationwide. The priorities of price & practicality outweigh the features Volt has won many trophies for. Engineering recognition doesn't necessarily translate to business success. They're finding that out the hard way. Middle-Market doesn't care much about awards, with the exception of reliability. They want a good buy, a vehicle offering an all-around balance. Nissan's focus on that rather than offering longer range is proving to have paid off. Toyota's focus on price, interior room, and depleted efficiency should pay off as well. This is why there has been a continuous push on GM to offer another model of Volt, one that strives to offer a balance instead. We don't have to point that out anymore either. The piled up inventory combined with other choices getting attention... like GM's own Cruze, which has been selling extremely well lately... speaks volumes. We don't have to say much anymore. The pressure does all on its own.

7-25-2013 **Banned Troll.** Remember the "*rip off*" poster? He was the new member, who immediately upon joining the forum, attacked the plug-in Prius owners. Remember how he called us out for "*stealing*" from others? It was quite bizarre. His abrupt disappearance didn't come as much of a surprise. We figured him vanishing like that was the result of being banned. I was thankful. Some who doesn't even try to be constructive is worth wasting time on. Oddly, another type of attack started almost immediately after that other ended. It was quite bizarre too. We never get back to back problems that way, which made me wonder. This time though, the arguing was against Prius in general... that "*short trip*" penalty, presented as a myth. It stirred the forum in an odd way. Why bring up something already so well proven and call it incorrect? Valid points were being presented, but they were all red herrings... not actually related to the topic. How could anyone begin fighting everyone with nothing to gain by winning? It didn't feel right. Then I noticed a familiar statement in the newest post. The myth topic suddenly shifted to stealing. It included a nearly word-for-word sentence about PHV sales too. That's one heck of a coincidence... or was it? Could that be the same person, back with a different identity? After all, that's how trolls got around bans in the past.

- 7-25-2013** **Dream Machine.** It's hard to believe anyone would actually make a comment like this: *"Wouldn't the PIP Prius be everyone's dream machine if the electric range was extended and the price was lowered 20%?"* For well over a half century, some people have been amazingly passionate about constant improvement. Each generation ushers in advances. It's a never ending cycle. Better is the expectation. So, there really isn't ever an ideal. I tried to convey that: Nope. The target is always moving. 13 years of Prius support make that quite clear. The size, price, speed, power, emissions, and efficiency of the current Prius is the dream machine compared to what I first purchased way back in 2000... and that Classic was a clear improvement over the original. Improvement is on going. How much can be delivered at a specific price-point is the constant.
- 7-25-2013** **Move On.** The poster of the dream machine comment followed up with: *"I am anxiously looking forward to seeing how much the "target" moves when the G4 is finally introduced."* But rather than entertain more ideas, he simple said it was time to move on. That was bizarre. What would we move on to? Coming from a topic with 350 posts, what else could be discussed? I posted: We all await that. After all, there is no way of knowing how much of a MPG improvement for HV will come. But the market mentally is it must be substantial, even though that isn't actually associated with any particular quantity. They expect more for the same price... even if the rest of the vehicle is improved across the board. Despite the reality of diminishing, people want to see a bigger number. Targeting the middle is quite a challenge. Of course, playing the game isn't too difficult. If you stick to balance, raising the bar later on things like capacity is way easier than trying to squeeze out cost-reductions. After all, we've seen that approach successfully used time after time in the computer industry. Sadly, stuff like faster warm-up speed will go overlooked by most. The efficiency related to blending likely won't get squat for attention either. But at least we do have things to look forward to. People simply don't have a background. They don't understand how the system works. For me, I get excited every time I see the reaction on people's faces when they discover that recharging is a simple matter of plugging in the charger to an ordinary household outlet. That is obviously a major misconception currently impeding growth progress. When I tell them the resulting MPG, their first question of range becomes a non-issue.

7-26-2013 Pivotal Day. Sure enough, that same troll was back. He just plain didn't care either. His goal was to undermine in any way he could. It made me think about the way I was considered way back prior to Volt being rolled out. The catch was, my push was in the other direction. I wanted more, sooner. That's quite the opposite of what happened today. It was exciting to watch the revelation come from several people, all putting together the puzzle at the same time. They knew who was attacking and why. The reason is vindicating. Prius PHV is considered a threat... so much so, this was posted on the forum dedicated to Volt: *"What do you all think of the idea of GM keeping the existing Volt pretty much as is, with a 40 mile range at \$39,000, and also offering a Volt with a smaller battery, say 20 mile range, at \$27,500?"* At this point, it has become overwhelming clear that my push for a second more affordable offering was indeed an effort to help, not to impede. Trouble is, they understand the consequences of that choice. Fortunately, some are now willing to put pride aside in favor of mainstream appeal. See, when capacity is reduced, so is the power available. A smaller battery would mean the engine would be needed at times of high demand. They'd have to sacrifice the purity of electric-only drive. None wanted any part of that in the past. Of course, some still feel that way: *"I would not give up range for anything.....period!!"* Reading that was especially amusing. They can be their own worst enemy at times. The catch is, more are learning that the augmentation of Prius did indeed deliver more power. Upgrading the battery-pack increased the maximum draw from 27 kW to 38 kW. They didn't want to believe claims to that effect. Heck, even one of the posts with that information got removed in an attempt to conceal the truth. It didn't work. To make complicate matters, they know that traction motor is capable of utilizing even more electricity... up to 60 kW. Bigger means more power. Smaller means less. What makes today pivotal is the fact that some are willing to finally talk about that. Open discussion is a true step forward. Actual progress. Yeah!

7-26-2013 What If? Someone finally asked this question seriously: *"What if it was Toyota that made a car matching the Volt in all respects?"* In the past, it was always in the form of a rhetorical accusation, intended as an insult. That was frustrating. But knowing their purpose was to bring down your credibility rather than actually listen, it was no surprise. Anywho, this is how I answered: Reputation is factor not to be taken lightly; however, the balance Toyota strived for with Prius has been a major sales draw. GM made compromises with Volt which soured the appeal for everyday consumers. Watch how the upcoming generation changes to draw middle-market interest. People have given Toyota quite a bit of grief for the way Prius looks, but there's no denying the midsize hatch is remarkably practical. Ordinary purchase priorities shouldn't be pushed aside in favor of squeezing out range or power that really isn't necessary. That will result in enthusiast sales. It isn't what you do when making a product for the mainstream, on that is expected to deliver business-sustaining profit. Hopefully, GM learned its lesson and we can just write off this attempt as a rough start. Watch what the other automakers do. Ford is especially noteworthy; seeing how their Energi models catch on will tell us a lot about potential market opportunity. Toyota will obviously be closely watching.

- 7-28-2013** **No Charging.** Today was one of those rare ones where I didn't have an opportunity to plug in. No charging at all means ordinary hybrid efficiency... for a Prius, with a lithium battery. I was quite pleased with the outcome. 35 miles of driving throughout the day. The average was 68 MPG. That's fantastic! Fortunately, I had the camera available to document details. It's nice having examples of what's possible. Variety of driving circumstances takes awhile to collect to, so the photos help serve as a reminder of when something happened. In this case, I was just doing weekend running around. I stopped at my girlfriend's place and then went over to my sister's. It was pretty basic, the same kind of driving countless others have done with their Prius... only they don't have a the plug-in system, which is a little bit more efficient, even when you haven't plugged it. See... [photo album 183](#)
- 7-28-2013** **Product Gap.** Each month has been ending with something entirely new to talk about, a rather blatant distraction from Volt's struggling sales. This month, that topic is the supposed discovery of a test mule. It appears to be a new hybrid from GM. How convenient... and hypocritical. I had quite a few of the die-hard Volt enthusiasts outright attack me with hostile posts whenever I brought up the product-gap. Now, they too are saying the very same thing I did. For example: *"The 2-mode is expensive and complicated, but GM has a huge hole in their product line. They have e-assist and Voltec and nothing in between."* To have someone who had been previous fighting that very comment now make it himself, there's some frustration. You know they'll deny it. There will be some creative way of spinning the situation. Whatever. At least acknowledgement about the product-gap is now happening. Long overdue is still better than not at all.
- 7-29-2013** **The Spin.** That product-gap quote from yesterday was posted on the forum dedicated to Volt, where I don't participate. In fact, most non-owners don't. That's what the daily blog is for. Anywho, the topic today for that blog is the product-gap. Of course, the spin is in the form of: *"Is Chevrolet abandoning Voltec, or preparing the next variant?"* That wording was carefully chosen to stir attention and draw participation. The need for something similar to what Toyota & Ford offer is obvious. Thinking Volt will be canceled isn't realistic, since it could easily survive as a niche. But the necessity for a mainstream product is putting a lot of pressure on GM. Something must be delivered. This is what the controversy has been about all along. They can no longer just hope for the best. The risk is simply too high. There must be something offered for middle-market. Only the choice of an expensive compact plug-in isn't enough for ordinary consumers. With sales of Cruze so high, there's no argument anymore about what needs to be done. No amount of brand-loyalty or flag-waving will hide the reality of GM having *"nothing in between"*. Filling that void is essential.

- 7-29-2013** **Competition From Within, part 1.** It got a bit absurd, back to the terribly misleading tangent starting with: "*So if we compare apples to apples...*" I was amazed anyone would still try that. At best, it is just an excuse for delay. So much for leap-frogging. Anywho, I responded posting this: GM already had extensive experience with electric-motors & battery-packs when Volt was rolled out. That most definitely wasn't the case when Toyota rolled out Prius. It was all brand new back then. Gas was dirt cheap all those years ago too. There wasn't concern about oil-dependency either. In fact, we were encouraged to consume it and the topic of climate-change was considered a joke. Let's not forget the government incentives either. Prius only got a \$2,000 tax DEDUCTION, which worked out to about \$350 for most people. That's not even remotely close to the \$7,500 tax CREDIT offered for Volt purchases. And what about all the support for plug-in vehicles now? There wasn't any type of cooperation like that back when Prius was new. In fact, certain automakers launched anti-hybrid campaigns. There was an array of misconceptions to deal with too. The circumstances are far more in the favor now than they were back then. Each automaker is striving to deliver something highly efficiency & clean. Even a new automaker selling nothing but plug-in vehicles has emerged. There are manufacturers of charging-stations pushing mass-acceptance as well. Calling the situation an apple-to-apple compare is not constructive.
- 7-29-2013** **Competition From Within, part 2.** I sometimes follow their red-herrings for an opportunity to make it clear who the competition actually is. They lose focus very easily. Unfortunately, some never even consider the fact that GM can be a contributor to its own problems. That most definitely is the case with Volt. So all this nonsense about comparing it to Prius of long ago makes no sense. They are trying to win a battle that doesn't actually accomplish anything. Fortunately, it's becoming ridiculously easy to see. The July sales results will emphasize that. Online inventory listings indicate June was just a temporary surge. Toyota's plan to rollout PHV nationwide the end of the year seems so wise of a decision at his point. Avoiding the mess GM created for itself should pay off. We'll be able to have constructive discussions without the endless number of distractions we're dealing with now. Anywho, this was my follow-up: Reality is, you have some good points, but Volt is getting absolutely crushed by GM's own offerings... mostly notably Cruze. Competition from within is a major challenge to overcome. Focus should be on that, not what happened over a decade ago with another automaker.
- 7-29-2013** **ICE Violations.** When a lot owner goes to the trouble of installing charging-stations for patrons to use, they too get frustrated when an ICE (that's a regular Internal Combustion Engine vehicle without a plug) parks in that spots. Those of us with a plug can't use it then, even when we are willing to pay for the service. Whether the person cares or is even aware is always a big unknown. Signs which make it clear there will be a penalty for that along with painting of the spot green should make a big difference. The state of Washington will soon be requiring that, to support the new law the legislature there just passed. There will be a \$124 fine for an ICE violation. That's great; however, it comes with the same confusion we've seen in the past. What if your plug-in vehicle is unplugged by someone else? You are then preventing the spot from being used by someone else... which the law states is a violation. It also means the dual-spot locations which do allow the opportunity to plug-share would become a problem. We understand the intent of the new law, but it's clear the passing of it came from those who haven't actually ever used charging-stations. Details of the situation have obviously been overlooked.

- 7-29-2013** **Improved Charging-Stations.** I don't have a 240-volt charger at home yet. I've been waiting for the next generation to arrive and can see myself moving in the next few years. So, it's yet another one of those situations where waiting is required. Fortunately, the standard 120-volt charger that comes with the Prius is quite nice. It's just not as fast. Luckily, the public offerings won't have to wait. In fact, where I park there is an expectation of 4 new charging-stations being installed next month. Improved ones are available, one just announced today. Maybe it will be that kind? Anywho, the manufacturer directly addressed all three of the big issues with charging-stations. The biggest was installation cost. That's quite expensive. Now, there will be the option of having one unit & circuit supply electricity for two vehicles at the same time, each getting a 240-volt connection. That will be especially enticing for station owners. For vehicle owners, the cord is retractable. No more having to deal with wrapping & hanging. Lastly, the old-school illuminated text/number display will be replaced with an actual graphic screen. That should make it more inviting for newbies. I bet the information about the charging itself will be quite informative for us that have been recharging often too. It's nice that the industry continues to push forward. Every little improvement helps.
- 7-30-2013** **Extended Range.** The concept behind Volt was to deliver an electric-only vehicle with a gas-engine that would do nothing but generate electricity for those rare events when the battery-capacity wasn't enough. That didn't work out. The 16 kWh fell well short of need in Winter and the engine actually supplied power directly to the wheels at times. So, enthusiasts changed the definition of "*extended range*" rather than being honest about the situation. They pretty much had got away with that deception too... until now. BMW just introduced the i3 REx. It does indeed deliver what Volt did not. With a 22 kWh battery-pack and an engine that does nothing but generate electricity, it's what they had hoped for. The vehicle is interesting, a 2-door compact weighing 2,900 pounds and coming with just a 647 cc (34 hp) engine. Its tank holds just 9 liters (2.4 gallons) of gas, providing roughly 87 miles following the anticipated 90-mile EPA electric-only rating. Price is expected to be \$45,200. Deliveries in Europe begin the end of this year. Here in the United States, we won't see any until the second quarter next year.

7-31-2013

Normalization. I grew up hearing stories of the Japanese automakers catching Detroit totally off-guard by a sudden surge in the price of oil. My firsthand introduction to the resulting vehicles is what people now refer to as an "ecobox". Rather than actually deliver a technologically superior vehicle, automakers simply found ways to significantly reduce weight & cost. That resulted in a number of safety & reliability compromises. In other words, the industry took a big step backward. There were attempts at genuine efficiency improvement. The introduction of front-wheel-drive ended up a win later. Eventually, fuel-injection became a benefit as well. But there are some notable failures. Cylinder-Deactivation was a disaster. I know of one friend who ended up disabling the ability; it just plain did not work. Another attempt was diesel. That was so bad, one particular automaker became the blame for tarnishing the reputation for the entire industry... yes, GM. That's why the entirely new approach to thinking about plug-in vehicles put so much weight on the importance of Volt. GM was going to storm ahead of all the other automakers, delivering on bold promises too good to be true. So, there was a very real fear that GM would again wreck the opportunity for others. After all, the disaster called "Two-Mode" was still very much on everyone's mind. Sure enough, Volt ended up being a disaster too. It even had the fundamental problems of added weight & cost... a big step backward. That's why Prius was relentlessly attacked along the way. It didn't avoid that, but setting focus squarely on what middle-market needs today with the opportunity to upgrade the design along the way. GM instead started at an end state, hoping for major technology improvements quickly... risking reputation in the meantime. That brings us to last month. 2.5 years after rollout, price was dramatically reduced. There was a surge in sales as a result. This month, the online inventory states that sales have slowed significantly... to less than what they had been prior to the price slash. The hope had been steady monthly sales of around 5,000. Instead, sales had been around than 1,600. That's a major disappointment for a vehicle which has been praised as "*game changer*" prior to rollout. Needless to say, many of us are glad the hype is over. We look forward to normalization, where each automaker is offering something reasonably competitive. Sales results for the month ending today will be available soon. With over 7,000 Volt still unsold inventory and production of the new model year about to confuse the situation, we're all anxiously awaiting what comes next. This chapter in history is over. They hoped for the best and the risk did not pay off. If we're lucky, there won't be any big penalty. We'll find out as the plug-in offerings from the other automakers progress forward.

- 8-01-2013 Perspective & Goals, Toyota.** Slow and steady growth. A four models of Prius are pushing deeper into their markets. The plug-in is still limited, but that concentrated focus is informative. The antagonists just plain don't agree with that. They believe spreading out availability as much as possible makes more sense... regardless of how thin that stretches resources. How they think that's sensible is beyond me. But then again, I don't focus on short-term gains like much of the active participants online do. I step back to consider the big picture. In this case, it's with July sales. Put in perspective, the Liftback (regular model) ranked 4th in Toyota's product-line here at 15,252 for the month. The top 3 were: 34,780 Camry; 24,462 Corolla; 19,538 Rav4. In other words, it's quite clear that Prius is well established as one of the business-sustaining products. Profit with high-volume sales has been achieved. Selling less were the other models of Prius: 3,428 V; 3,797 C; 817 PHV. In Japan, C (known as "Aqua" there) is actually the top-seller. Then it's the regular model. Camry & Corolla follow. Anywho, it's quite clear that Toyota will continue to push to gain more Prius sales. That goal should be obvious at this point. I'm looking forward to the national rollout of PHV. It will stimulate increased sale of pretty much every Prius, even in the markets with heavy penetration. The current delay has proven a wise move. Lots has been learned in the meantime. But patience is trying. The wait will be worth it though. We've seen delay pay off in the past.
- 8-01-2013 Perspective & Goals, GM.** The struggle with Volt continues to get worse. Despite the huge discount (\$4,000 price reduction) last month, sales growth was not achieved. It only caused a temporary surge, then returned back to roughly the rate it was prior to that. July results were well under what was hoped, especially considering the month started with around 8,000 unsold still in inventory. Put in perspective, the position of Volt only qualifies as a niche in GM's product-line, clearly not a significant part of the fleet: 42,080 Silverado; 25,447 Cruze; 18,507 Equinox; 16,582 Sierra; 12,915 Impala; 12,473 Malibu; 7,969 Camaro; 7,855 Terrain; 7,616 Traverse; 7,119 Tahoe; 6,181 Suburban; 6,055 Sonic; 5,569 Express; 4,963 Enclave; 3,847 Spark; 3,621 Verano; 3,446 LaCrosse; 3,176 Encore; 3,143 Yukon XL; 2,790 Yukon; 2,548 Captiva; 1,788 Volt. With such an obvious indication of what the true competition is, there are obviously some priorities & goals to reconsider. Traditional vehicles are a major portion of GM sales. How will they break away from the mess they created? Some other choice must be offered. What will it be?

8-01-2013 **What Benefit?** The topic of why Toyota didn't sell PHV sooner has become a hot one. None of the people arguing take the cost of lithium batteries into account. They just figure the more that are sold, the better off Toyota will be. Waiting for the affordable price-point to be hit is a factor completely oblivious to some. That makes me crazy. There are risks to selling at a loss. When those risks are unnecessary, why take them? I don't see the problem waiting until the 2014 model year for national rollout. It's a sensible business approach. Too bad those arguing online rarely, if ever, consider that aspect of manufacturing. It's all about the engineering. That lack of balance should be obvious. Clearly, it isn't. Anywho, this was my post about the timing: Looking at the big picture, V & C have become well known in the meantime. Heck, the C model has been the top-seller in Japan for awhile now. That established the acceptance of Prius variety. While at the same time, work has been underway to prepare the market for the plug-in model... in other words, educate consumers. Haven't you noticed one of the top complaints about GM's approach with Volt has been the lack understanding, not having taught consumers how it works? What benefit would there have been rolling out this Spring as originally planned? Waiting until Fall doesn't appear to have been a loss. In fact, the success of Tesla & Nissan in the meantime appears to be a gain. The growing popularity of full EVs makes the decision to purchase a Prius with a plug easier. There's no intimidation factor then. In other words, Toyota is positioning itself rather than having just plunged in. That's a sound plan for reaching the mainstream.

8-01-2013 **Advertising.** There isn't much you can actually convey in a 30-second television commercial. Yet, that is still what we learn much about our world from. That medium tantalizes our short attention-span, giving us just enough to want to find out more. That more part is where venues like online forums come into play. Some still don't see the value in that though. Others feel empowered by the wealth of information so readily available. That catch is, you have to be aware of those trying to mislead. After all, that is a basic part of the advertising process. Online, it gets taken to a whole new level. So, there's a very real disconnect. Fortunately, that is fairly well understood... which means we can actually have some relatively constructive discussions about it. What information do consumers really need to know? I got a kick out of this comment: "*Toyota ads are 'normalizing' the Prius saying how it is 'for everyone'.*" Isn't that the point? Once a vehicle achieves mainstream level sales, that's exactly the perspective you want. With all intimidation eliminated, resources no longer need to be spent on special efforts. That label of "*normal*" is the ultimate goal. Coincidentally, remember what I stated just yesterday? Having choices of "*something reasonably competitive*" is what we should all be striving for. Sadly though, that's not what gets much attention. The everyday type ads blend into the noise of the daily routine... which is confirmation of it being normal. To think that Prius has come so far, it no longer stirs. That's good. Owners have come from be environmental extremists to just someone living on your street. Yeah!

- 8-01-2013 Warm-Up Costs.** Each generation of Prius has delivered notable improvement. Augmentation from the plug took it a step further. It's quite fascinating on my commute home to climb out of the base of the river valley, in the on-ramp that turns into a truck-lane due to the steepness, with a cold engine running at just 1500 RPM. I simply get up to flow of traffic, about 60 mph, and merge in. It's this remarkably smooooooth climb. Right before I reach the top, the boost runs out. RPM then ramps up to 2300. What a difference that electricity makes. With the next generation, we are expecting more mitigation. Increased thermal-efficiency should cut down on warm-up time. So when you do have a cold engine start, there's even less of a penalty. Of course, even in that extreme example I have, that initial warm-up efficiency is still over 50 MPG. Seeing that even higher in the future will be great.
- 8-02-2013 Spin.** No matter what happens, there's always a reason to justify it. We've been taught to remain positive, regardless of the circumstances. That's a fundamental part of our culture. Unfortunately, you end up with an endless stream of excuses as a result. In fact, it becomes so bad, you get nothing but spin at some point... which is where we are today. GM just slashed another \$1,000 off the price of Volt. The market is saturated and there isn't any other option available. GM bet the farm on an inflexible design. They lost. Supporters are now in dismay. It's not like Ford or Toyota, who both have hybrid platforms capable of delivering a variety of configurations. This is just like Two-Mode. It's falling apart the same way. We all saw the warning signs. Some of us acknowledged them. Others fed what ultimately became spin. Ironically, they will end up accusing you of the very thing they are guilty of. It's quite fascinating. Long story short, Volt is no longer a disruptive force. The barrier it once had been is gone. What a relief. Changing the game was the goal. That didn't happen. It mostly just confused consumers. And it turns out, the efforts of the other automakers the enthusiasts mocked are indeed what is overcoming the true competition... traditional vehicles. No amount of spin can conceal that anymore. Prius rollout can now proceed.
- 8-03-2013 Perspective.** Much importance is put on learning from the past. If you don't, you are likely to repeat the same mistakes and face even worse consequences. So about a year ago when the denial about Volt goals grew intense, I was thankful for having the detail available here to refer back to. The biggest issue was the claim that this generation of Volt was only intended to be an "*early adopter*" model. That perspective seemed reasonable too... if you were unaware of the past. Trouble is, the intentions of selling 60,000 in the second year were well documented as a goal with the production-capacity of building up to 120,000 by the third. That nugget of information angered the enthusiasts; it was a reminder of the struggle the shortcomings were giving them. Then came the start of the third year, this previous January when GM was supposedly going to reveal a collection of upgrades to be rolled out with ELR in the Fall. That didn't happen. Instead, it was just a repackaged Volt with some alterations. 6 months later, it doesn't take much to imagine how enthusiasts are feeling with the sales remaining flat and the variety of plug-in offerings from other automakers growing. Much opportunity was lost. What's left is slipping away. On top of that, I'm getting what I wanted all along... an ally. I looked to Volt as a player on the team, a vehicle to help out with the other plug-ins to end the dominance of traditional offerings. The enthusiasts wanted a plug-in that was "*vastly superior*" to all others. That didn't happen either. They are forced to play along. Think about what they'll want a year from now. We know their perspective will be changing. What will it be?

- 8-03-2013** **Looking Forward.** It will be very exciting to watch what happens to hybrid popularity as their plug-in counterparts draw more attention. Currently, the plug-in hybrids are so rare, most consumers aren't even aware what's actually available. Seeing charging-stations in parking lots will go a long way toward promoting them. That raising of awareness will instill a sense of normalness for the regular hybrids. Rather than being identified as "*green*" or "*alternative*", they'll be looked upon as the obvious next step in automotive standards... like the way we saw front-wheel drive become the norm. We're at that tipping point where changing the mindset of the market won't take much effort. No one is questioning business viability or technology reliability anymore. It's all well proven at this point for the regular hybrids. With each automaker offering high-efficiency choices, the tables will turn. Gas prices will continue to climb. Commutes will continue to get slower and more crowded. It will become harder to justify the purchase of a non-hybrid.
- 8-05-2013** **EV Distance.** Morning commutes taking the river route are quite pleasant. The top speed is 55 mph. So driving that way can easily be done using nothing but electricity... which is exactly what I've been doing. After all, the 70 mph has been the route to avoid. With heavy construction on it right now, the traffic is awful. The alternate route is a nice steady flow. That flow stops at the highway entrance to cross the river. It involves a wait at a merging light. That means some days require lots of stop & slow for that short distance to use the bridge. Fortunately, the drive prior to that was only 13 miles. It leaves the Prius with just enough EV range to get through that wait. Having that much further along the way, I could be stuck motionless waiting for the engine to warm-up. Instead, I'm just creeping along using only electricity. It makes that route the preferred... especially since there isn't always a wait. Sometimes, I can just drive right through. For the crossing itself, I fire up the engine. Spending only a minute on that 55 mph section of highway and the following acceleration to merge onto the 50 mph road afterward is perfect for warming. When done, the engine shuts back off and I resume more EV driving. Think about how many don't have anywhere near that pleasant of a morning commute. It works out really well for me.
- 8-05-2013** **Profitable.** The question finally got asked: "*How profitable is the Volt now?*" It's a very important one. Sales don't mean much if the vehicle isn't profitable. Losing money on each means volume will stay low. Automakers cannot afford that for long. But with such an intense effort to downplay expectations, it's no surprise that being a "*halo*" became an acceptable outcome. Becoming known for selling a premiere fuel-sipper, but selling guzzlers instead, is a doomed plan. The business cannot remain competitive that way. Fortunately, many are silently acknowledging that reality now. I commented: For some perspective, take a look at the big GM forum. While those here have been persistently pointing out reasons for being patient and waiting, members there have moved on. Volt simply doesn't get attention anymore. The daily blog has gone the same way. Discussions are now about other topics. Other plug-in choices, like Tesla, are stirring far more interest... and are demonstrating the potential for sustained profitable sales. Transforming engineering success to business success isn't going well for GM. The pressure of economic realities are forcing choices to be made. What the outcome will be is anyone's guess. The one thing we know for sure is that the market is rapidly expanding and the clock is ticking. When the tax-credits expire, each plug-in must be able to support itself... competing directly with traditional vehicles.

8-06-2013 **New Owners.** We routinely get them on the big Prius forum. A few join specifically for the purpose of figuring out why their MPG is so seemingly low. It's pretty obvious too, when a new name with only a single post starts a thread. You can tell, they didn't do much (if any) research about the measure of efficiency prior to their purchase. So, we do what we can to try to help. Here's my contribution to that this time: There are many factors that prevent MPG from what people expect, based on the big numbers on the window-sticker. New owners aren't aware of them until they start driving around with their new Prius, which has a display and begins to point out those factors. Assumptions don't make themselves known until they seek advice online. Efficiency has always been that way. Most people have no idea though. In fact, they usually aren't even aware that the window-sticker also contains small numbers too... specifying a range, trying to highlight the reality that result will vary. Fortunately, even under the worst conditions, Prius still does better than other vehicles at their best. It's too bad that new owners don't have data prior to their purchase available for comparison. Their previous vehicle didn't have a display. They had no idea things like temperature, short-trips, tire-pressure, or winter-formula fuel could make such a difference. So, all we can really do is assure the new owner their Prius is just fine and encourage them to explore the technology. Drive something other than the daily routine. Watch the difference it can make. Also, give the new car some time to break-in too.

8-06-2013 **Price Drop.** It certainly hit the fan today. Wow! There was flat out denial too. The situation is beyond a disaster. GM announced the price of the 2014 Volt would be \$5,000 lower, making it the same price as the clearance price of the 2013. That got those claiming this was only an "*early adopter*" phase in quite a tizzy. They've done everything possible to forget that GM had once projected sales of 60,000 for year #2 and would have production-capacity of 120,000 by year #3. Seeing sales significantly lower than that without any alternative approach available leaves nothing but the desperate act of selling at a loss. Of course, there were even attempts to make us believe cost could have dropped so dramatically, profit would actually be made. Reminding them that earlier this year the CEO told us money was lost on each sale fell on deaf ears. Fortunately, words of wisdom are emerging all over the place now. The forums have suddenly come to life after the disappearance of Volt. This was my favorite summary of the predicament: "*At least as far as the bread and butter market is concerned, the Voltec solution seems to be dead in the water, especially once the government no longer contributes \$7,500 per car. There have been plenty of 'moonshot' type of products that were technological marvels, but that ultimately failed because what people were willing to pay for them didn't match what they cost to make. The Volt may turn out to be one of those products.*" What else can be said? Remember that price target GM set, then subsequently disregarded? Today was a brutal reminder of why delivering that was so important.

8-07-2013 **Nicely Under \$30,000.** The primary reason Volt was labeled as "vaporware" right from the start was its price, range, and efficiency targets didn't make sense. How could so much be delivered in so little time? Having a price of "*nicely under \$30,000*" was absurd for 2010. There's no way a battery that large could have a cost low enough. Then to also deliver a 40-mile range even in Winter along with 50 MPG following depletion, it sounded too good to be true. Some of us took that as a warning. Others celebrated a victory soon to be achieved. Sure enough, it didn't end up being delivered. 2.5 years after rollout, it still hasn't. Yet, there's more celebrating. This morning, I read: "*That puts it BELOW the average price paid for a Prius in the US!*" It was from one of the most troubling of troublemakers. He just plain doesn't care about production-cost or tax-dependency. It's all about beating Prius. So what if GM losses money on each sale. So what if selling the vehicle requires government assistance. Supporting a product that sustains the automaker isn't his concern. He just wants bragging rights. That's amazing. Think about how unlikely it is that \$5,000 could have been dropped already. A cost reduction like that without any visible or operational change to the vehicle, in such a short amount of time, doesn't make sense.

8-08-2013 **Settling Down.** The usual undermining techniques aren't even working. Attempts, like diverting focus, are failing to hold the discussions attention as they did in the past. Antagonists can no longer prevent conclusions from being made. There's simple too much evidence available now. That's good news. Being able to have a somewhat constructive few posts is quite an improvement from just a week ago. It will be interesting to see how things proceed. Here's the direction the discussion went this evening: Supplier information has been provided over time for us to consider. And yes, there is indeed a benefit from volume. However, we've seen there can be a penalty if you want the increase right away. The extra work is usually welcomed, but overtime pay comes with it. There are sometimes limited supplies of raw material too, requiring a premium if you want more quickly. Long story short, the underlying effort to downplay is going well. Some contribute unknowingly. Others do it quite intentionally. It even comes from the automaker itself. Notice the doubt being raised? Meanwhile, the clock is still ticking. We know progress is being made when goals are clearly being set & achieved. For Toyota, it is clear. We know they are pushing for higher engine efficiency and lower plug-in cost. Both criteria are based upon the models currently available and the method being taken to deliver that has been spelled out. For GM, all we've been told is a general order to reduce cost from \$7,500 to \$10,000 without any idea how that will be accomplished. In other words, how is what's happening now different from the past? Seriously. There's a lot more in common with the blind hope of the past than anyone cares to admit. There isn't any accountability either. If very little is accomplished, oh well. We have emissions & dependency issues to deal with still. What about those? How long should we wait, for what, and for who?

8-09-2013 **Change.** Addressing this should be very interesting: "*The GM haters need to get over the fact that the Volt is not a complete flop, and that it is a more compelling car to the public than the Prius plug in.*" My response was: They did get over it. That's old news. Comments have since changed to it needing to be affordable. Back when Volt was rolled out, the cost for the battery was between \$800 and \$1,000 per kWh, not including controllers or liquid cooling. That puts the price of 16 kWh of capacity at a very minimum of \$12,000. Cost has since come down by then. How much? That's a big unknown. Half would be remarkable. Volt is a hybrid with clutches. Adding the battery-pack makes it a costly product. 3 years isn't much time for a significant reduction. But consider that actually happening. The plug-in Prius only uses 4.4 kWh and doesn't use liquid cooling. Cost of lithium batteries dropping will benefit it too... making it compelling by becoming affordable, the very thing people have been asking for. Mainstream consumers are looking for a plug-in option that doesn't require paying a large premium. That's why GM set their "*nicely under \$30,000*" target. That's why Toyota set their \$3,000 to \$5,000 package-option target. What part of that doesn't make sense from what we are seeing now?

8-09-2013 **FUEL-CUT while in EV-BOOST.** Since introduction of the plug-in model Prius, those wanting to undermine its acceptance have been exploiting the misconception related to the 100 km/h (62 mph) threshold. Unfortunately, we haven't had a good way to prove the system doesn't actually work as they implied. When traveling at speeds faster than the threshold, the engine RPM isn't 0. That gives the impression the engine is running. We can point out how little horsepower is required to maintain travel at higher speeds, but that message is difficult to convey when there isn't anything observable to support the claim. Fortunately, I made an unexpected observation. My morning commute started with an errand that needed to be run, rather than just jumping on the highway like I'd usually do. That meant approaching from a different direction at a slower speed. Further altering the routine, I got stuck behind a string of traffic slowed by a big truck. The end result was cruising along with an engine not fully warmed up yet. Since my speed was 65 mph, I was in EV-BOOST mode instead of EV. That means the engine was spinning, but not necessarily consuming any fuel... the aspect of operation we've never really had a good method of proving. Even though the RPM readout was 992, the temperature of the coolant wasn't rising. In fact, it was dropping! That's basically impossible for a combustion engine... since they are so terribly inefficient, losing most of their energy from fuel as heat through the exhaust & cooling system. But there I was, watching the coolant temperature drop. It was a new bit of evidence confirming the engine was in FUEL-CUT mode... only spinning, without use of fuel. It takes very little energy for the engine to spin without any compression. There's just unimpeded air passing through. The power from the electric-motor and battery-pack were more than enough sustain travel. Seeing the value go lower was great. I had enough electricity available to make the observation twice too, once when the temperature started at 175°F and the other 181°F. Both times I watched 7°F disappear one degree at a time before intentionally speeding up to watch it switch from dropping to rising. It was pretty exciting to stumble across new data like that.

- 8-10-2013** **Diesel.** This comment was quite to the point: "*Wow, the hate is strong in this thread.*" It was a worthwhile thing to say. After all, no one really knows what "*hate*" actually means anymore, especially with so many polarizing topics lately. My comment back was: The hate we see has some merit. That for misleading marketing is a good example. We've seen focus solely on highway MPG often, which is clearly misrepresentative of what someone with a mix of driving will experience. Ignoring emissions was a big problem in the past. Now, we've switched to the "*clean*" marketing. It gives the impression of being greener than it actually is. You want to be honest about emissions, state the official rating. Using a vague adjective instead allows for incorrect assumptions. There's also a history of reviews & comparisons with intentional bias, where they attempt to make it look fair, but we see how the data presented doesn't actually tell the whole story. In other words, the benefit of doubt is no longer available. People have been fooled far too many times to allow claims to be accepted as-is. Without the step back to look at all that was claimed, we enable the efforts to undermine to flourish. Sadly though, that fact-checking ends up getting the "*hate*" label. But what else can be done?
- 8-10-2013** **Disassociation.** It doesn't take much to see what's happening. We've seen the same thing in the past. When a goal isn't fulfilled, those who supported it conveniently forget. Then when someone like me brings it up, they're extremely quick to dismiss or belittle anyone who would have believed such a promise. That looking backward after-the-fact makes such attitude common. Not being observant while decisions are being made is how people can be easily misled. Delivery claims aren't seriously considered; they're just accepted as if the outcome is already a given. Oddly, that's actually advantageous at this stage with Volt. Knowing the first generation came up far short of expectations, they simply move on to the second. That growing disassociation is exactly what's needed for fundamental changes to be made. Those must-have traits of the past no longer apply. New goals are created & accepted instead. It's as if none of the original nonsense ever happened. Remember the "*vaporware*" criteria? They don't. Ironically, some of those same goals will be revisited. But this time, it will be with a realistic understanding of what can actually be achieved. In the past, hope outweighed logic. Now, there will be recognition of some of the challenges the Prius owners stated from the very beginning. They assumed we were simply defending Toyota. The thought of us actually trying to help seemed an impossibility... but not anymore.
- 8-11-2013** **Asked Questions.** There's a charging-station by a nice lake and a walk across the park to the zoo. It was an excellent location to spend a Sunday with the family. The weather was great too, perfect for powering the solar-cells attached to the charging-station... making it especially rewarding to plug in there. Anywho, as I was unplugging, a small group of people stopped to watch. One asked the question: "*How do you like it?*" My answer was: "*My average so far this month is 147 MPG.*" Needless to say, they all took a step closer. Their interest was peaked. I had a captive audience. So, I kept responding their variety of inquiries. My ultimate goal is to sneak in the information about recharging not requiring anything beyond an ordinary household outlet. Most people are taken aback when discovering all that's needed is a regular 110-volt connection. They just assume some type of special installation is necessary. I've noticed that pattern. It's an incorrect assumption impeding the acceptance of plugging in at home. People simply don't realize how easy it actually is to own a plug-in hybrid. Thankfully, overcoming that particular barrier misconception isn't that big of a deal. We'll be able to tackle it fairly well... once national availability begins in a few months.

8-12-2013 **Ignoring Cost.** There sure are a lot of online comparisons popping up now. They all point out the discounts & incentives, all drawing the conclusion that Volt is a better buy than the plug-in Prius... all ignoring cost. That's a recipe for trouble. How many vehicles will an automaker produce & sell at a loss? With a niche, that's an acceptable practice. The vehicle serves as a "*halo*" to draw in sales of their other choices. It's basically spending advertisement money on brand rather than sales of that particular vehicle. So, it is effective. But if the point is to sell lots of that actual vehicle, for it to be a source of business-sustaining profit, that doesn't work with regard to the comparisons. Purchase decisions made now are based entirely on the vehicle actually being available for immediate purchase. With a loss-leader like that, only a limited amount are available... falling well under the mainstream minimum of 60,000 per year. In other words, Volt is have that identity crisis we warned about. We still don't know who the heck it is intended for. For that matter, we really don't know the purpose anymore either. Pretty much everything except the desired price is very much a mystery for the second generation. Goals are non-existent. That's quite a bit worse than the vague we had in the past. What is its purpose? Those currently ignoring cost certainly don't care. They just want to enjoy the brief moment of victory caused by the price drop. It's more of that blind-hope playing out again.

8-13-2013 **Cold Climb.** It's difficult to know how to respond to such a comment: "*I also have a hill just outside the driveway, but no other way, but uphill. If engine is cold, fast climb can totally deplete the battery, as ICE refuses to help. There are 2 solutions to the problem...*" When a new owner doesn't include speed, distance, or state-of-charge, giving advice isn't easy. They often don't realize how wide the variety of driving circumstances had be. And of course, the tendency is to forget about ever-changing factors, like temperature. Misinterpretation of intent is very easy. So, pointing out aspects of design can be very tricky. I tried though: There is no problem. It's suppose to do that. The system will intentionally protect the engine from strain. That's a fundamental part of the design. It reduces emissions. Living near the bottom of a valley and having owned each of the generations of Prius, I know the hill climb extremely well. In the dead of winter (very cold here in Minnesota), the battery-assist is quite pronounced too. I start the Prius and begin the climb. It has never been an issue. Now, I have the plug-in model. So, I'm even more familiar how the system automatically goes out of its way to limit RPM initially. Just drive it.

8-14-2013 **Conspiracy.** Even though just earlier this year, the CEO of GM stated the sale of each Volt is at a loss, we are now suppose to believe the entire \$5,000 price cut is the result of the cost having dropped that much. That seems highly unlikely. Cost dropping is quite realistic. That much in such a short amount of time is not though. But most people only hear the first part. They also like to say Volt is following the identical path Prius did over a decade ago, even though it did not experience such a large cost drop. It's a good example of how spin comes about and how people disregard some facts... like the inventory piling up. There are obviously some misconceptions about plug-in vehicles; however, profit is lost when targets are set and not met. We're seeing that play out now. Realignment of priorities is proving painful. There's backlash too. Seeing this published recently was a surprise: "*Chevy is slashing Volt prices because it has been selling a ton of pickups and wants to keep doing so.*" The enthusiasts certainly didn't see that coming... even though they were warned repeatedly. When sales don't meet expectations, it leaves the vehicle vulnerable to things like conspiracy theory. That sounds absurd until you look back at the Hummer comparisons to Prius. It boggled the mind that we suppose to believe such nonsense. Yet, they tried anyway. Needless to say, there's a mess to deal with now.

8-14-2013 **Colors.** Based on Toyota's history, we've seen color play a role in demand. It makes you wonder what other vehicles have the same type of connection. Think about the mid-cycle refresh. Most of the time, the modifications are primarily cosmetic. Blizzard Pearl, Sea Glass, Classic Silver, and Winter Gray are colors shared amongst the regular & plug-in models of Prius. Clearwater Blue is the only unique to PHV. For the regular, people also get the choice of Black, Barcelona Red, Nautical Blue... all of which are popular. Yet, Toyota doesn't offer them with the plug. Having such a current selection that lacks a standout option is a tactic we've seen in the past. They colors are all on the soft side, nothing vibrant. Think the 2014 will? It makes sense that they'd save something for later. After all, changing the technology itself sooner than each generation introduces all kinds of issues. Holding back on colors initially is a safe bet. Had you considered that as a sales influence? Most people never think of it.

8-14-2013 **Starting Over.** The sense of change is becoming much easier to see now. I was astonished to encounter this: "*To those who bought early and now see lower prices: welcome to technology and quit whining.*" It was from a Volt owner who wasn't pleased with the topic on that daily blog... which finally addressed recent sales and the price drop. Seeing that it took so long for the topic to even come up for discussion, it wasn't much of a surprise. It's yet another piece of evidence that things are different now. Anywho, I couldn't resist. It's been awhile since I posted there. The daily battles are now just a faint memory. The war has been won. Some aren't pleased with the outcome... or my reminder: The priorities originally set by GM were quite different from what ended up being delivered. Ironically, those are what they are now striving for. There's a penalty though for having diverted goals though. But who would have thought it would come at the expense of owners turning on each other. That's quite a statement to make! There's much to do still. Just because cost has come down does not mean the new price now reflects a profit is now being made. It simply means some progress has been achieved. At some point, the tax-credit will expire too. The ability to sell the technology is high-volume is quite a challenge. Reality is, there will be changes. Basically, it will be as if GM started over. The fact there's some isolationism taking place will actually make that easier. With all the other choices emerging in the market, it's not like there was going to be a loud chorus from Volt owners anyway. Just look at how much division we've seen over the idea of offering more than a single model. Long story short, Volt didn't end up being the "*game changer*" enthusiasts had hoped for. Sales have been a struggle, definitely not what had been expected. Those interested in taking the next step will acknowledge production cost and accept what needs to be done to deliver a profitable vehicle. For those still holding on to the "*vastly superior*" claim, take a look at automaker sales... not just plug-in vehicles... the entire market.

8-15-2013 **Misconceptions.** I was pleased upon reading this: "*Most people are amazed when I tell them that I plug in to a regular wall socket.*" Coming from another plug-in Prius owner, he knew all too well the very same reaction I've been witnessing. My reply was: I get the same amazement reaction when I mentioned all that's needed is an ordinary household outlet. It's emerging as the biggest misconception. Fortunately, we have the opportunity to change that. This is much different from the "*you have to plug it in*" misconception we dealt with when Prius was first rolled out. Once we figured out people didn't actually understand how a hybrid worked, we'd take the initiative to point out what was most important first. In this case, that would be to immediately mention "*regular wall socket*" when a conversation is struck up about the car. I'd often get stopped in parking lots by total strangers, since they noticed I was driving a Prius. That was the opportunity back then. Now, it will be that they notice me plugging or unplugging at a public charging-station. Before even answering their first question, I'll interject information to squash the misconception. Someday when Toyota starts specifically advertising the plug-in model, they'll include that information too. Until then, it's up to us to spread the word.

- 8-15-2013** **Gutless.** This morning, on the popular thread about Prius power, brought a story of a wife complaining about the difference between her 258 horsepower SUV and the 134 horsepower in her husband's Prius. She thinks the lower horsepower "*cars are just dangerous because they can't get out of their own way*". I couldn't resist joining in with: That horsepower difference sounds exactly what some of us experienced in the early 80's. Remember that shift from giant guzzlers to the eco boxes? That sure made people rethink how they drove. Fortunately now, the power is an overkill situation, where nowhere near that much is actually needed. So less isn't really losing anything. In fact, I routinely see individuals driving the more powerful vehicles who casually pull out into traffic at a much slower rate than you'd do in a Prius. They have it, but don't use it. As for the planning ahead, I wish more people did that. You see some changing lanes without seeing the slower moving car they just pulled in behind. It makes me wonder if there action to advance is nothing but instinct, where they don't give it any thought before they do it. That's like tailgating. In many cases, it doesn't accomplish anything. Prius raises awareness in many regards. Just think about how people don't know the factors that influence efficiency because their vehicle doesn't have a display showing MPG. For that matter, consider how small & crude the speedometer is being behind a steering wheel using close numbers and a large needle. The digital speedometer in Prius is a dramatic improvement.
- 8-15-2013** **\$107.62 Per Barrel.** Even though the price of gas is way down (just \$3.35 per gallon here), the price of oil is very high. Seeing diesel at \$3.99 per gallon is a clue that something is amiss. Looking into the reasons why, it is revealed that there is a gas surplus. The supply is unexpectedly large due to people not consuming as much as had been predicted. It's an unplanned glut which they are attempting to be resolve through discounting. Will that work? Who knows. The economy is recovering nicely, but very slowly. To complicate matters, purchases of more efficient vehicles continues to outpace the new pickup craze. Many of those new pickup purchases are claimed to be for the construction market too, which means they won't be used for daily commuting as they had been in the past... back when guzzling was stated as being "*good for the economy*". Things certainly have changed since then. The price of oil being so high is genuine reason for concern though. When the surplus is gone, then what? How high will the price of gas climb?

8-15-2013 **11.5 Years.** That's how long the average vehicle stays on the road now. It's quite a improvement over the 9 years we saw when Prius was first rolled out here. Of course, it also means guzzlers put on the road today will go on guzzling even longer... or does it? Gas prices a decade from now combined with the popularity of hybrids could swing traditional vehicles far out of favor, lowering their value significantly. Fortunately, that means the current fleet will be getting replaced soon. That will stimulate the economy, which is great news. Ironically, not having replaced them due to the economy being bad, was counter-productive. But that situation is quite understandable. Unfortunately, not everyone wanted to acknowledge that. It's the lost opportunity for Volt some of us tried to point out for years. GM needed to be ready with an affordable offering that would generate a profit. Instead, they have a loss-leader with at least 2 years of a wait before the next generation will even be rolled out. Then there's the first-year apprehension they'll have to deal with due to a number of fundamental changes needed to have been made. Both Ford & Toyota will already be well positioned for that, since their next generation will be incremental improvements. And of course, they are currently ready to offer high-volume with profit from the existing models. We are definitely at a tipping point.

8-15-2013 **C-Max Rerate.** That MPG rating from Ford reported as the official EPA values was big news today. Did you know the EPA doesn't actually do the measurements? Did you know there are two types of tests the automaker can use? Did you know the automaker can transfer results from one vehicle to another? Most people don't. And in this case, more than just those assumptions were made. The EPA itself assumed Ford knew what it was doing. The major adjustments to the rating system revisions implemented in 2008 made that easy. People went after Toyota for misleading about MPG, not realizing they had nothing to with measurement criteria. Those updates allowed attention to waver. The recent problem with Hyundai should have been a wake-up call. It obviously wasn't. Prius had hoped Ford somehow improved their system to the degree that the outstanding MPG was realistic. After all, that meant Toyota had potential to do the same. But looking at engineering tradeoffs, it makes you wonder. Prius V (the larger wagon model) sacrificed some MPG for the sake of delivering decent acceleration, despite its extra weight. Simple changes, like a different size reduction-gear in this case, make tradeoffs like that easy. Knowing C-Max delivers more power while delivering even better MPG was a head-scratcher. How did Ford achieve that? Turns out, they didn't. The announcement today was that the EPA value for combined will officially be lowered to 43 MPG. That's quite a drop from 47 MPG. As a result of this, all those who purchase a C-Max will be issued a check for \$550. Interesting, eh? Thank goodness Prius real-world results actually match those estimate values. Of course, will consumers know that. Hmm?

- 8-16-2013** **Energi vs. PHV.** There was a review published today, one comparing Ford's C-Max plug-in to Toyota's Prius plug-in. With both being hybrids striving for optimum efficiency, you'd think there would be mention someone in that article about efficiency. Nope. There was nothing whatsoever about MPG. All it went pointed out was electric-only range & operation. Total absence of the ultimate outcome, the resulting overall efficiency, is a terrible excuse for journalism. The fixation was entirely on "*Electric Range*", which completely disregards the fact that those are plug-in hybrids. Their purpose is to optimize, to squeeze out the highest possible MPG by blending electricity & gas... which the writer clearly didn't understand. Heck, just a simple drive with the Prius in HV mode will reveal that or EV mode at speeds above 100 km/h (62.1 mph). You can clearly see that plug-supplied electricity is being used to achieve MPG clearly not possible from the no-plug model. Yet, when you look at the display, it won't register any of those miles as EV. They'll be counted as HV. Reviewers not bothering to carefully observe will just report what's displayed, not even questioning why EV is so low. They know a full-charge was available when they started. What the heck do they think happened to it? Are how can they possibly not notice the MPG on that same display? Needless to say, I wasn't pleased about what had been omitted. It was review written by someone who didn't understand how the technology work or even what the purpose was. That's very disappointing.
- 8-16-2013** **That Misconception.** This snippet was included in the comments of that comparison review: "*...and expense of installing the up-level chargers at home*". People keep making the assumption that more than an ordinary household outlet is needed. It was mentioned the time each takes to recharge us a 120-Volt connection. Yet, some don't see it. Either that or they are intentionally spreading that misconception. We've seen worse greenwashing many times in the past, so there is no benefit of doubt anymore. Question everything. I'm beginning to think this particular issue is a major influence on sales. Spreading the word that just a standard socket is all you need could make quite a difference. You plug the hybrid in the very same way you do with your phone in the evening. Just connect the charger it came with to the wall. There's no expense. It's just a basic charging device included with the purchase. True, you can install a faster charger at home. But what's the point if you're just recharging overnight anyway? A full recharge using the 120-volt only takes 2 hours and 20 minutes for me. For 80% capacity, it takes 1 hour 45 minutes. The recharging is no big deal. People assume it is.
- 8-17-2013** **Leaf Cutoff.** It isn't everyday you end up hitting the brakes and blasting the horn. To do that to an electric-only vehicle, most people never have. Today, though, it was me doing that. There was Nissan Leaf. He totally cut me off. The driver was so preoccupied with, apparently the screen information inside, he didn't even notice I was next to him on the turn in the adjacent lane. He pushed right into mine. Had I not been lagging behind a little bit, I would have been hit. When I got on his side, he was still looking down. It was frustrating to see such poor driving behavior. But sadly, that's what happens when a technology catches on. Drivers of all types will buy it. Oh well. I seriously doubt that will ever occur again. Makes you wonder what other stuff we'll see over time. Progress includes a wide array of changes. This was one example of technology acceptance, complete with a stumble along the way. Over time, it will become something we take for granted. Some day.

- 8-18-2013** **Whoa!** You knew someone would think this: *"As with all technology, I knew that the price would drop over time. However, I am furious that GM cut the price by \$5K raising the specter of value and marketability. GM marketing seems to remain a one trick pony and short on long term strategy. For the record, I'll be expecting my \$5,000 rebate check from GM – it is the right thing to do!"* None of the enthusiasts using the new-technology argument ever addressed the possibility of an overnight drop. It was always expressed as a gradual process over a long span of time. With the abrupt change we all just witnessed, it was a very real possibility someone would get screwed in the process. But to openly vent their feelings, that's a big deal. Their analogies never covered this situation. It's bad enough finding a markdown somewhere, at some unexpected location due to some unique circumstance. This is actually clearance time, after all. But knowing the MSRP for the new model was slashed across the entire nation and that new 2014 inventory is now available... what should the response be?
- 8-19-2013** **Bike Trip.** I took advantage of having that new lockable hitch-mounted bike-rack again. Being able to toss bikes on the back of the Prius while retaining access to the hatch from both sides makes the convenience factor of spontaneous trips a dream come true. We decided to escape up north for the weekend. It worked out great. Seeing MPG in the low 40's is a result with mixed feelings though. That's far lower than I usually see. Not being able to plug in and driving over 225 miles with such a big aerodynamic disruption on back sure brings down efficiency. Having the A/C run the entire drive hurts too. That's still an improvement upon what other vehicles deliver at their very best. But I've grown use to a higher standard. Easily getting over 50 MPG without plugged-supplied electricity sure is nice. Getting over 100 MPG with the plug is even better. In the end, Summer is too darn short. When you have the opportunity, take advantage of it. Enjoy. Lifetime MPG isn't affected much by those escapes anyway.
- 8-21-2013** **New Reviews.** They are getting better for PHV. It's about time those writing articles for publication about the plug-in model actually convey a decent understanding of how the technology actually works. In this case, a writer expressed his findings starting with: *"I recently drove a 2013 Toyota Prius Hybrid Plug-In which is essentially just a Prius whose nickel-metal hydride battery pack has been swapped for a far more potent lithium-ion pack. The Plug-in Hybrid comes with an easy-to-use external charging cable and the car's batteries can be fully charged in three hours from a simple household 110-volt outlet or an hour and a half from a 220-volt plug."* That certainly got my attention. It was correct & concise. How about that!?! Of course, it went bad from there, fast. It gave the impression all benefit was lost as soon as you accelerated hard or beyond 62 mph. How can someone writing a review drive the car and not report information about vehicle operation or even MPG results? Leaving out such vital detail makes no sense. What's the point if all you do is just mention vehicle specifications? That doesn't accomplish anything. People already have that information available in abundance. Observations from behind the wheel is what reviews are suppose to provide.

- 8-21-2013** **Power Outage.** I came home to a dark neighborhood. We had a mini-blackout. 30 of the homes in the vicinity were without power. I went into my warming house (it had been a very hot & humid day) to find the phone-number to contact the electric company. While in there, I unplugged the recharger for the Prius... just in case. You never know if a surge could potentially flow through the system in a situation like that. We virtually never lose power, since all of the line are underground. Unfortunately, when the power was finally restored, I forgot to plug it back in. So early in the morning, when recharging was set to start, the timer failed. I got an email telling me that. It was a morning I just happened to be up early on too. So, I heard the beep on my phone... but didn't bother to check. Ugh. I so easily could have rectified that error. Bummer. I was right there, doing laundry in the utility room next to the garage. Grrr. Needless to say, I was surprised when the engine started as I was pulling out of the driveway later. No electricity was available. Fortunately, my 25.4 mile drive over the course of 5 hours resulted in a 56 MPG average. That's hardly anything to complain about, but having plug-supplied electricity would have pushed MPG into the 100's. Oh well.
- 8-22-2013** **Arguing Semantics.** The same old problem resurfaced. We are again seeing certain individuals rebuttal with definition quarrels in an effort to avoid facing facts. Today the comment about Volt MPG not being *"any better than similar-sized traditional vehicles"* erupted into a semantic argument. Rather than just acknowledge efficiency isn't even close to that of the choices being offered by automakers as models much improved over their standard product-line, they distract with non-constructive detail. Evading the point is nothing new. We see it all the time. But in this instance, it didn't even make any sense to argue. What would that achieve? So, I'll just change the way the information is stated, as my post stated: I'm changing it to *"doesn't deliver hybrid efficiency after depletion"* and now everyone will know why. Ford's plug-in hybrids are bigger, yet deliver 43 MPG. How is that even close [to 37 MPG]? Toyota's plug-in hybrid is bigger too, and it delivers 50 MPG. Notice how many Volt supporters are also pushing for higher MPG with the next generation? Clearly, the current isn't enough. Give the rest of us a break.
- 8-22-2013** **Enough.** This was the response to my post: *"When is anything 'enough' ?"* I was surprised that was brought up, since that had been the mantra all along with the *"40-mile"* range. But with the recent price debacle, it's realistic to expect pretty much any new angle to be attempted. I followed with: It's when major sacrifices are made, abandoning goals for the sake of drawing attention. Those types of tradeoffs are not worth it. The purpose of achieving profitable high-volume sales is too important to simply postpone. Notice how the computer industry has so successfully rolled out well-balanced devices that could support capacity upgrades later, as the cost reductions would allow? They set price-points and stuck to them. There weren't dramatic & unexpected drops all at once without an upgrade, as we've seen with Volt. With computers, mp3 players, and phones, they've all offered increased memory & battery-capacity as that technology improved. The *"enough"* approach was a carefully thought out and quite predictable process. And as much as certain Volt owners grumble about it, that is indeed the approach Toyota has taken with Prius. Capacity will increase as cost warrants, keeping price at the clearly established *"nicely under \$30,000"* target consumers have expressed as an important purchase criteria. GM didn't stick to that very criteria they helped to establish; they didn't recognize the *"enough"* tradeoff.

- 8-22-2013** **Inevitable.** You cannot post something in favor of Prius on the daily blog for Volt without the expectation of an intense response worded to give the impression of being constructive. It ended up being: *"The PIP is so uncompetitive I wouldn't be surprised to see Toyota abandon it. And if I'm Toyota I'd be very concerned that GM marketing will actually get on the stick and the Volt will start eating Prius for lunch."* There was also a blatant greenwashing attempt, where the person intentionally tried to mislead about range. But that isn't worth anything more than just pointing out the desperation. I responded to the uncompetitive comment with: The choice of battery-capacity prevented the sacrifice of seating & cargo room. It also positioned it to have a cost within the typical range of upgrade options, what we normally see among model differences. We know that Toyota is directly targeting mainstream consumers for profitable high-volume sales with Prius. Adding the choice of a plug but keeping the size to 4.4 kWh keeps it affordable. It also retained MPG, by keeping the influence of weight to a minimum. The competition for Prius is ordinary traditional vehicles, buyers who would otherwise purchase a car like Camry or Corolla. Who is the market for Volt? How many times must that continue to be asked? What is its competition?
- 8-22-2013** **Outcome.** That poke on the blog, intended to serve as a reality-check, ended up just drawing out the worst of the enthusiasts. Those wanting to move on pretty all have already. The remaining cling on to bragging rights. It was a great opportunity to illustrate how bad the situation has got. There is an undeniable divide between those who want progress and those not interested in change. It's an outcome they seem content with. I see that progress on a regular basis following threads on the big Prius forum. The effort to establish that long-awaited partnership is becoming easier to see. They understand that battery-capacity alone won't solve the many problems Volt is having toward the goal of reaching everyday consumers. They know mainstream priorities are quite different from those who purchased a Volt in the past. They see how important it is to allow the design to be altered to achieve profitable high-volume sales. As for the others, they are being left behind. I replied to the rhetoric this way: It never ceases to amaze me how smug some responses are. Crush like a grape? Really? Since when does that superiority attitude represent ordinary GM customers? Of course, just ignoring the problem enables it... giving silent approval. So, that isn't good advice. Focusing on the goals of Gen2 would be the appropriate response. Notice how some are making an effort to guide discussions in that direction?
- 8-23-2013** **Greenwashing.** This particular comment yesterday provided a great feeling of vindication: *"The specially developed Goodyear Assurance FuelMax LLR tires are also designed for performance per GM engineering specifications, and greatly contribute to a fun driving experience."* The hypocritical nature of certain Volt enthusiasts is quite remarkable. They'll say one thing, then later say something else which totally contradicts it. We see outright greenwashing too. A few are still attempting to mislead about EV range, claiming the 6-mile value listed on the window-sticker is the official EPA measure... even though the rating information included clearly states the overall value is 11 miles. They just hope you won't actually fact-check what they are saying. The definition of "blend" is quite clear; it simply means the engine may run briefly. That lack of purity is what they attempt to exploit... again, hoping you won't do any verification. Fortunately, the data itself tells the story. In this case, it's a simple matter of checking. I stated the situation yesterday this way: If those tires contribute so much to the driving experience, we should point out that the plug-in Prius uses those very same tires.

8-23-2013 **Rear Seating.** I had no idea just how limited the rear seat in Volt was until playing with one at the State Fair today. On my previous in-person opportunity, I only looked at legroom. Seeing Volt offered nearly 2 inches less room for knees (specifically 1.9") quickly ended my check. I didn't bother to look at anything else. It was obviously smaller than Prius. I should have continued with a detailed inspection. Looking at room for feet. I noticed just how low the back of the front seats were in Volt, when adjusted for me. The top of your feet get pressed against it. There's no extra as there is with Prius. That discovery came as quite a surprise. I hadn't ever considered that particular comfort measure. Another totally unexpected observation was noticing how low the top of the door was. I'm just 5'8", an average size man. So, finding out I'm too tall is quite out of the ordinary. There isn't a seat adjustment available for the back either. When I turned to look out, all I could see was the roof of the car. To see out the window, I actually had to duck down. That certainly isn't the situation in Prius. Last but not least, there's the lack of a middle seat. Some families, especially those who children have friends, will find that too much of a compromise. That extra seating comes in handy from time to time. Long story short, the appeal to mainstream consumers is clearly in favor of the regular model Prius (and the plug-in). Prius is a midsize car. Volt is compact. There's no contest which one offers more rear seating room. It's strange how GM decided on a size which clearly limited its appeal to the masses.

8-24-2013 **Diminishing Returns.** It's quite a twist when a Volt enthusiast asks a Prius owner: "*Lets be real, where is the real savings?*" How did he expect me to answer? He certainly isn't. The constant bragging about EV range and MPG doesn't tell the whole story. Sadly, responses are vague and don't address the big picture. Constructive posts just plain don't happen. Looking at the data, we see a situation the enthusiasts never want to discuss. Whenever it's brought up, they evade. I expect the same outcome this time, from... Based on the standard measure of 15,000 miles per year:

500 gallons = 30 MPG
375 gallons = 40 MPG >> 125 gallons less
300 gallons = 50 MPG >> 75 gallons less
250 gallons = 60 MPG >> 50 gallons less
214 gallons = 70 MPG >> 36 gallons less
188 gallons = 80 MPG >> 26 gallons less
167 gallons = 90 MPG >> 21 gallons less
150 gallons = 100 MPG >> 17 gallons less
136 gallons = 110 MPG >> 14 gallons less
125 gallons = 120 MPG >> 11 gallons less
115 gallons = 130 MPG >> 10 gallons less
107 gallons = 140 MPG >> 8 gallons less
100 gallons = 150 MPG >> 7 gallons less

The reality of diminishing returns is quite clear. The benefit of saving drops off significantly. Even without a graph to illustrate, it's very easy to see beyond 70 MPG doesn't accomplish much. Take a look at goals. Serious consideration need must be made. Delivering a higher capacity sounds very appealing; however, being real means acknowledging the tradeoff of expense, weight, and space. A balance of priorities cannot include such large penalty. Without achieving a large gain, what's the point?

- 8-25-2013** **Overkill.** More is not necessarily better. Some will attempt to convince you otherwise. Some instead attempt to change the topic. Today's posting attempt was the latter. I was rather frustrated by such obvious avoidance. But then again, that's great confirmation you're focus is indeed correct. In this case, the topic was battery-pack cooling, Air verses Liquid: I see the overkill statement was not understood... or intentionally diverted. The discussion is about hybrids, not electric-only vehicles. Why does a plug-in hybrid that also has a gas engine also need liquid cooling? The engine can reduce load from the battery-pack significantly. Why put a heavy burden on electric draw during times of heavy demand when it can so easily be prevented by briefly substituting low RPM combustion instead? It makes no sense carrying around an engine and a transmission to link it if the system goes out of its way to avoid using it. Hybrids achieve efficiency through the sharing of power sources. That lack of balance, depending entirely on electricity, doesn't make any sense. So what if the engine runs for a few seconds. Does the addition of liquid cooling really justify all that extra expense, weight, and complexity?
- 8-26-2013** **Heat & Humidity.** Record high temperatures here now are making things interesting. This morning's commute was 82°F with the dewpoint at 73°F, which is an extreme for Minnesota. I left work with the A/C running, something I never need that early in day. That meant the expectation of lower MPG than usual. But having 9 miles of driving at 70 mph, following the initial 1/2 mile of suburb driving, I was quite surprised when reaching my standard milestone (at the slowdown, just as the highway descends into the river valley). On a good day, the average will read 150 MPG. Today at that point, it stated 172 MPG. There was more battery than usual still left too, despite being EV and EV-BOOST that entire drive. But rather than running out of electricity shortly before arriving at work, the remainder of the commute was entirely in EV. In fact, I had over a mile remaining. 232 MPG was the overall average. There is no doubt excessive heat & humidity contributed to that unusually efficient morning commute.
- 8-26-2013** **Approach & Outcome.** I posted this today... figuring it would fall on deaf ears, but it still never hurts to point out observations. Back when Prius was first rolled out here, there was lots of arguing about need. People would claim their want was actually a necessity. Now, looking back at the SUV craze, it's easy to imagine how absurd some of the posts were. Remembering how those enthusiasts didn't take that situation seriously, the approach was different with Volt. We instead asked what the goals were and who the buyers would be. The answers changed over time. When referring back to that past, the statements are simply denied or dismissed. They shoot the messenger too. It's hard to believe they still don't take the situation seriously. History was allowed to repeat. Same dance, only the song has changed. Nothing was learned. Such a waste of opportunity. So.... what's next? Do we really just blindly hope for the best? Are we truly naive enough to not even bother specifying any requirements?

- 8-27-2013** **New Opportunity.** It's nice watching the mania with Volt finally coming to a close. The current clearing out of inventory is changing the mindset, taking enthusiasts in a direction they fiercely resisted in the past. They recognize the realities of business and understand what mainstream buyers actually buy. That's progress. It means we can focus on actual goals instead. Hooray! That got me thinking about sharing more examples of what Prius PHV is capable of. Today, it hit me how frequently I drive out to my girlfriend's home. Sometimes, I have a fully charged battery available. Since I don't plug in there, I tend to reserve some capacity for driving home later. The thought occurred to me, what if I didn't? That's not the most efficient decision. Choosing to save is better. But with a distance just beyond the range available and travel speeds at 70, 60, and 40 mph, it's compelling to find out when to use the electricity. Do I use it primarily for EV or take advantage of EV-BOOST instead? This time, my decision was observe boosting. (That's when you travel faster than the EV threshold of 62 mph, using electricity to reduce demand on the engine.) Since Prius is extremely efficient at 60 mph, traveling in HV at that speed instead makes sense; it saves the electricity for later. That way, I get over 100 MPG while traveling at 70 mph... which I did indeed. Boost is great! I'll have plenty of observation opportunities. It's just a matter of choosing when to push that HV/EV button. Details will follow. Stay tuned.
- 8-28-2013** **Growing Concern, part 1.** The rather blatant greenwashing about the "6 miles" continued. I simply followed up with: Fear of blending is so high, the response is to mislead people but how it actually works. Wow! Reality is, plug-supplied electricity is used even when the engine is running. The result is much higher MPG than regular hybrid driving. This morning's commute is a great example. 16.7 miles total. 9 of those miles were on a 70 mph highway. The temperature was 79°F and it was very humid, that meant running the A/C the entire drive. I arrived in my parking-spot at work with 0.4 miles of EV remaining. According to the computer, 7 miles were EV and 9 miles HV. The final average was 196 MPG. So what if the engine ran. The result of that drive was great and it confirms blending uses that electricity to boost efficiency. EPA is nothing but a standardized measure, not an expectation.
- 8-28-2013** **Growing Concern, part 2.** I was flabbergasted by the level of desperation. The antagonists have run out of ways to prevent rising interest in Prius PHV. They see the appeal of an affordable plug-in which doesn't require compromise. It's basically just a regular Prius with enhanced capacity & power. Still in a state of amazement, I replied to the rhetoric with: The average Joe doesn't care about AER. They care about available capacity. Their interest is higher MPG. The information on the window-sticker clearly states 11 miles of blending is available from plug-supplied electricity. That means the engine could potentially could sometime during that distance, but in no way indicates it will or for how long. These continued attempts to mislead are quite vindicating; they confirm the concern that people are learning what a PLUG-IN HYBRID has to offer is compelling. They already like the idea of the engine shutting off when not needed with the hybrid. MPG is boosted from the plug.

- 8-28-2013 *The Next Prius.*** We got our very first bit of information about it today. As anticipated, MPG will be better. Thermal efficiency of the engine will be improved. That was one of the goals Toyota stated. Another goal was battery improvement, which will also be delivered. The entire propulsion system will be lighter too. As we had hoped, the chassis will be improved to deliver greater handling & aerodynamics. Naturally, the cost will be reduced as well. For the plug-in model, there were hints about increased range and wireless charging. In other words, it's an all-around better Prius... as each of the previous generations have been. The press release emphasized the overall goal of reaching 5 million total hybrid sales for the United States by the end of 2016. There's lots to look forward too. It's good to see Toyota continuing to push, even when the rest of the industry trails behind. They clearly are not resting on their laurels as some claim. The goal of replacing traditional vehicles gets more and more realistic each step of the way. Doubt is gone about whether or not that will happen. It's more a matter of when now.
- 8-29-2013 *Planning Ahead, retrofit.*** We're getting bombarded from all sides now. Newbies are attempting to assess the situation based on what they are learning now, without any prior knowledge. It's like looking back at a major natural or political event afterward and saying that outcome should have been obvious. You cannot. Unless you are participating while the smaller events building up to the big one are unfolding, you are unaware of all the elements at play. The outcome is anything but obvious. Anywho, the pot was stirred with this today: "*The current plug-in is really just a retrofit of a gen 3.*" And of course, there was nothing provided to explain what would need to be different for it to have been considered planned. Fortunately, I was indeed a participant. In fact, I've documented those events in great detail. So, I rebutted with: It's easy to jump to that conclusion, especially with the greenwashing effort pushing that very sentiment. Looking closer though, you'll discover the current hybrid is a design under-utilized. Adding the capacity & power fulfills the affordable efficiency boost Toyota had set out to deliver all along... once battery density & cost finally dropped to a reasonable level... without having to change much beyond just the pack itself. That planning ahead allows them to take advantage of economies-of-scale while also minimizing risk in a very uncertain market. It also provided a great opportunity to rollout the first model mid-cycle. They get to real-world prove implementation with the chance to upgrade sooner than any of the other automakers staring at the beginning of a cycle. Think about all the different markets Toyota gets to gather data from, lots of it too. With a system already so well refined, does it even make sense to have the plug-in model profoundly different? Why not just switch priorities instead? Let the 4th generation grow plug demand to the point where the 5th can be offered with a plug standard and the choice of no-plug as an option. The underlying effort is to shift purchases from traditional vehicles to hybrids. Doing that on the scale of millions per year within just 2 generations takes lots of planning ahead, delivering a design already prepped for future opportunities... even if it makes it appear to be a retrofit.

8-29-2013 **Planning Ahead, reach.** Also, let's not forget how many consumers there are who simply never consider the purchase of a "*first*" vehicle. They just plain are not interested in something which could potentially lose value quickly or reveal itself to have problems. Take a look a Volt for a very recent example. MSRP for the 2014 model got reduced by \$5,000. Just think what that did to resale value and the feeling it gave owners who just purchased one for a lot more. With Toyota's rollout starting in just 15 states having strong interest in high-efficiency vehicles and not expanding to nationwide until a potential price-reduction, exposure was carefully limited. It's another example of planning ahead. They can establish the plug-in hybrid market with lower risk to reputation or disenchantment. Having started mid-cycle, it sets them up greater volume right away with the next generation. The business of selling vehicles is extremely complicated. Lots of smaller improvements on a mature platform is very appealing to those who are unwilling to pay for much beyond the basics. That's the situation Toyota has now with Prius. It's a great balance for selling a large number of them. That win-win formula is how to reach middle-market, something antagonists expend a surprising amount of effort attempting to prove false. Long story short, there's lots to look forward to from the next generation.

8-29-2013 **Planning Ahead, parallel.** They spin everything you say. It would maddening at times, if it wasn't for the fact that they deliberately ignore certain things. That cherry-picking is a dead giveaway your information is in strong support of the situation; otherwise, they'd provide reasoning (even if very weak) to eliminate it. No acknowledgement, just outright disregard, is a good sign. I especially like the continued attempts to draw a parallel to Prius development with Volt. Toyota's well planned steps have paid off. They want Volt to appear the same way, even though the circumstances are immensely different. I was happy to point out those circumstances: GM already had EV1, Two-Mode, and BAS experience when Volt was being developed. That's quite a bit of real-world motor & battery knowledge already obtained that cannot just arbitrarily be dismissed. When Toyota developed Prius, there wasn't anything prior to leverage from. They started from scratch. The situation differs greatly from Volt. And as it was so eloquently put (in this thread): "*Without that \$7500, the Volt would be roadkill.*" That clearly adds to the point of not being the same. So, why is there so much effort still to convince us of a parallel? How does having an excuse help accomplish anything? How come focus isn't on what needs to be delivered next instead?

8-30-2013 **Planning Ahead, capacity.** In a truly desperate act, the exploitation of the vague and easily misunderstood EPA rating was brought up again. It was more cherry-picking. Rather than look at everything the EPA numbers represent, they focus entirely on just one... which leads to a false impression of performance... exactly what they want. That's how greenwashing works. You reference something credible, but don't include everything the person needs to know. That way, you aren't actually lying. The omission often goes unnoticed too. So naturally, there's retaliation when someone points it out. On that daily blog, they down-vote the post. Yes, they actually choose to dismiss a fact. Even if it's nothing but information, void of any opinion, it still gets a negative. I find that so vindicating. Their decision is to stick their head in the sand, hoping it will reach -10 so it will disappear from view. That kind of denial is amazing. Anywho, the nonsense was about the "6 mile" rating again. I routinely get more than double that. It's no big deal. Heck, you can even do the math. Volt delivers 38 miles from the 16.5 kWh capacity battery-pack. That works out to 2.3 miles per kWh. Using that same factor, the 4.4 kWh battery-pack in Prius PHV should deliver 10.1 miles. Since Volt weighs 621 pounds more, it's quite reasonable to add another 0.9 miles for Prius PHV. There's a very real penalty for carrying that much extra weight. So when we look at the EPA rating, there shouldn't be any issue. The 11-mile range makes sense, even with the blend potential listing. In other words, they are taking full advantage of the measurement shortcoming. But rather pointing out how misleading the label is, they hope you'll assume it's fine. I still can't believe they try things so easy to disprove. Needless to say, I couldn't resist a reply: Capacity is 11 miles, not 6. That 6 comes from a hard acceleration during the EPA testing cycle. The engine quickly shuts off after that and drive continues for 5 more miles using only electricity. $6 + 5 = 11$

8-30-2013 **Planning Ahead, more.** There is a heavy dependency on battery-pack capacity for Volt. In fact, that is the primary selling feature. So naturally, it makes sense that all comparisons to it will be with respect to its perceived best attribute. This is why Prius PHV is constantly being forced into an EV perspective. Rather than looking at it as the PLUG-IN HYBRID it actually is, there's an intentional distortion & misrepresentation of it being an electric-only vehicle with engine-backup instead. They just plain don't care. That's because the engine efficiency is for Volt so low. Less capacity would result in a far less efficient vehicle. To make matters worse, the recent reveal that the next generation Prius will come with an even more efficient engine makes that bad situation even worse. But coming from the "*vastly superior*" enthusiasts who strongly feel less is too extreme of a sacrifice, they won't ever understand Toyota's planning ahead. In fact, after so many years of stressing that point, it's basically futile attempting anymore. Today, the comment to that affect which caught my eye was this summary: "*So Toyota is tricking consumers to save money and buy a Pip because it has a cheaper battery (smaller product). What fools!*" I found that amusing. Configuring a product to offer a balance is wrong? Wow! Of course, they go out of their way to make sure battery-pack capacity remains the focus. Allowing any of the features to be discussed is an act only a troll would ever do. Just try mentioning how small the seating it back is for an example. Some responses are downright hostile. I kept my reply simple, choosing to include a quote from another Prius owner instead, one who I hold in high regard for all the research he does. I posted: Ironically, the "more is better" approach has proven to be false many, many times. As a friend so eloquently summed up the situation... PiP design was based on a smaller battery having advantage due to lower cost, less environmental impact, higher efficiency, more space, etc. The only downside was the inconvenience of multiple recharges. The wireless charger would negate that - smart move.

9-01-2013 **Planning Ahead, practical.** How any automaker could make the decision to compromise cargo area is a fundamentally important question. After all, the primary factor for rapid attraction to the second generation of Prius wasn't the upgrade to the hybrid system. True, that was a major endorsement to the technology. But when you look back at the offerings of the time, you discover it was the only midsize hatchback offered. There was literally no competition. All hatchbacks back then were compact. Nothing big enough to be practical for a family left a huge void in the market... which Toyota happily filled... which the antagonists worked hard to conceal. Eventually, Prius was vindicated. Now, there are quite a few midsize hatchbacks available. Some automakers are even offering wagons now too. So when you look at Volt, you wonder what the heck. There's a cargo space under a hatch, but area itself isn't flat like the others. The seats don't fold down flush with the rest. The floor has an uneven drop, preventing any tall or long cargo from actually being transported. You get the impression of it being practical, but it really isn't. The area is quite a bit smaller than Prius. Oddly, Ford made a practicality compromise as well. The seats are flush either. The battery-pack for the plug-in model C-Max consumes a surprising amount of vertical cargo space. Neither seems like a wise approach to fulfilling the purpose of appealing to the masses.

9-01-2013

Planning Ahead, refinements. Reading comments recently made by those responsible for the next-gen Prius, they say we can look forward to even better thermal-efficiency from the engine, refined aerodynamics, a lower center-of-gravity, and even more interior space. They also stated the higher system will be smaller and lighter weight. I have no doubt GM will deliver a number of refinements with the next-gen Volt as well. Unfortunately, that will lead to some disenchantment among current owners. Inevitably, there will be some hypocritical responses as well. Fortunately, none of that rhetoric will matter. GM customers will be better off. I went to the State Fair again yesterday. We played with the interior of the Volt there, getting on-lookers involved. The response was overwhelming negative about how small the rear seating was. When I pointed out how low the door was, blocking my view out the window, some were amazed. They even laughed when I pointed out where my head was when the hatch was opened. That's not good coming from a man who is only 5'8" in a car intended to appeal to the masses. Prius quite a bit larger with respect to several seating dimensions in back. Obviously, GM will address that rather blatant shortcoming and it will be a total non-issue. But to get so much denial in the meantime about such an obvious issue, what the heck? As countless Volt owners have stressed, this generation of Volt is only an "*early adopter*" rollout. We all know that wasn't the original plan. It was expected to hit minimum mainstream sales volume by the end of the second year. Clearly, that didn't happen. Enough said. Let's move on... which means enough with the "*vastly superior*" nonsense already. Geez! The next Volt will be better. Why? It's because the current doesn't meet needs of middle-market. We all need to get behind support for plug-in vehicles. That means constructively & directly addressing why high-volume sales vehicles continue to dominate. You cannot just hope for the best from the next generation. It's also a moving target and bragging about aspects of design that aren't even a purchase priority for the typical Camry/Malibu/Fusion and Corolla/Cruze/Focus buyer doesn't accomplish anything. Eventually, those still arguing in favor of large battery-packs which compromise cargo storage and require a substantial premium will finally notice how counter-productive that is. Who do they honestly think that actually appeals to? The clock is ticking. Competition is growing, which complicates matters by confusing consumers with so many choices. Notice how post spin doesn't make any difference anymore? That's because decisions are going back to the basics. That means comparing 100 MPG to 200 MPG is quickly become a moot point. Things like purchase-price and interior-room will be getting much more attention. That means automakers better be prepared for the paradigm shift.

9-01-2013 **Planning Ahead, lemmings.** How would you respond to this: *"To me the PiP was a half-assed job. I swear a bunch of Toyota execs were just hanging out one day, and one said: Hey guys, Nissan and GM are coming out with EVs....shouldn't we come out with one too? I know! How about we just cram a Li-On into an existing Prius! The lemmings will buy them on the Prius name alone, even though the electric range is tiny!"* That kind of perspective & attitude still amazes me, after all these years. Ironically, those making such statements based on nothing but observations after-the-fact qualify as lemmings themselves. Having seen what actually happened when it happened tells a very different story. But knowing the poster simply didn't care, I replied with this instead: Do you have any idea how easy it is for the perspective to be different? Honestly. Some call it "spin", others call it "truth". The point is, it can be labeled as anything they want, since it always comes down to sales in the end. Without high-volume and profit, the ultimate goal of the automaker is not achieved. Investing in the future is great. We've needed the long-term (planning ahead) approach for quite some time. Question is, how much should be invested and how? Does selling a first-gen offering in low numbers and at a loss make sense? What should the second offer? Who will be the target market? Think about how simple of an argument it is claiming Volt has two separate propulsion systems. After all, GM promotes it that way... electric, then gas. Problem is, dual power-sources was the argument against Prius for nearly a decade, arguing you have to pay for twice as much. It could even be said that GM crammed a large battery-pack and added a motor into their existing platform, hoping the lemmings will buy it. We all know that Toyota could have offered greater capacity, since that is in fact what Ford did with their hybrid of similar design. Instead, they chose to stick with the balanced approach, retaining cargo space and package pricing. Noticed how they delivered the plug-in with a lithium battery instead of NiMH? Notice how they increased EV speed from 46 to 62 mph? Notice how MPG is boosted at speeds faster than 62 mph? Notice how they increased power from 27 to 38 kW? Notice how HV efficiency was increased 1 MPG despite the extra weight of the larger battery? Notice how it was all delivered mid-cycle, rather than waiting until the next generation?

9-02-2013 **72.9 Percent.** I was embarking on a vacation up north. There would be lots of opportunity for EV driving. Wanting to save as much electricity as possible, I switched over to HV mode after reversing out of the driveway. The estimated range, which started at 13.6 miles, was now at 13.5 miles. Knowing the system uses EV-BOOST during engine warm-up to reduce emissions, I was curious what the EV restore would be following that. Usually, the system will replenish that boost capacity while you drive. However, that won't happen for the sake of longevity above a certain threshold. This was my opportunity to find out what the values actually were. I hadn't ever measured that before. The "full" charge started at 85 percent. That is also for longevity. 100 shortens battery life, especially in hot climates... as we've seen with Nissan Leaf... which is why it offers a partial-charge option to specifically prevent reaching full capacity. That reduced maximum helps and even lower is better. With Prius PHV, that "ideal" level ends up being 72.9 percent. In terms of a distance estimate, with respect to my particular driving circumstances, works out to 11.1 miles.

- 9-02-2013 PHV Sighting!** During the drive up north, I saw something I've been dreaming about for a very long time... another plug-in Prius approaching. It was the color of mine, exclusive to the PHV model. Sure enough, my distant observation was confirmed up close. The emblem was clearly the larger one, stating PLUG-IN HYBRID rather than just HYBRID. Needless to say, I was thrilled. But there's more to the story. I was driving through rural Wisconsin, a state no part of the initial rollout and far from any major cities. It was either another vacationer or someone ambitious like me not wanting to wait for the upcoming national rollout. It was very exciting.
- 9-02-2013 239 Miles.** The trip was from the southern part of the Twin Cities in Minnesota to the northern part of Wisconsin, specifically the Apostle Islands. Conditions for travel were nearly perfect. It was a sunny day and so comfortable the A/C wasn't even needed. There was a little bit of a wind from behind too. I was thrilled with the results. Despite all that electricity still available (11.1 miles), the efficiency was outstanding. The overall average for those 239 miles came to 59 MPG. That's remarkable for a plug-in hybrid that didn't actually take advantage of plug-supplied electricity. This is why Prius is such a versatile platform. People have a choice of the configuration to purchase and don't even have to plug in still get efficiency well above traditional vehicles. The road-trip experience is especially beneficial, having so much cargo area in back. That convenience is difficult to put a value on though. You have to experience it to appreciate it. Fortunately, the MPG speaks for itself.
- 9-03-2013 Prius, Persona Edition.** This special edition has been elusive. I had been waiting a long time for a close encounter. That day finally arrived. We were walking around town, just sight-seeing. There it was! I had an abundance of time available and was carrying a camera too. The special black-cherry (deep purple) color and the unique alloy chromed wheels really made it stand out. The dark interior looked nicer than I had envisioned too. I like the fact that Toyota offers limited models. They add to the choices while keeping an aspect of being unique still. We'll never know how many of them are on the road. But at least getting an up-close inspection of one was nice. Not everyone gets to. For that matter, many Prius owners are even aware that variations like that even exist. It's what happens as popularity grows. In fact, that's how the market expands reach beyond mainstream buyers... something other hybrids won't even imagine for many years still. Becoming diverse is that next step.
- 9-03-2013 Another PHV Sighting!!** What the heck? There in the dark in front of me was another Prius PHV, this one also that unique light blue. I was beside myself. To see another one, roughly 125 miles from that other driving the other direction the day before, was amazing. What caught my attention this time was the silver strip along the back. That's a distinguishing feature unique to the plug-in models. Sure enough, when I walked around the side, there was the PLUG-IN HYBRID emblem to confirm I wasn't seeing things. What are the odds of such an amazing sense of timing? To not see another in roughly a year, then 2 sighting in 2 days! Unfortunately, the owner was nowhere to be seen. Oh well. I was in a tourist city anyway. So, the encounter would have likely been brief. Oh well. At least I know for a fact there are others out there, coming from non-initial states. This one was from Illinois. It makes me very excited to see there is demand-in-the-waiting. National rollout isn't only a few months away now.

9-04-2013 **Industry Sales.** Economic recovery combined with the timing of model-year clearance couldn't have been better. The entire industry saw a major increase in sales for all types of vehicles. Toyota's report of having sold 44,713 Camry last month gives a great indication of the kind of growth witnessed. That's a great number. Of course, the Prius family did something to make people notice. Monthly sales exceeded that of Corolla. It wasn't by much, but the trend of both higher counts and stronger demand is difficult to deny. That's a very big deal too, when you consider the fact that 40 million Corolla have been produced since its beginning in 1966... which makes it the best-selling nameplate of all time. The liftback (16,157) compact (5,478) and wagon (3,932) models of Prius did well. My favorite, the plug-in model, saw a very pleasing 1,791. It was a very good month. As for Volt, it still didn't reach the rate of 3,750 per month, which would have placed it at the sales rate GM was hoping for over a year and a half ago. The 3,351 that were sold were the result of \$5,000 price reduction. And since there hasn't been any news whatsoever about lithium battery costs having dropped, we have to wonder how much below cost the vehicle is now. Of course, the supporters don't care. They have recently taken the CEO's goal of reducing cost from \$7,000 to \$10,000 as a promise of \$10,000. The "*over promise, under deliver*" is fed by hope like that. It turns into unsupported hype that no one questions. It's so harmful; yet, they do it anyway. We all know what unmet expectations then lead to. Fortunately, we do have Ford pushing along. 621 for C-Max and 600 for Fusion are decent numbers for the plug-in hybrids. As for all-electric cars, Nissan did well. Leaf sales of 2,420 are making people to take notice. Tesla with Model S is the other among those getting attention. The estimate of 1,700 is a big number for a vehicle well out of the price-range of middle-market. Looking at the traditional sedan offering a hybrid model, the Camry & Fusion continue to stand out. 4,729 and 3,694 (respectively) were purchased last month. Hyundai did fairly well with 2,303 from Sonata too. Overall, the outlook hasn't changed. Overall, the industry is still struggling to gain market-share. The progress is far slower than hope and a few sacrifices have been made along the way. Now, I'm more excited than ever to watch what happens when PHV rollout nationwide begins.

9-04-2013 **Ferry Ride.** My Prius PHV crossed a small section of Lake Superior today, without using a bridge. Instead, it was with a boat. That was exciting to drive onto the Ferry... since I still had an ample supply of electricity available. In fact, there would like be enough for me to drive around on the island the entire morning using nothing but EV. Sure enough, that is indeed what ended up happening. We left the boat & dock behind, visiting the small town for provisions before setting off into the wilderness. It was Madeline Island, the only established part of the Apostle Islands. Our intent was to drive to the state park on the other side, then hike along the coast taking lots of photos and having a picnic. The weather was perfect. The location was beautiful. Exploring what nature has to offer while doing it with electricity added to the experience. We had a great time! Even the wait & ride on the Ferry back was a good time. It was definitely a unique day to remember.

- 9-05-2013 PHV Again!!!** What are the odds? This was one that Sea Foam Green color. I drove right by me slowly, allowing for solid confirmation that it wasn't just the regular model. But to add to the already exhilarating situation... it drove right by the other PHV in town, which I had only noticed again moments earlier. And since I was standing right in front of mine at the time, it mean there were 3 plug-in Prius all within the same line-of-sight. Needless to say, I absolutely could not believe what had just happened. Never in my wildest dreams did I expect to see more PHV in such a remote location. But then again, walking around town we had made remarks about how many Prius there were. They obviously work well for long-distance travel. Adding a plug to the equation make the whole situation even more fulfilling. Yeah!
- 9-05-2013 60 MPG and Added EV.** This day of vacation included some driving around, getting away from the tourist areas. We ended up traveling a total of 63 miles. Some of it got rather hilly. The speed was a mix of city & highway. We used the A/C most of the time. Despite all that and not having anywhere to plug-in, the average ended up being 60 MPG. That kind of result from HV mode only is very, very pleasing. The fact that I started with 11.1 miles of EV and ended up with 11.4 miles makes it even better. Rather than a little bit of depletion overall, there was actually addition. Who would have thought you'd get that as an outcome? Instead of using up a little bit of electricity, there was a net gain. That's sweet. I'm thankful for such a result too. Taking 450-mile trips each month is dragging down my lifetime average. But then again, there's nothing more swaying to potential buyers than data consisting of real-world experiences. Life is too short to miss out on opportunities to play. So what if I cannot plug in during those vacations. The point is those are vacations. They should be enjoyed. Today's drive was a great example. We watched the sunset on a secluded Lake Superior beach. That was totally worth it.
- 9-06-2013 More PHV.** Whoa! There it was again. I got to see the Sea Foam another time. Hope had been that I run into it twice, just like the other PHV. But for it to actually happen... Yippee! You don't expect things to work out so well. I felt quite fulfilled. National rollout will be truly rewarding. The time spent observing & sharing experiences wanting others to find those also interesting is well spent when you see them having purchased the same. I cannot wait anymore. Seeing the plug-in model available for purchase locally will be a big step forward. Having to purchase from a distant state, then drive back or hire a delivery service, isn't exactly what you'd consider the usual approach. Being able to go to the local dealer changes everything, making it far more likely to become a reality. With all the real-world data now available, from all the other owners contributing their stories too, there's lots of potential. And of course, there isn't the problem GM faces. Toyota already has a profitable path. Drastic MSRP reductions won't be necessary. The usual price, with some special sales from time to time, should do the trick.

- 9-06-2013** **219 Miles.** We weren't as lucky on the way home as the way there. It was hot this time. The A/C was needed. That meant getting in and out several times for stops along the way, into a humid outside. Blah. Efficiency wouldn't be as good either... or so we thought. To my delight, the outcome ended up being an average for the 219 miles traveled of 60 MPG. That's fantastic... but not the most interesting part. The up & down driving in that area ended up regenerating 2.2 miles of electricity. That's more than I've ever seen. It's an obvious benefit to efficiency too. The big thing though was the discovery that came along with it. The response to that electricity was quite a surprise. When the Prius came to a complete stop at the very bottom, the system automatically switched over to EV mode. That hasn't ever happened before! What the heck? I had been in HV mode since 2 days ago when running out of plug-supplied electricity. Seeing EV suddenly invoke itself without having restarted the system certainly wasn't a behavior I had predicted. Perhaps it thought there may be more opportunity for the large-scale regenerating, so it was attempting to purge the current supply as quickly as possible. That makes a lot of sense from a longevity standpoint. It's a simple way to protect the battery-pack from over-charging. Anywho, that 60 MPG certainly was nice. Learning more about the plug-in system was a nice bonus.
- 9-06-2013** **Finally.** That daily blog for Volt has been dying a slow, lingering, pointless death. Fewer and fewer daily topics are actually about Volt anymore. Most are just reposts of general news from the parent website. Ever since the founder sold it, the new owner (an online automotive group) kept it going and was able to retain many of the original members. Unfortunately, they are the same ones unwilling to embrace change. So, the transition to this new reality of a cooperative culture of plug advocates hasn't gone well. They are still fighting for superiority. Fortunately, that is finally shifting out of their favor. More and more, their posts are countered by constructive content showing they are not taking the situation seriously. Phew! That sure is a relief. Reaching middle-market won't happen until they begin to address mainstream needs. The most recent topic titled "*EV sales report*" certainly helped to do that. It pointed out detail about Tesla Model S and Nissan Leaf, the 2 leaders in EV (electric-only) sales. Also highlighted were Chevy Spark EV, Fiat 500E, Ford Focus EV, Honda Fit EV, Smart ForTwo EV, Toyota RAV4 EV, and Mitsubishi i-MiEV. Remember how GM wouldn't be caught dead selling an EV, how heavily they invested in campaigns promoting the benefit of a range-extender. Something obviously happened. They get quite angry when you speculate what. They also refuse to concede the fundamental difference this situation is compared to the original rollout of Prius. Rather than misconceptions and automakers refusing to endorse, there are a variety of choices from a variety of sources. Some are still desperately clinging to the hope of a miracle shifting preference to Volt rather than it becoming a player among a team of plug-in vehicles. I stated my observation of the situation with this simple series of questions: Notice this topic? Wasn't the point of Volt to prevent EV range-anxiety? If so, why is each automaker... including GM ...offering EV anyway? What changed?

9-07-2013

Retribution. It almost feels like that. There's no intent for anything like revenge, despite the obvious self-inflicted setbacks which easily could have been avoided. There's just this sense of *"Get Over It!"* that really cannot be achieved without making that purpose clear. So, it gives the impression of celebrating a victory at the expense of another. But then again, it's not like the outcome is a surprise. How do you deal with change? What is the appropriate approach? We're starting with stating the evidence: *"What has changed is that the old guard mindset of developing and maintenance of an automotive brand can occur through a series of conversations and 'bright ideas' developed on a napkin are dead. We will probably never know or see what business case underpinned the development of the Volt and the Voltec platform but it is evident the initial business outcomes did not occur as planned..."* I liked reading that summary. My contribution which followed was: GM didn't plan ahead. That was the very same mistake they did with Two-Mode. Watching that history repeat was unpleasant. Constantly being attacked when contributing constructive advice did help the situation either. You'd bring up business need and end up getting negative votes along with accusations of attempting to undermine. Focus was entirely on technical innovation, which GM does indeed do well. That clouded judgment, allowing the hype to get out of control. The resulting poor business decisions were supported until sales fell so far of expectations price had to be dramatically dropped. All along, the message has been to tell management what to do. All those posts telling us to just trust their choices was obviously bad advice. They didn't deliver a vehicle for the masses, because enthusiasts enabled them to build the car they wanted instead. It is disastrous outcome we need to acknowledge and prevent from happening again. Hoping production cost-reductions alone will make it profitable & competitive is yet another example of not being constructive. Those saying we should just be patient and wait have lost touch with reality. We all know GM will need to make sacrifices to get Volt back on track. The next-generation must become the vehicle it was intended to be, which means matching the purchase priorities of ordinary consumers. That requires change. Who here will continue to fight that, making *"early adopter"* excuses and *"vastly superior"* claims rather than helping GM take the next step? Ending that mindset is essential.

9-08-2013 **The Question.** It was nice to see this asked: "*Can Volt hold this 3000 cars per month sales rate going forward??*" The expectation was enthusiasts wouldn't like any answer to that. What will selling more accomplish? Establishing a reputation is great. But when all that money from the government is cut, then what? When a tax-credit was offered for Prius, it was only half that amount and sales were already triple that rate. The purpose was different too; it was to expand the market. Needless to say, there's a very real concern about cost being more than price. GM's original goal of targeting \$30,000 shouldn't have been allowed to waiver, especially by so much. Now, they are stuck trying to figure out how to achieve that... since it is revealing itself to be a very, very important goal. The enthusiast claim that this generation was really only for "*early adopters*" clashes with that question, since fewer would be better. You don't need 3,000 per month to prove the technology. In other words, the situation is quite a mess and there is no agreement upon what should happen next. In fact, asking for suggestions results in a wide variety of responses. I chose to post the following: What about the question of should they? Remember the problem of the past, where sales count was more important than making profit? Getting more out on the road sounds like a great idea, but the reality of selling at a loss and the inevitable end of the \$7,500 tax-credit makes the topic of production-cost a major concern. 3,000 per month is still a rate far short of the mainstream minimum of 60,000 per year. For Volt to become a business-sustaining source of profit it was intended to be, a top-seller among GM offerings, it needs to grow to roughly 5 times that monthly rate. Notice the recent sales of Cruze, Equinox, Malibu, Impala, and Sonic?

9-08-2013 **Based On What?** We see quite a few of these vague comments being made nowadays: "*A PIP would not work for me. I have to go faster than 62 mph and farther than 13 miles.*" But when you press for detail, they rarely ever provide any. They draw conclusions with little to no actual data. Much is still based upon assumptions, just like we saw all those years ago with regular hybrids. The few who did bother to explain their reasoning often revealed misunderstandings and incorrect information. It's amazing we ever got passed all that. So the issues with the plug-in model are only temporary. Easily available real-world data will overcome that. Thank goodness the internet nowadays is so much more accessible than it was a decade ago. Sadly though, we're starting pretty basic. Until national rollout, there aren't even enough curious people to keep online dialog following. It's still just random questions intermixed in unrelated threads at the moment. Oh well. That's a good start. With respect to the quote above, I replied to it this way: Those thresholds are don't actually equate to much. They are mostly just argument points for enthusiasts. My commute is 17 miles, 9 of which are at 70 mph. Overall MPG exceeds 150.

- 9-08-2013** **Another PHV.** Back home from vacation, I was just out doing ordinary shopping. It was quite a surprise to pull into a parking spot and notice clear tail-lights on a mid-cycle update current-generation Prius. Sure enough. When I got out of my PHV to investigate, that was indeed what I saw. There was also the telltale silver strip confirming it was a PHV. This one was white. I hadn't ever seen that color. So, I walked over and snapped a quick photo of the PLUG-IN HYBRID emblem. I noted that it had Arizona plates too. I guess other owners are discovering what a great long-distance travel vehicle it is too. To think that I've encountered 4 different PHV within just 1 week. It's quite pleasing. Waiting for the national rollout has been a test of patience. But then again, not having collected enough real-world data prior to that would have hampered the effort once it began. So, this preparation in the meantime is well spent. I can't wait for that progress to occur. We're getting close to when the ramp I park at for work installs the new charging-stations. There's much to look forward to in the next few months. Today's encounter was a good reinforcement of that.
- 9-09-2013** **Who?** On an unexpected new thread, this comment was interjected: "*It should be said/thought, that the Volt was not designed for people who drive 30k miles a year.*" The topic was a new Prius owner having traded in 2013 Volt to get it. That's something certain few particularly stubborn Volt enthusiasts said would never happen. It did. I was intrigued. That comment provided the perfect opportunity to ask again, to a new audience on the big Prius forum: *Who is the market for Volt?* That question has been asked countless times over the years. The response was never clear. It still isn't either. What about 20k per year? Heck, even 15k becomes uncertain when you consider the demands of heating in the winter. *What is the best balance of capacity & price?* That should be the question asked. Evidence that price was too high is overwhelming at this point. Capacity was too much of a tradeoff, especially when you also factor in rear seating space. So, the dilemma of what should be delivered for the next generation is still very much an issue. Taking into the expiration of the tax-credit makes a challenging situation even worse. The topic of "*designed for*" is a very big deal. Who?
- 9-09-2013** **Definitions.** I'm done playing that game. Today is my 13th Anniversary. Yup, 13 years ago I bought my first Prius. The memory of that day, so long ago, is still quite vivid. It's hard to believe so much time has passed since then. Those driving experiences have been great. I especially enjoyed the discovery process that each Prius upgrade included. Some of them really made an impression, reinforcing the belief in a better future. As you imagine, the bickering about definitions still does continue. Thankfully, most of it dies out quickly. That's a good sign. You never really squash beliefs. They just become easier and easier to move beyond... which is what it's all about... taking the next step. I chose to state the situation with: Way back when, the purpose of defining hybrid types was overwhelmingly clear. Now, most people don't have a clue what the problems even were that those terms alleviated. The ultimate point was make people aware that all hybrids were not the same. Consumers today know that. Mission accomplished. Focus has since shifted to other things, like HV efficiency and EV range.

- 9-10-2013** **Priorities.** There are some who still don't have a clue. That's why they are enthusiasts, rather than supporters. The difference is one favors want and the other favors need. Today's frustrating example of this was: "*The Prius will never achieve the overall mileage of a Volt if driven in the normal driving pattern for which the Volt was designed.*" It's hard to believe that type of nonsense persists after all this time. Oh well. I'll keep chiming it with doses of reality: The purpose of today's topic was to point out the importance of aspects other than mileage bragging rights. Automakers need to sell lots of vehicles at a profit. Volt supporters do everything they can to avoid addressing details of that reality. Notice the attempts to distract & discredit? So far today, I've driven 35.1 miles with my Prius, starting with a full charge at home and then recharging at work. 25% of the capacity remains. I'll be heading out later. The average so far is 126 MPG. That's a great result from a much smaller battery-pack, a size chosen specifically to keep cost in check and not compromise interior space. Toyota made cost a high priority. GM's decision to deliver a vehicle that clearly disregarded cost is now becoming a very real problem. The abrupt drop in price clearly confirms it wasn't a good move. Cost should never have been allowed to grow so much. They didn't take they own original goal seriously. That mistake is unfortunate. What should GM do now for consumers, between today and when the next generation gets delivered? That's a lot of time in a constantly advancing market. Selling at a lower price and hoping for the best isn't much of a strategy.
- 9-10-2013** **EV-BOOST Rate.** I've never actually looked into what it really is. After all, when you're basing numbers off of just an estimate, the margin-of-error can be quite pronounced. Anywho, I was curious. When driving around in only EV, that range estimate value is somewhat realistic... as long as you don't waver too much from your driving routine. In other words, if it says 13 miles, you're likely to get 13 miles. But when you enter EV-BOOST mode (when the engine starts up to assist), there isn't necessarily a 1-to-1 ratio of electricity. The rate is somewhat lower. But how much? To find out, I have to find a long stretch of highway where I can drive a constant speed and still have a fairly full battery available to work with. My first try was at 65 mph. According to the display, my EV range estimate had dropped 5.8 miles. I had actually traveled 7.5 miles though. The outcome was as I had expected... since I knew Toyota has improved the depletion over the early model plug-in. In fact, that was the point of having done so much real-world testing. Optimizing the system to get greater efficiency from less battery is a great outcome. My second was even better. Traveling 3.7 miles based on the estimate, actual travel was 5.4 miles. That distance is obviously just a small sample. But it serves as confirmation of rate not being a simplistic as most people assume.

- 9-12-2013** **13.9 Miles.** That's the highest EV range estimate I've ever seen. My particular driving pattern doesn't contribute to higher expectations. A few owners report seeing values over 17 miles. That would be interesting. For me, today's 13.9 miles was a record. Unfortunately, I didn't take a photo either in the morning or in the afternoon. Having seen it twice, I'm hoping it will happen again. Maybe I will. Maybe I won't. There's no way to know. It doesn't influence outcome anyway. In fact, it's just the right set of circumstances. With lots of driving while holding a non-depleted charge and the daytime high-temperature falling, the variables aren't what I normally encounter. Most of the time, the value displayed after having just unplugged is in the upper 12's. Seeing low 13's is limited to good Summer conditions. Excessive heat causes a drop. Lots of driving around without any EV available does too. But that's normal; patterns are not. Real-World driving takes you randomly all over the place. After all, life is too short to miss out on opportunity. That's why the estimate doesn't mean much. For that matter, the resulting MPG from day to day doesn't either. It's still well above what a non-plug hybrid can deliver... which is the point.
- 9-13-2013** **Endless Rhetoric.** The spinning of intent & definitions is never ending. It goes along well with the moving of goal-posts. When something doesn't turn out well, they just claim something else instead and deny claims of the past. Ugh. Today, it came in the form of: *"Just too bad they didn't capitalize on the opportunity to continue to innovate."* Coming from someone who obsesses with bragging rights, it was the opposite of being astonished... same old rhetoric. That's why range is so important for Volt enthusiasts and why such a comment would be made to disparage Toyota's effort. Targeting the masses isn't important to them, which is why the endeavor to deliver a well-balance product isn't appealing. In there mind, being "middle" is a failure. So, no matter what you say, not being an extreme is unsuccessful. I put up with the self-deprecating attitude anyway. Despite having an unreceptive audience, I responded with: Having worked hard to deliver an affordable plug-in hybrid fits the definition of innovate quite well. Keeping kWh size to a minimum, sacrificing seating or cargo space, and switching to lithium certainly qualifies. And isn't the point of capitalizing to make money on each sale? It's too bad the effort to deliver high-volume isn't considered being innovative.

- 9-14-2013** **Safe Driving.** An intriguing side-effect of having a vehicle with a display on the dashboard, showing you how it achieves outstanding efficiency, is how it transforms your driving. That heightened awareness sours appeal of exceeding the speed-limit and aggressive maneuvers. You lose interest in favor of higher MPG results. Coincidentally, that also equates to better safety. Unfortunately, not every aspect of safety is influenced. I've never seen either of the following from a Prius driver, but someday it will probably happen... Roundabouts are new here. Drivers who got their license years ago were never trained how to use them. As a result, I'm seeing a lot of vehicles stopping completely when they approach, rather than just yielding. That's a scary surprise when they halt like that for no reason. Without anyone else is even in the roundabout, that unexpected stop could easily cause an accident. The other problem which has an even greater accident potential is left turns on a red. Now that there are flashing-yellow signals at some locations, people are assuming the same allowance to turn is available for solid-red elsewhere too. I'm guessing they think that stoplight simply hasn't been upgraded yet. Whatever the case, I witnessed a driver getting honked at today for not turning on a red. People were in the crosswalk at the time too. It was a blatant disregard for everyone's safety. I couldn't believe what I had just seen. Sadly, that same intersection has those turn violations on a regular basis. It's scary knowing some people just plain don't care. At least there's some sensibility coming from Prius drivers. I especially like the fact that my particular model includes collision-detect, a feature that triggers the brakes and sounds an alarm when the radar system senses a stationary object directly in front of the vehicle.
- 9-15-2013** **Realism.** It sure is nice seeing the greenwash efforts fizzle. In the past, any victory was considered a gain. Fighting for the sake of winning a battle, rather focusing on the overall objective, isn't resulting in any progress anymore though. Looking at it another way, the audience has changed. It was easy to get Volt to appeal to enthusiasts. Doing the same for middle-market just plain hasn't been working. Mainstream buyers have very different purchase priorities. They simply aren't interested in paying a premium. Balance is vital. Prius offers that, hence the popularity it earned. As time progresses, it becomes easier and easier to see that's exactly what the plug-in model also targeted. Reveals of next generation intent confirm that. Toyota is striving to deliver a realistic high-volume & profitable solution. That idea of realism frightens those still hoping for the best from GM. The recent desperation of post content makes that obvious. As the market embraces that idea of plugging in, we're all seeing Volt goals clearly didn't match and the next generation will be quite different. Watch what happens with the 2014 model. How many \$5,000 discounted ones will actually be produced & sold? GM has been altering plans to better align with what Toyota has been doing all along. That's a winning solution for everyone... but that idea of change sure upsets the enthusiasts... until they consider how well Cruze, Malibu, Impala, and Sonic are doing. They are the true competition. Reality is crashing down. Business needs can only be disregarded for so long.

9-16-2013

Fall Approaching. It was 45°F degrees this morning. That's a sure sign it isn't Summer anymore. Fortunately, that isn't cold enough to affect the battery-pack or electrical resistance yet. I had the extra time to take the slower route to work today. It runs along the river valley, which is quite scenic. So, it's the nicer choice even without the benefit of not needing the engine. That provided a great opportunity to measure range. Just like when my plug-in Prius was new, I made it all the way to the on-ramp for the highway river crossing using only electricity. That's 13 miles. There was just a little under one mile left still. Firing up the engine at that point works best, since the resulting power can be taken advantage of prior to reaching the fully warmed temperature. Being able to some EV for the remainder of the commute is nice too. The overall distance ended up being 17.2 miles, driving directly to the charging-station, rather than hiding in the lower level until the afternoon... since there is no need to worry about a super-heated interior anymore. The car will stay comfortable with Fall approaching now. Anywho, the overall efficiency came to 262 MPG. No complaints about that outcome. Though, I do miss getting even better in the dead of Summer from the engine warming up faster. Seasons change. Prius handles them well. This morning's drive was a good example of that.

9-17-2013

Diversity. Watching discussion focus on new topics is quite refreshing. In the past, bringing up the topic of a pure EV absolutely infuriated the Volt enthusiasts. Their entire philosophy of the market revolved around "*range anxiety*" fear. So even when you brought up the concept of diversity, they'd get angry. Pointing out how GM could so easily reuse the same electric motor in Volt to deliver a vehicle depending on it entirely, a system without an engine, stirred hostile responses. That was truly remarkable. Now, they've embraced the idea. Talking about a dramatic change! Of course, sales of Volt confirmed shortcomings. GM's announcement to deliver a 200-mile range EV pretty much removed all doubt. So, the attitude adjustment isn't exactly a surprise. Their one-size-fits-all approach clearly didn't work. But then again, when I'd point out the larger motors & engine in Camry hybrid they'd get very argumentative. They didn't like that type of divergence either. In fact, any type of variety resulted in upset... especially the thought of a smaller battery-pack. Now, things are quite different. Cost and the desperation to retain attention has resulted in hypocritical posts. They're contradicting the very things they held most dear. It's the ultimate confirmation of progress. Abandoning their own principals (want) in acknowledgement of what the market actually needs is a big step forward. Too bad that journey to get here had to be so painful; however, they did bring that about themselves. After all, refusing to address the parallels to Two-Mode was their own choice. They assumed it was impossible to fall into the same traps twice. They were wrong. It happened.

9-18-2013 **That Question.** How many times did the "Who?" question have to be asked before it became obvious that expectation didn't actually match reality? Today, it was enough. The outcome could no longer be denied. It came as the result of this comment: *"70% of Volt trade-ins are from non-GM brands. In other words, most people who buy Volts are not GM fans."* When those loyal to GM don't upgrade, that's a very real problem. Isn't the goal to replace traditional production? Last year in the United States, there were 2,082,504 purchases of Toyota vehicles. 327,413 of them were hybrids. Unfortunately, there's no way to know what the trade-in percent was. But that replacement quantity is genuine progress. We know that overall Prius sales grew and Corolla fell. And that's just here. Over in Japan, the favor for Toyota hybrids is much higher. Remember the *"too little, too slowly"* concern? It's why most of the GM fans have given up on Volt. A simple look at recent posts on the big GM forum confirm that. It isn't discussed anymore. Interest has shifted to competing with Tesla and Nissan with EV offerings. With the government holding of GM stock down to 7.3% (a huge reduction from the original 61%) and the bailout money just an ugly memory now, the idea of moving on is very appealing. So, the new outlook makes sense. Nonetheless, a wake-up call to those still hoping for the best got this: Offering a product that doesn't appeal to its own consumer base should raise a red flag. In other words, people simply replacing their old traditional GM cars with new traditional GM cars is reason for concern. Why aren't they switching to Volt instead?

9-19-2013 **Missed Opportunity.** No amount of spin can cover up the reality that late 2010 was the long-in-the-future targeted date to deliver something truly competitive. That effort obviously failed. Fine. We move on from there. Right? Apparently not. Looking through the dedicated Volt forum, I read a new thread from yesterday that went on for 5 pages comparing MPG results to Prius. You'd think the plug-in. Nope. It was just the regular model. They still absolutely refuse to even acknowledge PHV existence there. That's unbelievable! The very idea they'd be so stuck in past is quite unexpected... or is it? Getting back to the basics makes sense. They know the current design is heavily dependent upon having a large battery-pack. Scaling back to reduce price & weight, as well as improve interior space, is quite unrealistic with an HV mode so inefficient. They may finally be hearing what some of us have been saying all along, since well before rollout. All those years ago, we stressed the importance of delivering hybrid MPG following depletion. Why? That should have been obvious. With such a design, the system could be offered in a variety of configurations... at little expense. Not having that flexibility means missed opportunity... which only now is finally getting realized. One size does not fit all and the penalty for taking too much time stings. What a waste. Hopefully, the lesson is learned. We'll see.

9-19-2013 **Power Request.** During engine warm-up in the plug-in model of Prius, the system runs in EV-BOOST mode. This is when plug-supplied electricity is taken advantage of. The engine is limited to 1500 RPM. The result is a reduced emissions, as well as less wear & tear on the engine. It's a win-win situation... especially when you see that first minute-segment on the display close to 100 MPG. That's a heck of a warm-up improvement over Prius models without a plug. The catch is, power is held back. In virtually all cases, there's more than enough anyway. The only time you'd need more is for those surprise situations on a highway ramp, like when someone is going quite a bit slower or faster than expected. When that happens, you just drop the pedal. Just like any other vehicle, it's a request for more power. For the plug-in, that tells the computer to override the regular process. I did that today, since I hadn't in ages and wanted to witness the outcome. The system exceeded the 1500, shooting RPM up to 3568. The Prius took off. Normally, that'd be the end of the story. After all, the warm-up process only lasts just a little over 1 minute. But in this situation, it had only begun a few seconds earlier. The assumption had always been the override cancelled warm-up from that point. Turns out, it actually doesn't. As soon as I let up on the pedal, the 1500 RPM threshold resumed. I hadn't expected that! The system was back to EV-BOOST again, despite being in HV mode... which is how I started the engine in the first place, just as the Prius entered the ramp. The behavior of that power request was quite impressive. It was more proof that Toyota really gave a lot of thought to account for every situation a driver could potentially encounter.

9-20-2013 **Spin.** We've dealt with quite a few outright lies about Prius over the years. The most recent is that the plug-in model cannot climb hills without the engine starting. Yesterday, on the way to lunch with a friend, I pointed out how it effortlessly did... using only electricity. There were 2 large inclines for us to observe firsthand. One has a speed-limit of 30 mph and the other 55 mph. Neither presented a challenge. The Prius flowed along with traffic for both... never starting the engine. But no matter how often you provide examples like that, they refuse to accept. So, we get post after post stating that isn't possible. Other claims as more difficult to dispel, especially when their origin stems from a misconception. Antagonists take advantage of that. They lead you to believe the system works differently than it actually does, like when the plug-in model exceeds 62 mph. They give the impression the electric portion is no longer available at faster speeds. It's a pain dealing with the spreading of that intentional misinformation. But we manage though, since facts supporting it aren't too hard to share. Online video makes that relatively easy, at least for those who to watch them. Some people don't. The most difficult to deal with still is the spin. That's when they alter something in a subtle way, changing the topic just enough to confuse readers with the hope to discredit the poster. For example: "*The alleged higher efficiency of the PiP-ICE is merely intellectual. Real world tells otherwise.*" No one ever made that claim. What was actually stated is that the depleted efficiency is higher with the plug-in model than with the regular. That's well proven too; we have lots of real-world data. His spin was to make you think it was the efficiency of the engine exclusively. In reality, it's the entire hybrid system. Having owned a 2010 and now driving a 2012 plug-in, I can tell you for a fact that higher efficiency is true. That better battery delivers & captures more electricity and the engine shuts off faster, both for warm-up and while driving. It's frustrating to read spin. But then again, it's confirmation the antagonist is desperate. Resorting to such tactics is confirmation nothing constructive worked. They realize what they support isn't as good as they had hoped.

- 9-21-2013** **Prius Hate.** That thread on the big Prius forum lives on. There are constructive exchanges of observations & experiences. Some find it hard to believe particular attitudes & reactions still happen. For me, in a region highly receptive to change, our embracing of hybrids is the norm. You don't encounter those extremes here. Other regions aren't so fortunate. Low resistance doesn't necessarily translate to high-volume sales though. It just means you won't encounter a backlash. Reaching those content with the status quo still present quite a challenge. But at least the hate some report doesn't happen everywhere. That's progress. The response which caught my attention started with this: *"Who says that stuff? To me the modern day Prius owner seems like a regular person just liking the car..."* It came from another Prius owner who also lives in Minnesota. So, I could definitely relate. I chimed in with: That's the rub. Prius has become a regular car. I see those saying that stuff also waving the flag, close-minded to anything not American... even if their Detroit vehicle has parts from overseas and was assembled outside of the United States, it's still better than what we drive. Neither vehicle price nor emissions matter to them. It's all about bragging rights, size, power, etc. Someday we'll get past all that. The next generation of Prius will help push that change along, reaching more and more everyday consumers.
- 9-21-2013** **EV versus EREV.** We all know what an EV is. Those electric-only vehicles, like Nissan's Leaf and the models from Tesla, certainly have garnished lots of attention lately. EREV on the other hand, most people still don't have a clue what that is. The definition is so vague, it overlaps with PHEV, those plug-in hybrids like Prius, C-Max, Fusion, and Accord. In other words, Volt marketing has fallen apart. They backed themselves into a corner so tight, there's no real category to support anymore. The actual differences to other choices with an engine and a plug vary too much for that specific vehicle to justify its own category. EV is still quite unique. Popularity of them is growing. As battery cost drops, announcements of intent to deliver range above anything that would cause anxiety are increasing. That concept of *"range anxiety"* depends heavily upon cost remaining high. Too much of a reduction opens up opportunity for very affordable plug-in hybrids... so much so, a configuration sacrificing interior space just to squeeze out more electric miles becomes a questionable tradeoff. A popular Detroit newspaper published an article today highlighting GM's new effort to deliver an affordable 200-mile range EV. This recent focus change is drawing so much attention, the once much-anticipated Cadillac ELR (a second, more luxurious model of Volt) now appears to be delayed. Rollout has been pushed from late this year to early next year. Reading the online comments posted, it's clear to see how low expectations are now. The negativity related to profit and promises of the past haunt GM. This quote from that article vindicated those who stated Volt wasn't making a profit yet: *"We'll sell more (Chevrolet) Volts and lose less money on the Volts than they'll lose on the (Tesla) Model S."* What else can be said? The lack of diversity and the need to sustain the business is pushing GM to change. As for those enthusiasts who claimed this wouldn't ever happen, they'll vanish. Progress means recognizing successes & mistakes, then moving on.

9-21-2013 **Losing Money Fallout.** Reaction to the comment about Volt losing money sure is bringing out the worst in some people. The dishonest defending is so blatant, it's difficult to resist responding. The first was: *"GM said from the start it will take at least two model cycles to start churning out a profit."* That just plain is not true. No statement was ever made to that affect. In fact, the only mention ever about cycles came after rollout and it claimed the next would be profitable. That's only one cycle. Of course, we were led to believe profit would come when mainstream volume was achieved... which would have been by the end of the second year, not cycle. Perhaps that's a misunderstanding. Perhaps it's more spin. Who knows. Arguing isn't worth it. This statement falls into that category too: *"Folks have to remember that this is new technology and it will take years to generate a real profit. It took until the Prius' ninth year on the U.S. market for it to generate a profit for Toyota."* We know that isn't true either. Profit was achieved by the end of the first cycle, when the non-hybrid, detuned engine, substituted transmission variant was rolled out to help achieve economy-of-scale cost reduction. Remember Echo? To claim that the entire second cycle (generation) wasn't profitable is truly amazing. But then again, it supports the previous claim. Defenders stick together. So what if it doesn't even make sense. Logic is often dismissed when it comes to admitting mistakes anyway. Fallout isn't pretty. It's painful to admit mistakes. That's why no arguing. It isn't constructive. The already know all too well that expectations weren't met. Identify what steps need to be taken at this point, then take them.

9-22-2013 **Distorting History.** The fallout is getting so bad, some are just making up their own version of history to justify Volt's struggle. We're well past the downplay stage now. This is what I was greeted with first thing in the morning: "*People forget Toyota with the Prius a far less ambitious car. It took 2 generations for it to appear outside Japan. And the 1st model year sold all of 300...*" That sure stirs the desire to get a coffee and starting blogging. Prius was extremely aggressive. When the United States government refused to accept Toyota into the PNGV (Partnership for a New Generation of Vehicle) program, Toyota took matters into their own hands. It was a effort started in 1993 to advance the industry, with a specific target of delivering 80 MPG vehicles. That was a very big deal. Toyota's exclusion made it even bigger. By 1997, concepts were being revealed. There was much excitement about the potential. Early prototypes were expected to follow. Toyota astonished the world then. In October 1997, they revealed their own high-efficiency vehicle. Only difference, it wasn't a prototype. It was a production model ready for rollout, which would begin just 2 months from then. Detroit automakers were absolutely blown away. Toyota was far more than ambitious than they ever imagined. Sales of the first model year began December 1997. It was only that single month long. Selling 300 of an entirely new type of vehicle in such a short amount of time was absolutely amazing. Attempts to distort cannot alter that history... which was 16 years ago! Remember how backward the industry was then? Gas was less than \$1 per gallon and the SUV craze had only just begun. As for the 2 generations claim, that's a blatant lie. Dishonesty on that scale is troubling. Many people still don't consider the first upgrade to Prius, back in 2000 for the rollout to the United States, a true generation. That was the first change. It was only 2.5 years after the original rollout. August 2000, deliveries of it began here in the United States. I got mine on September 9. In no way can any of that quote above be considered constructive... and that's not even taking into account the extensive history GM already had with motors & batteries prior to Volt rollout which Toyota did not with Prius. There weren't tax-credit incentives available either. Some are getting so desperate to prevent this version of Volt from fading away into memory, they're willing to say anything. That's sad. But then again, we saw this coming. Remember Two-Mode history? Notice the parallels?

9-22-2013 Electrification Approach. There are two fundamentally different ways to approach electrification of vehicles. Toyota is clearly aiming squarely at the mainstream, attempting to phase-out their traditional production with a wide variety of hybrids. That means reasonably sized steps (affordable choices) offered in high-volume without having to wait. The opposite extreme is delivering a small number of expensive vehicles, aiming directly at enthusiasts instead. The latter considers those owners as early adopters. That raises the question of how to reach middle-market consumers later on. It also makes you wonder how long we'll have to wait in the meantime. After all, a new traditional vehicle purchased today is very likely to still be guzzling gas a decade from now. That's a very disturbing thought many Volt supporters absolutely refuse to acknowledge. They don't see any problem with the large quantity of traditional vehicles still being sold each month. They show little interest in business profit either. Incrementing battery-capacity as energy-density and cost justifies is a concept they just plain don't want to accept. It's bizarre. But then again, the poor efficiency following depletion forces them to accept the reality of a small battery-pack being uncompetitive. In response, they like to throw out theories like "*innovator's dilemma*" and "*disruptive technology*" as reasons for the approach taken. Some factors involved make sense too. But typically, that falls into the trap of cherry picking. Looking at the big picture (the automaker's entire production) tells a very different story. 2014 will be an interesting year. Details of next generation offerings will be revealed. That will tell us much about approach. After all, the market is still quite fickle. Things like fast-recharging and charging-station availability are far from well established. Heck, even the idea of simply plugging a charger into an ordinary household 120-volt outlet is an option many consumers aren't even aware of.

9-23-2013 Trophy Mentality, post. That was the worry right from the start, all those years ago. It was the new variant of smug. The enthusiasts didn't care either. Long story short, bragging rights dwindled down to basically just EV range. Even that fell short of expectations, but at least it was still more than the competition. And since cost wasn't a priority, they'd remind you know of every chance possible. It's why the idea of a smaller capacity battery as an affordable option always resulted in such harsh reaction. It was attitude over sensibility. They'd appeal to emotion. Sadly, that sentiment still persists with a few: "*They went all in on just regular hybrid tech. Eventually they'll come around to EV's. First they need to improve the EPA rated 6 mile electric range in their Plug-in Prius. That's embarrassing.....*" Reading posts like that never ceases to amaze me. Not only does it convey a terrible attitude, it also includes greenwashing. Continued efforts to mislead about capacity is what I'd consider embarrassing. Why would any true supporter allow such blatant efforts to misinform & confuse? We call those who do exhibit that behavior antagonists. They don't contribute anything constructive. The trophy clouds their judgment.

- 9-23-2013 Trophy Mentality, reply.** This is how I ended up responding to that particular post, which just happened to be on a general blog for all hybrids: We all know the 4.4 kWh battery-pack delivers more than 6 miles, that there's 5 miles of capacity still available after that brief moment the EPA test triggers the engine. Toyota is being honest by not gaming the system to show that higher value. It's a PLUG-IN HYBRID, not an electric-only vehicle. That means the engine will run from time to time. While cruising at high speed, the EV capacity is consumed as HV miles delivering over 100 MPG. You still get that total of 11 miles worth of electricity, regardless of how it's consumed. With my Prius PHV, here in Minnesota, I get 9 miles of EV in the dead of winter. During nice days in the summer, I get 14 miles of EV. So, whenever someone refers to the 6 miles, it is necessary to question if they understand the purpose of a plug-in hybrid. After 28,522 miles, my average is 77 MPG. It's quite clear to me: the electricity boosts efficiency.
- 9-23-2013 Trophy Mentality, calculation.** Knowing his effort was an obvious attempt to mislead & confuse, I followed up with the actual calculation. After all, who would dispute facts? Naturally, an antagonist would... hence the label. Nonetheless, at least readers would have some actual detail to consider rather than just vague claims. Doing that math is simple. Too bad most people don't bother. Posting the numbers helps. Sadly though, the antagonist will pretend that particular information was never provided. We've seen it countless times already. I persist anyway. Like real-world data, eventually, people will notice the greenwashing. Here's what I submitted, using Volt's own specification for comparison: 16.5 kWh = 38 miles. That works out to 2.3 miles per kWh of electricity, which means 4.4 kWh = 10.1 miles. Then when you take into consideration Prius PHV weight 621 pounds less than Volt, it's easy to see where the 11-mile EPA rating came from. The capacity is clearly there.
- 9-23-2013 Trophy Mentality, worst.** As expected, the calculation was simply ignored. They cherry-pick, which is why the big picture is common disregarded. The response ended up being more belittling: *"It's the worst electric only range of any plug-in hybrid. That's embarrassing from the hybrid world leader regardless."* To witness such behavior. That's embarrassing. No wonder many of the supporters abandoned the Volt blogs. Now, the effort is to stir attention on the one for hybrids instead. Fortunately, forum discussions are different. There's half a chance of something worthwhile emerging. Most blogs only survive a day. Some last a few days. That's it though. There's nothing like the history threads support. Blogs just abruptly end. Participation vanishes. He kept trying there anyway. I even got a "LOL" when I posted the following: Keeping size small enough to be affordable and not compromise legroom or cargo space is embarrassing? Wow! Someone needs a priority check.

- 9-24-2013** **Accord Hybrid.** Details were revealed yesterday. There's obvious skepticism about actual MPG verses the estimate, but the 2-motor system is clearly a big step forward over the original ASSIST system. It's a little strange though, the actual operation is a little vague. The plug-in model delivers. In fact, it outperforms Volt to the point where even the Volt enthusiasts are scratching their heads. Whatever the case, the hybrid itself looks nice. With a \$29,155 base MSRP, it looks to be a reasonable competitor with the other high-efficiency sedans currently being offered. Honda appears to have reinvested well. It's unfortunate that took so long. But the market is relatively early anyway. Toyota has pretty much dominated over the past decade. Honda is smaller too, having to also deal with Ford directly. Ultimately, it should be a win for the market as a whole. There's growing demand around here as the misconceptions of the past become difficult to remember. Hybrids continue to improve. This is yet another example of that. They are no longer viewed as a niche anymore. They are here to stay. Watch for this renewed entry.
- 9-24-2013** **0.1 EV Miles.** After a year and a half of driving a Prius PHV, the act of estimating becomes second nature. I've got to the point where I'm so familiar with roads & traffic that I can watch the EV value drop to 0.1 miles and still make it home on electricity... even though I still have 2 short blocks and a small hill to climb. The act of braking regenerates enough electricity that I end up driving into the garage with only a tiny distance of EV to spare. I've grown well aware of how much the battery-pack will be replenish as I enter the valley and slow down leaving the highway. But after having driven those routes that many times, it's no longer an act of guessing. The pattern is easy to remember. I hadn't realized it would become so predictable. That make sense though. Being able to plug in after having used the capacity to the fullest is a good use of the battery. Why not? It's not like Toyota stresses it anyway. "Full" is actually only 85%. That helps to ensure longevity. "Empty" is 23.5% for the same reason. There's still HV capacity available beyond that too. So, taking advantage of EV and the button to choose when to use it works out really nice.
- 9-25-2013** **2014 Corolla.** I got to see one this evening. It is interesting to watch the non-hybrid side of Toyota take another step forward. The introduction of CVT and LED is perplexing to imagine from the perspective of having grown use to no shifting and better illumination already. What will the typical consumer simply looking for an reliable & efficient traditional vehicle think? Whatever the case, it's an undeniable move away from the status quo. Time will tell. It shouldn't take long either... with the rollout of the plug-in hybrid nationally so near. That pushes the regular hybrid even deeper into the mainstream. I'm very excited about that. It's a rather subtle paradigm shift, easing people into the mentality of expecting non-traditional improvements. Change is definitely a good thing in this case. Like the slogan: moving forward.

- 9-26-2013** **Porsche Panamera SE.** At the final stoplight before reaching work, I stopped along side an unfamiliar vehicle. It was so close, all I was actually looking at was the wheel... with an unusually nice tire and brake. Hmm? When I look up and back, the shuffle of the driver behind me caught my attention. He was scrambling to get his phone to take a photo. Huh? I looked out to see what had caught his eye. Nothing. What the heck? It hadn't crossed my mind it was the car. I simply looked over it... not realizing its importance until after it began to drive away. The engine started. Hearing that captivated me. What was I looking at? Could that be the plug-in hybrid Porsche was planning to deliver? Sure enough, the nameplate matched. As it disappeared into the distance while I turned, there weren't any other indications (like a port for plugging in) that caught my eye. Though brief, that's an encounter I won't forget... since I don't expect to see that many of them ever. The 85-horsepower traction-motor powered by a 9.4 kWh battery-pack combined with a 3.0 liter supercharged engine output a net of 416 horsepower and delivers 0-60 in 5.2 seconds. A system like that isn't cheap. It's close to \$100,000... which explains the reaction the driver behind me had when he noticed it.
- 9-26-2013** **New Charging-Stations.** To my delight, the construction in the ramp right next to where I park involved more than just replacement piping for the old drains. They were running electric lines too. That meant the postponed-from-last-year charging-stations could finally be installed. There were 4 new ones waiting there for me to rejoice about. What a great way to the end the day! These were the newer type too, the kind that can deliver two 240-volt connectors from a single line. More power to share at a lower cost is win-win for everyone. Gotta like that. Unfortunately, they won't actually get used all that often yet. Sales of the plug-in Prius still haven't begun here in Minnesota. But there are some EV owners who will take advantage of the connection from time to time, since the ramp is for the entertainment venue across the street where there are lots of evening events and seasonal hockey is about to begin. So far, I'm still the only daily plugger.
- 9-27-2013** **Twisting History & Intent.** It's worthwhile to wonder who actually believes post claims without ever doing any research to validate. Nowadays, there's a wealth of information available online, like real-world data. The reputable sources are becoming easier to find too. Unfortunately, the propaganda is quite difficult to avoid. Fortunately, the warning signs are noticeable. Whether or not casual readers choose to acknowledge those red-flags is the question. I continue to post historical tidbits, hoping for the best... Toyota strived to deliver an affordable, profitable, high-volume vehicle right from the very start. The price of the 2001 model was \$19,995 and there was only a tax deduction available back then, which equated to less than \$400 for many of us. Gas was just \$1 per gallon too. The resistance to that rollout of the technological improvement was intense; chaotic attacks came from a wide array of sources fearing the status quo was breaking. With overwhelming proof of an effort directly targeting-middle market so long ago, comparisons to the situation now are disingenuous. It's very, very different. Just look at how each automaker is attempting to deliver something. There most definitely was not that spirit of cooperation back then. In fact, some automakers fought to retain the past. It was sad. Read the blogs from over a decade ago. Looking back is not at all the same as experiencing events as they unfold.

9-28-2013 **Frustrated.** That was what the "too little, too slowly" concern was all about was my reply to this: *"My biggest frustration is that GM should be getting these improvements in the Volt sooner rather than later. 2016 is waaaay to late."* We kept getting told, over and over and over again, that Volt was going to leap-frog Prius. All the talk about reaching mainstream sales volume by the end of the second year was quite frustrating. How would that be achieved? The experts wanted to know. Those of use well informed due to having participated in the initial rollout of Prius and the following generations wanted to know too. It just plain didn't add up. For so much to be accomplished so quickly, it would take a miracle. No amount of hope can overcome so many barriers with virtually no support. That wasn't realistic. Now those very same individuals are frustrated themselves... having finally learned what we had been telling them all along. Rather than 2010, they are stuck waiting until 2016... for something that isn't even certain. There's no guarantee all the modifications being made to Volt will attract lots of middle-market buyers. It's still a gamble. Those troublemaking enthusiasts are now in the position we were all those years ago. Remember way back then? They now ask the same questions we asked. They too are concerned. Finally.

9-29-2013 **100,000 Members.** That official milestone was recently arrived at on the big Prius. It was back in January of 2008 when it growth-rate had clearly exceeded that of the big GM forum, with there was 35,599 members verses 33,301. For a single vehicle to exceed that of an entire automaker, it gave reason to take notice. Remember that it was still before the economic collapse, back when times were relatively good. The reality of bankruptcy didn't come about until and entire year later. By June 2011, a full 2 years after the bankruptcy filing and 6 months after the rollout of Volt, membership of the big GM forum had climbed to 54,800. That simply couldn't compare though to the 77,333 members on the big Prius forum. The difference was massive. It contributed to the growing rhetoric, the frustration of enthusiasts from their expectations not being met. Checking out the membership there now, it's at 62,874. Clearly, far more attention is on Prius... despite all the hype of how Volt would become a halo in addition to achieving mainstream sales. The point was appealing to ordinary consumers. Attracting middle-market has been far more difficult than imagined. Think about how little it costs a person to participate on an online forum... no money, just time. Yet, even that isn't happening. Reaching beyond just enthusiasts is absolutely vital. How will growth being achieved? What will it take to attract interest? Who will make the effort to draw more people in? It starts with interaction of people and online forums are a fantastic venue for that.

9-30-2013 **EREV Definition.** It has always been horribly vague. In fact, when pressed, enthusiasts would sometimes contradict what each other says. Everyone always knew it was an arbitrary definition anyway. So, the topic got little attention. The problem became obvious just prior to Volt rollout, since the definition itself changed. Creating a new category called "EREV" fell apart. And now that both Ford's plug-in and Honda's plug-in both fit the capricious criteria, continuing to make Volt appear to be different seems like an act of desperation. They're all considered hybrids now. Why? It's because upcoming offerings make identification clear. The industry is starting to see a vehicle labeled as EREV as having an engine intended to be an emergency backup, something only for the sake of dealing with an unexpected case of running out of electricity. In other words, the size and accompanying fuel-tank should only fulfill minimum criteria. That's what BMW is planning to deliver. It will have a tiny engine and will carry just 2 gallons of gas. The system will be underpowered when depleted, but will achieve the purpose of not leaving you stranded. Volt most definitely isn't like that. GM decided to build a complete system instead, one that delivered full abilities for driving after depletion... which is exactly what a plug-in hybrid does. Looking at it from another perspective, the engine isn't suppose to deliver power to the wheels. It should only generate electricity... which is what the Volt enthusiasts told us all those years before rollout then abruptly altered the definition upon learning Volt wouldn't actually do that. Understand the frustration & confusion? See why clarity is needed?

10-01-2013 **Back To Normal.** We knew the record sales last month were the result of model-year clearance sales combined with a noticeable upturn in the economy. So, the expectation for this month was getting back to something normal. That came as a shock to those supporting Volt. They truly thought the lower MSRP would keep sales high, even though there wasn't anything to actually support that belief. Price is a big deal, but it doesn't change the fact that other aspects of the vehicle don't met middle-market purchase priorities... like legroom in back. The good news for Prius is that its effort to deliver balance appears to be contributing to sales growth. The plug-in model is up. Volt is back to where is was before the crazy discounting. You can guess what that meant online. Comments like this: *"All I know is that this is rather disappointing. A \$5000 drop in the MSRP and the sales volume drops."* quickly degenerated to: *"The PiP will get about 6 battery miles in actual use, 11 if you hypermile."* Rather than stay focused on Volt sales, they turned to greenwashing about Prius. I easily get 11 miles, without doing anything other than follow traffic. The hope is people will believe what they claim and not ever ask any questions. It never ceases to amaze me that some would stoop to such lows, rather than just accept facts. Fortunately, sales results seem to be overcoming their efforts to mislead.

- 10-02-2013 Unfavorable Conditions.** With every possible excuse exhausted at this point, monthly sales discussions seem to be taking on a new more cooperative tone. Fewer and fewer Volt enthusiasts are holding onto that "*vastly superior*" attitude. In fact, we really only got one horribly arrogant post. It called those buying a plug-in Prius "*brain dead*" people. That insult didn't go over well either. Other Volt owners don't care to be associated with such comments. There's hope. Change is slow though. I found the following a good step in the right direction: "*Volt 2.0 and the G4 Prius will be coming onto the market under what I regard as unfavorable conditions – which is to say, gas prices that don't really bother people.*" Of course, it came from a Prius owner. But at least it was found acceptable on that daily blog for Volt. I joined in with: The "boil a frog" situation has played out exactly as predicted. Volt faced and continues to face a massive challenge, dealing with a market simply not interested in saving gas because they have grown use to paying more for it. That's why the approach with Prius, starting with a modest package option rather than a one-size-fits-all design, stands a better chance of squeezing its way into the mainstream. How GM is going to pull off such a major effort against such complacent consumer-base remains a mystery.
- 10-02-2013 EPA Wording.** Notice how supporters of a particular vehicle are quick to dismiss their EPA measurements but adhere to precise wording when referring to competitors? It's an unfortunate reality, the spin we often encounter. The recent mess with Ford and earlier trouble with Hyundai MPG estimates underscore that problem. Should you or shouldn't you consider the EPA measurements an source for real-world expectations. Originally, the purpose of the values published was to provide a standardized basis of comparison. Reading the fine-print, you'd see actual results fall within a range. People like to overly simplify though. So even with the heavy promotion of YMMV (Your Mileage May Vary), it didn't matter. They didn't care. That's what makes promoting a hybrid like Prius PHV so difficult. Antagonists go out of their way to make it even harder too. But slowly, we can see progress being made. The EPA wording was used heavily for greenwashing. Reputable websites know that and want to distance themselves from it. The latest try I encountered said this: "*11 miles, with only 6 miles continuous*". They are well aware that more than 6 miles is available and want to emphasize the total of 11 miles. That approach may be effective. It makes people wonder what happens at 6 miles. It also puts an end to the claims that more can only be achieved by special means. That's good. Overcoming those wanting to undermine isn't easy. But at least we can see signs of success.

- 10-03-2013 Plug-In Hybrids.** The underlying problem with any attempt to deliver is the need to make a profit. Lacking that, they cannot become a common choice. Automakers simply won't bother producing any more than what compliance regulations require. They must be mainstream; the design must be self-sustaining. That's why the "*too little, too slowly*" concern has always been such a big deal. The tax-credits will only last so long. When they run out, then what? Traditional vehicles competing against themselves is problem enough. That's presented quite a challenge for the hybrids. Overcoming decades of cost-reduction and consumer-confidence is still an issue. Adding capacity and a plug makes it even more difficult... or does it? Half of Ford's C-Max sales last month, when comparing models, were the plug-in. The 758 verses 1,424 is a result to pay attention to. Fusion wasn't as impressive, but the 750 isn't nothing to ignore. It's a larger difference with 2,265 in comparison. The very small amount of trunk space available makes those particular sales stand out. The 1,152 for the plug-in model of Prius is still the biggest curiosity though. Availability is still limited to just 15 states. That lack of accessibility is keeping everyone wondering... especially with the major price-drop for Volt. That put it below cost. Toyota has retained MSRP. The package option has always been enough to indicate profit, though likely modest. That's still way better than losing money from each. Next year certainly will be one for the history books. This year confirmed the necessity of affordable price. 2014 will focus on profit, especially as the 2015 models gain attention.
- 10-04-2013 Ordinary Questions.** It sure is nice reading stuff like this now: "*So, for those who have the plug in BUT regularly drive beyond the extended EV range, how much better do these "tweaks" in the plug-in version boost your overall MPG compared to those trying to hypermile in a regular Prius?*" With the rhetoric gone and the antagonists absent, we are getting ordinary questions. In other words, the curious have taken their place. Yeah! I joined into the discussion by asking: Having driven a 2010 Prius for about 56,000 miles (3 years) and a 2012 Prius PHV for about 30,000 (1.5 years), I would say you're asking an ineffective question. That's common, since few have enough exposure to even know what's possible. The better, more informative thing to ask is how much of a difference does the plug-supplied electricity makes for those of us who just drive it. For me, lifetime average went from 50 to 75 MPG. That matches up with what we had predicted, which is saying a lot considering the efficiency with EV-BOOST (when you drive faster than the EV-ONLY threshold) is quite difficult to estimate. I recharge at work too, so that makes a difference. But then again, my commute is beyond the range available and I often drive somewhere in the evening. There are many, many variables at play. It gets especially complicated when the effects of temperature are considered. Running the Heater and A/C really take a toll on efficiency. There's the variety of scenarios affecting warm-up too. In other words, the question could be: How much does the increase in capacity & power improve overall efficiency?

10-04-2013 **Surprise Encounter.** We were up north, stopped in a shopping area going from store to store. When I approached the Prius to put a recent purchase inside, a man stopped to ask me about my bikes. He had noticed the empty receiver-hitch rack then was taken aback upon seeing a 3-wheel recumbent bike inside when he walked up for a closer look. I chatted with him about both the rack and the bike inside. Seeing how large that bike was but the Prius still being able to offer seating for 3 people really impressed. He hadn't ever tried anything like that before... in his Prius. I took me a bit of chatting before discovering he was also an owner. It came in a very surprising way. In fact, the encounter came as quite a shock for him. He innocently asked what MPG my Prius delivered, thinking it would compare closely to his. When I responded saying, "*I averaged 109 MPG on my most recent tank.*", his eyes almost popped out. Realizing the golden opportunity for honest feedback, I remained silent, walked over to the front of the car, and pointed at the PLUG-IN HYBRID emblem. That made his friend, who hadn't said much up to that point, exclaim with a comment of delight. They were absolutely flabbergasted that my Prius had a plug. Later when they left, he drove by very slowly to get one last good full look. To add to the excitement, my family got to witness all that. It sure provided a good memory. I can't wait for more encounters!

10-05-2013 **Misleading Advice.** I understood what he meant, but this was far to vague to be taken the same way by everyone reading it: "*If ya have a heavy foot and like jack rabbit starts, don't buy a PIP.*" That could easily be thought to mean there's no benefit from the plug. After all, there are some who have expended a great deal of effort to make people believe the battery is useless once the engine starts. Those new to the forum often have no idea how bad the greenwashing is, that certain people will intently mislead. It's a sad reality. But then again, readers shouldn't be naive enough to believe everything that's posted. Incorrect assumptions happens quite frequently. Anywho, I retorted off with: I beg to differ. I experimented with that very premise in mine just last night to get some real-world data. Now that temperatures are dropping (it was 46°F then), I specifically wanted to find out what a drive normally all-electric would result in with engine warm-up. It was just a 3.0 mile drive. The maximum speed was 45 mph. There were several stoplights. About halfway into the one-way trip, I dropped the pedal hard to fire up the cold engine. Coolant temperature reached 130°F about a block before reaching my house, automatically shutting the engine off. The result from that drive which could have been 999 MPG ended up being 101 MPG. No regular Prius can even remotely deliver the same efficiency. So what if the engine started. During the first minute of warm-up, the plug-supplied electricity is used to keep RPM under 1500. It makes quite a difference.

10-06-2013 Greenwashing Sources. As time passes, frequent posters become established as information authorities. That's why allowing the antagonists to mislead is such a bad idea. No pushback enables them to continue undermining progress. People don't challenge those who appear to know what they are talking about. In fact, those who do question them end up getting the "troll" label. That was the reputation problem the big GM forum faced. Their own popular members ended up hurting the forum's credibility by spearing false claims. That's what greenwashing is all about. Sure enough, that very same thing is emerging elsewhere, now that plug-ins are becoming a threat to the status quo. My most recent encounter on a general blog for hybrids was this: *"You only use about 10.5 of the 16.5 KWH in the Volt. Probably 4 out of 4.4KWH in the Prius give or take....."* Then when confronted with design detail saying that actual usable capacity is basically the same 62% as Volt (he's a major Volt supporter, as well as an owner), he responded with: *"PIP owners telling me they measure 3.2 to 3.4 going in, minus charging losses you're technically looking at actually using about 3 out of 4.4 KWH. Not much."* Needless to say, there were two of us who got really upset from such blatantly incorrect statements. None of that supports his original claim of 4 kWh. 62% calculates 2.75 kWh. He got caught making up facts. Quite irritated at that point, I posted: Who is telling you that? It certainly hasn't been me. The most recent real-world recharge data (fully depleted to 85% capacity) from my ChargePoint history states: 2.911, 2.656, 2.752, 2.755, 2.872, 2.723, 2.757, 2.627, 2.777, 2.678, 2.926, 2.799, 2.832, 2.716, 2.672, 2.760, 2.787, 2.999, 2.726, 2.819. That comes to an average of 2.777 kWh per recharge, from an L2 connection including charging losses. 2.777 isn't even close to 3.2 to 3.4 kWh. Please use 2.75 from now on.

10-06-2013 Subaru Hybrid. It was inevitable that Subaru finally got into the game. What a disappointment though. The system offers a 13.4 horsepower electric motor. That's so small, what the heck do they expect to appeal to consumers? The unofficial efficiency estimate is only 31 MPG combined. True, it delivers the same 8.7 inch clearance and all-wheel drive as its traditional counterpart, the XV Crosstrek which delivers 28 MPG combined. But with such a low value in the age of expensive gas, it doesn't make sense. There's no upgrade opportunity either. It's just a simple ASSIST system. The FULL hybrid type allows augmentation, provided the choice of a larger battery-pack due to the under-utilized traction motor. With the case of Prius PHV, there's up to 80 horsepower available. That's a heck of a difference. Of course, what I found intriguing was that the estimate implied no MPG improvement whatsoever for highway. Both the traditional and hybrid deliver 33 MPG. The efficiency is only gained from city driving, 29 verses 25. There was no mention whatsoever of emissions. That's a bad sign. Smog related emissions not being addressed by hybrid systems misses the point. Being green must include the reduction of pollution to the air we breath. Carbon alone doesn't tell the whole story. But with an efficiency of only 31 MPG, those aren't reduced either.

- 10-06-2013** **Talking Points.** They are what the popular media thrives on. The big Prius forum needed a reminder of that: "*...and it is disappointing to see this talking point being raised. Let's not get fooled here folks.*" Hopefully, the newbies understood those words of wisdom that well-respected member contributed. I got to meet him in person a number of years ago. That was a good experience. Smart guy. Anywho, I added: It was "talking points" that held back the acceptance of hybrids. People didn't bother actually doing any research. They'd take that hearsay as gospel and continue on with the status quo. That attitude was quite frustrating. Thankfully, we had countless posts from new Prius owners stating their perception of changed dramatically once they got behind the wheel. The test-drive experience rapidly crushed misconceptions. Their assumptions were immediately changed by observation. They realized the system didn't actually work they way they had been told. With respect to the new rhetoric emerging that Toyota is anti-EV, that doesn't make sense to those of us well informed about Prius. Toyota is continuing to refine their motors, software, and battery. All of that technology can also be used for electric-only vehicles. Improvements to cost & power apply anything using electricity for propulsion. It doesn't need to be an EV. In fact, the diversity helps increase volume. It's a win-win some people refuse to acknowledge. Unless Toyota is pushing the envelope, claims are made that they've given up and are failing to compete. That doesn't add up. How could large quantities of those vehicles be delivered without addressing the need to be affordable & profitable while offering an array of choices?
- 10-07-2013** **Timer Misconception.** Oh! This hit me as a total surprise. I had no idea an owner could interpret the charging options this way. Rather than seeing the START and the FINISH times as 2 separate options, the belief was they were tied to each other. Having to use them together never occurred to me. But looking back at the way VCR timers were programmed, that perspective makes sense. You tell it how long to run. With a plug-in hybrid, not wanting "full" seems a bit odd. Why stop short? Why would you want less capacity? You certainly don't ever see that with other rechargeable devices, like phones & tablets. My guess is the FINISH confuses some. They likely don't recognize the convenience having that choice offers; they don't realize it's optional. Rather than having to calculate in your head how much time it will take to recharge, especially if the capacity isn't depleted entirely in the first place, you simply tell it went you'd like the recharge to be complete. Requiring both seems a bit odd for the well information. But for the newbie, it is a reasonable assumption. They jump to the wrong conclusion and sadly it sometimes takes years to discover they were incorrect. Imagine how inconvenient that would be. Instead of just pushing the button once as you leave the vehicle, they go through a series of pushes each time. Eek! What a waste. I sure hope this misconception doesn't take hold.

- 10-08-2013** **Very, Very Quiet.** Normally, the time following sales announcements is filled with spin. That rhetoric to defend the struggle was awful. Last year, I remember it dragging a little into the third week. It later tapered back to two weeks. Then finally one by early this Summer. Every excuse in the book had been exhausted. There was literally nothing else left to say. That was the end. Price slashing resulted. With a massive pile up of inventory, we all new Volt was in trouble. After all, Leaf was actually selling a little better. That didn't make any sense for those who pledged their undying support for a "*range anxiety*" solution. The plug-in Prius continued to defy logic too. Still only available in 15 states, it was maintaining a modest sales rate... actually in excess of Volt if you extrapolated quantity for all 50 states. Needless to say, as the 2014 models have approached, the defense dwindled. This time, it only lasted two days. I was shocked. Now a week later, nothing. There hasn't been a peep from either the enthusiasts or the antagonists. It's very, very quiet. Volt has vanished from online discussions. Remember how Two-Mode faded away?
- 10-09-2013** **Journalist Integrity.** The host of the daily blog for Volt certainly set the enthusiasts their straight today. He's a journalist, paid to provide quality content for discussion. He has repeatedly pointed out how the topics would cover a wide range of industry happenings related to plug-in vehicles, that the subject matter was no longer devoted to Volt alone. In other words, there is no daily blog for Volt anymore. Seeing the topics first being posted on the parent website was the clue. They are now getting reposts on what had once been a fanboy hangout. It has become a child website for sharing the same content with a different audience. They don't like that. But the host didn't like their attitude more. So, it was time to make it clear that things have changed. I'm relieved. The nonsense was getting tiring. Downvoting facts was a clear indication they weren't taking the topics seriously.
- 10-09-2013** **Deterioration.** Pretty much every owner goes through the "*it's different now*" phase. That's what happens as awareness heightens. With the regular Prius, the reaction typically comes from seasonal changes. With the plug-in model, it's less predicable. The difference is unique for each owner. They usually notice EV estimates slowly dropping. That because the default value is just a generic factory setting, typically a bit on the high side. It settles as real-world driving data is collected. And since each driver is different, there's no predictable outcome. It varies quite a bit from owner to owner. Needless to say, the drop is usually interpreted as deterioration of the battery-pack. In reality, the estimate value has no reflection on actual EV distance. But they sometimes panic anyway. Here was my contribution to the latest discussion thread started by a newbie on that very topic: 29,800 miles over the past 1.5 years is where my observations come from. No deterioration. Actual range has remained the same, taking into account seasonal variances of course. Estimate is all over the place. Fortunately, I have finally noticed a pattern. After a vacation, where I went several days milking a single charge with 100's of miles of HV driving. When you come back home and return to routine charging, the estimate goes up. Last trip, the estimate climbed to 13.9 miles. That was the highest I had ever seen it. The trip last week pushed it up to a new high this morning... 14.1 miles. That estimate is just that, a guess based on recent data. It doesn't affect actual range at all. This morning's commute was 16.7 miles, taking the fast route on the 70 mph highway. The result was the same as it always had been for these temperatures, right around 200 MPG. In this case, it was 196 MPG.

10-09-2013 Big News. Checking inventory listed online, we could see Toyota only had a little over 1-month supply of Prius PHV left. That's far fewer 2013 models to deal with than the 6-month supply GM had with Volt. So, there wasn't much concern. For me, not a single one of them was within 500 miles of where I live (Minnesota). There were still all concentrated in select areas of the country. Rollout nationwide was indeed delayed until the 2014 model. We saw that coming. It made good business sense. What also made sense was not announcing the price-drops we had been hoping for until now. Let the dust settle. After the other automakers respond to market pressure, then join in taking reaction to their choice into consideration. What possible benefit would there be from rushing? Anywho, that magic target of "*nicely under \$30,000*" has been overwhelmingly confirmed as a sensible price. We always saw the goal of offering the plug-in as a package option to be realistic with the right price. And that's exactly what Toyota announced today. The base model will have an MSRP of \$29,990 without the loss of any features. In fact, there's even a new feature added... heated seats for the cloth fabric. That's no longer limited to just the synthetic leather on the advanced model. So, even without the \$2,500 tax-credit, the plug-in is more appealing. Hooray! National rollout should go well. Having this lower price and a decent amount of real-world data available online now will really help. The advanced model saw a drop too, its new MRSP is \$34,905. I'm excited about how things are shaping up.

10-09-2013 Smog Shutdown. Imagine airports & highways being shutdown for an entire week due to smog. That's what actually happened in Beijing recently. The Chinese government was desperate to reduce the air pollution. Our smog problems here are minor compared to that. But we still have breathing warnings from time to time, days where the youngest & oldest are urged to stay indoors and avoid strenuous activities. Fooling ourselves into thinking alternative fuels are the solution puts us on a similar path. Plug-In vehicles using electricity from dirty coal plants doesn't help. Sticking with traditional vehicles using compressed natural-gas isn't enough either. We need engines delivering PZEV emission-ratings and electricity from cleaner sources. Smog is a very real problem. The growing population and increasing traffic congestion is making a bad situation even more difficult to deal. What they buy now will remain on roads for many, many years to come. That replacement delay will make the pollution problem even worse. This is why delivering solutions for the masses in the near future is so important. The vehicles must be practical & affordable. How much longer must we wait? How much tolerance do you think those inconvenienced by this recent shutdown will have? After awhile, there will be some type of ugly backlash. Cleaner is needed soon, very soon.

10-10-2013 **EV Technique.** Some of the new owner questions make you wonder. They have bits & pieces of correct information mixed with assumptions combined with confusing descriptions of their observations. It takes awhile to figure out what they are attempting to convey. Sometimes, you just have to interject another perspective to verify everyone is talking about the same thing... because sometimes, they aren't. It's surprisingly easy to get mixed up at times. Online posting has limitations. My contribution to one such thread went this way: It isn't. It doesn't. It won't. Forget what the impression you got and look at it this way: TAKE ADVANTAGE OF THE HV/EV BUTTON. The other day, I had lots of running around to do and only a single charge to work with. 71 miles was the total distance. I kept pushing that button. Whenever I was approaching a stop and upon acceleration afterward. With the slowing in EV, it would regenerate more electricity since the engine would shut off sooner. With the speeding up in HV, the surplus energy from the energy would generate electricity since the system is designed to run the engine at optimum power. The end result was 20 miles of EV display on the drive-ratio screen. That's well beyond the battery's capacity. The charge-level never exceeded the long-life threshold of 85% though. Using up EV when you can allows space for extra electricity later. It's a win-win situation. In other words, this is the plug-in version of hypermiling. You are taking advantage of a feature built into the design of the system to achieve higher efficiency.

10-10-2013 **eAssist Dropped.** Rather than attempting to push this second-generation of BAS any further, Malibu will no longer offer it. With a hybrid system offering so little, it never made much sense anyway. Dropping it is a good move, but that puts even more pressure on Volt... the only choice available that isn't traditional. There aren't any other high-efficiency options in GM's product-line. That's a lot of pressure in an increasingly competitive market. GM's on-going decision to focus heavily on a plug-in vehicle and disregard the "50 MPG" goal so many other automakers have is bizarre. Diversity is a fundamental of good business. Intentionally choosing not to compete in the highest volume category is reason for concern. How exactly will profit be made? Do they really think nothing more than a traditional vehicle with start-stop could continue to draw large sales many years from now? What will people who want high-efficiency but not a plug purchase? Watching Ford, Hyundai, and Honda all push their midsize sedans hybrids hard enough to attempt to dethrone Toyota is great. Fusion, Sonata, Accord, and Camry could all emerge as winners. Gas will continue to get more expensive. Climate change will become even more of a concern. Our trouble with oil-dependency won't go away. It's clear we need to change. Does this latest move by GM represent unspoken acknowledgement of that?

10-11-2013 Tarnished Reputation. That was the title of an article describing GM's current situation, following their announcement of Cadillac ELR being rolled out with a price of \$75,995. With a such an expensive offering and the recent trouble with lack of demand for Volt, you have to wonder what in the world GM is thinking. How could an automaker repeatedly make so many mistakes? It's like they aren't even trying to target middle-market. Where do they believe business-sustaining profit comes from? The writer of the article also pointed out how press releases have been mentioning Volt less and less as the government sells back the GM stock it had purchased as part of the bankruptcy recovery. The money lost makes it officially a bailout (roughly \$10 Billion), something supporters quickly want to distance themselves from. GM itself has clearly moved on too. There's an obvious re-emphasis on Pickups and SUVs. In other words, the draw to high-profit vehicles is becoming a problem again. To make matters worse, there's a stigma emerging in regard to Volt as a reminder of the difficult years. A return to trucks dominating the mindset of buyer's pride in American values is the theme we're seeing now. What is there to be said at this point? Hype resulted in disappoint. Demand didn't emerge. Supply didn't match the purchase priorities of mainstream consumers... which is what we all saw prior to rollout. Yet, hope persisted... even though there wasn't a next step available. The design didn't offer flexibility. What the heck does that mean for next year? 2014 promises an array of high-efficiency choices from other automakers. Will GM even compete in that market? What about our dependency on oil and climate change?

10-12-2013 What Advice? When a former plug-in Prius owner who changed over to a Volt says this, you have to ask for more information: "*That is advice that Toyota should heed as well.*" With the high trade-in value for Prius PHV and the bargain clearance prices of Volt, his switch was understandable. Though, I would like to hear about the that same decision 2 years from now as the next generation models are rolled out. Everyone's situation is different anyway, and my gripe is about the business not owners. What an automaker will produce is quite different from individual purchase decisions in the here & now. Someone had pointed out what GM could do to help Volt along. That quote was his response. So, I asked for clarification: What isn't Toyota already doing that they should? They've diversified the hybrid system in a variety of ways. Prius itself is available in 3 different styles/sizes. HSD is available with different engines & motors as well as AWD and RWD. There's also the plug-in option, which does an excellent job of presenting the next step without requiring customers change much. Toyota also kept cost-containment as a major priority... advice GM gave itself, then disregarded and is now struggling to deal with. Remember all those years hearing about the importance of \$30,000 as a purchase price to achieve mainstream volume? That is now MSRP for the base Prius PHV and reasonable with respect to cost & profit. What else is there at this time and in this market?

- 10-13-2013** **What Else?** That question wasn't answered. Instead, there were off-topic comments and this: *"GM has put much more effort into customer satisfaction for the Volt and Spark than Toyota has for the PIP."* That seemed worthy of a response. Maybe I could actually get something constructive from it. So, I tried: That's an interesting comment. What specifically does it refer to? As a computer programmer for over 20 years, I know extremely well how less can actually mean more. Not having user-calls to respond to can be an indication that they are pleased with what you delivered. You don't want the system to stand out. You want it to become ubiquitous, so common people just use it without any thought. We all know that situation extremely well from experience with the regular Prius. It is mature product, a system with all the kinks worked out already. The majority of owners are rarely ever heard from. They simply drive their Prius with content. They are satisfied. Consider it a job well done when it is used without complaint. That's how success is defined. Again, what else is there?
- 10-13-2013** **Not Get It? (part 1)** I really enjoyed responding to this: *"Do you really not get it? The point is that Toyota's entire approach to the PiP has been reactive and minimalistic."* Having a strong background in business (it was my minor in college), the accounting & economic factors that come into play are something I'm well aware of... and know well that the typical person isn't. So, I rebutted with: What possible benefit could come from being proactive and taking major risk? Observing other automaker mistakes in the emerging plug-in market to avoid making them is a wise move. GM claimed price didn't matter, people would be willing to pay for what they were offering. They were wrong. Toyota avoided association with that mistake by restricting availability, while gathering valuable real-world data from actual owners in the meantime. Now, they're using that information to expand & improve. Ford rolled out their plug-in hybrid late last year. That configuration seriously compromised cargo space, but claimed the capacity tradeoff was well worth it. We still await results of that. Based on sales so far, the impression is consumers don't agree. Toyota's choice continues to show potential. The impression I get is you believe there's missed opportunity. Having driven a Prius PHV for 1.5 years now in an area not even supporting the EV beyond being just a curiosity, I can strongly disagree. The other automakers misjudged the challenges of rolling out vehicles offering a plug. Toyota's approach makes sense.
- 10-14-2013** **Not Get It? (part 2)** The next morning, after not getting a response, I replied to that same statement again: Observing customer preference and being able to react to it has always been a strength of Toyota. The system is designed with flexibility in mind, being able to offer small improvements. That too is a strength. Why are you portraying those traits as a bad thing? Look at well positioned Prius PHV is now for 2014. There's lots of real-world data available now, enough to prevent the spread of misconceptions revealed by the limited rollout. That's reacting to actual situations, rather than guessing what could happen. A clear message is sent about expectations. We've also observed consumer price preference. Toyota adjusted price accordingly, prior to entering new markets. Delivering what matches expectations is a good thing. The build it and they'll buy it hasn't proven successful, which is why Toyota isn't doing that. Notice how it instead resembles the sidewalk wisdom? Laying sidewalks where the paths have already been worn results in dramatically higher acceptance.

10-14-2013 What They Wanted. On the big GM forum, there's a very long discussion thread about Cadillac ELR. As a result, a few of those troublemakers I use to battle with have found themselves struggling in defense of Volt. Things are falling apart for them. GM sold what they wanted, not what they needed. This new offering reinforces that mindset. Those vehicles are being regarded as indulgences for the rich. It supports what I asked countless times, asking who. On what's left of that daily blog, there's post after post attempting to draw a distinction between Volt and the other plug-in hybrids. The new Accord doesn't have a power-split device. That ties the engine and traction-motor together, not allowing for independent RPM. Either they are integrated or separated (via a clutch), with no variability in between. That makes it more like Volt than it does Prius. They don't like that... especially since it delivers much better depleted efficiency. That also supports what I had said countless times. In other words, this is quite vindicating. Of course, all I did was study history and the market, coming to the same conclusions other well-informed individuals did. We all saw this problem coming. With such an incredibly difficult industry, highly resistant to change, simply hoping people would be easily convinced to embrace the new technology was madness. Even the computer industry, where devices are far less expensive and have a much shorter life, has a difficult time getting people to change. Warnings were dismissed. Advice was disregarded. Messengers were shot. They let this happen.

10-14-2013 Planning Ahead. That happens a lot with Toyota, so much so, moves appears to be an afterthought... since the design supports it so well already. In fact, that's what antagonists have been trying to spin about the plug-in Prius. They want you to believe it came about as a panic outcome from the competition catching Toyota off guard. Those of us who were paying attention years ago know that is just plain not true. But how do you prove it when threads are loaded with red-herrings and attempts to discredit? An example of something they weren't able to spin was the 2-speed design. The reason is most likely because they didn't understand its importance. Toyota quietly rolled it out. Those of us in the know carefully watched it in Camry-Hybrid. We saw the benefit and silently rejoiced when the next Prius got the same upgrade. Having other platforms available to real-world validate the value of alternate approaches is brilliant, especially when no one is paying attention. A new example of this is liquid cooling. That's overkill for smaller hybrid systems, even the plug-in model. But in the future, there may be a benefit. Already having discreetly rolled that out in another vehicle allows for the much more visible Prius platform to get the second generation... with very few people knowing. Heck, that's how Prius was delivered to the United States. Virtually everyone assumed it was first generation. Only those doing research discovered it was actually second. Anywho, that battery-pack using liquid rather than air to keep cool is in the new Lexus ES300h. The cells are actually just NiMH. But the system delivers a combined (engine & motor) rating of 200 horsepower. So, we know the electric-draw is higher than usual, a great opportunity to study thermal effects. Toyota is willing to push harder with a platform where a more expensive design is perfectly acceptable. The experience is priceless later, when important decisions need to be made. Planning ahead pays off.

- 10-15-2013 PHV Sighting.** My commute home from work offered quite a surprise today. I was pleased with myself for having noticed a train coming, just before turning and committing myself to that wait. On the alternate route which took me through some city streets, I noticed 2 Prius parked along the road. Both were the same dark gray color and likely the same year. I assumed while driving by them the view would be identical. To my surprise, it wasn't! Always hoping to spot another PHV, my focus is aimed to see side emblem. The first said the usual HYBRID. The second was 2 lines deep. Oh! That caught my attention. Sure enough. As clear as day, it said PLUG-IN HYBRID on that one. Sweet! The rear had the distinct clear taillights (as opposed to having the red strips) and that special silver backing. It was my very first sighting in that color, as well as a being a rare circumstance... since there still aren't any available for purchase within a 500-mile radius of here. Someday that won't be the case, but it certainly is at the moment.
- 10-15-2013 Final Argument.** Remember all that rhetoric from the Volt enthusiasts. They attacked Prius PHV every way imaginable. None of their efforts worked though. In the end, they found out you couldn't belittle the plug-in hybrid by misrepresenting it. So, they switched from offense to defense. That fell apart too. Nothing could withstand the reality of slow sales... except, delay. The final argument is to convince people more time is needed with respect to when Prius was first rolled out. They've even given up on the "*early adopter*" claim now. The entire focus is direct comparison to what happened over a decade ago. The catch is, their reasoning quickly falls apart. They hope you make the assumption that all current conditions match what happened back then. That couldn't be further from reality, but that's how greenwashing works. Even if you consider the extensive history GM had with motors & batteries already, prior to Volt rollout, there's no way to deny the market is different. Even when the second generation of Prius was delivered, there was nothing that could be considered industry cooperation. In fact, most of the automakers were against hybrids. GM and VW were campaigning hard to undermine their progress. The push by Ford to dominate with SUV growth was an obvious big move in the wrong direction. It was ugly. The only other automaker in favor of hybrids was Honda, whose approach was quite different than Toyota. Knowing that Toyota, Honda, Ford, Nissan, Mitsubishi, Smart, Fiat, and Tesla already offer plug-in vehicles and other automakers have announced their intent to makes this a market quite unlike what Prius faced. There is a clear spirit of cooperation at play that there wasn't back then. Claiming otherwise is dishonest and not the slightest bit constructive.

- 10-16-2013 Sales Increase.** There are a surprising number of so-called news sources that don't disclose the fact that Prius PHV is only available in 15 states. That paints an unrealistic picture of demand when comparing it to sales of other plug-in vehicles available nationwide. Yet, they do it anyway... even when asked to add a disclaimer. They simply don't care. That same situation existed way back when Prius was first rolled out here too. Even though Toyota set a strict quota and people were waiting up to 6 months for delivery, those sources couldn't care less. They felt free to misrepresent anyway they wanted. In fact, they felt no obligation to mention that Prius wasn't new when it was rolled out here either. They pretended the previous years in Japan never happened. It makes you wonder what they'll say next year, when Prius PHV availability is finally expanded. My guess is they'll be forced to acknowledge the reason for sales numbers increasing and will pretend the limited rollout was always well known, so there was no reason in the past to ever explicitly point it out... even though now, it's still a blatant misrepresentation.
- 10-16-2013 Kicking Of The Can.** We saw the effort of the Super Committee fall apart, resulting in the Budget Sequester. That was suppose to have been the solution; instead, it became a kick-the-can response with unfortunate consequences. It taught us that cooperation presents significant challenge. So, it's hard to believe recent attempt the Republican Party made to block change would result in a kicking of the can. Not only wasn't there a final decision made, but it also resulted in additional expense... a partial government shutdown. The cost to taxpayers was enormous. Just like with other delays, there's a penalty for not responding when required. What a mess. Those supporting hybrids know this all too well. We are quite familiar with the cost that comes from resistance. Fighting progress doesn't make sense. Yet, it happens again and again. Why deal with it now when we can address it later? They take advantage of the reality that people are forgetful by nature. That allows this cycle of on-going reset. Cost is lower the sooner action is taken. Yet, it doesn't happen. Delay is often the outcome. It's maddening. Thankfully, not all automakers think the same way. Some are sensible enough to understand the "*too little, too late*" problem and respond properly... despite criticism from those not understanding situation. Don't let antagonists undermine. Don't like the can be kicked again.
- 10-17-2013 5 Leafs.** I'm seeing Nissan's electric-only vehicle on a regular basis now. But to spot 5 Leafs all in one day, that was quite vindicating. The fear of "*range anxiety*" doesn't seem to actually be a problem. The hype didn't materialize into a feature anywhere near as beneficial as hoped. Volt tradeoffs are still too much for mainstream appeal. Does that mean Leaf will overcome the daunting barrier of middle-market need? We still don't know. But the outright dislike for a plug-in offering only a battery for power isn't what actually happened. In fact, the rare sightings of I have of Tesla vehicles offer reason for pause. What is the tipping point? There's a balance of capacity & price for each consumer group. The bread & butter crowd, where the business-sustaining profit comes from, is the target. Prius PHV is designed to compete in that segment. Leaf is too. What will happen in 2014, as the plug-in market advances forward with more choices, lower prices, and increased awareness? I can't wait to find out!

- 10-18-2013 PHV Again.** Parked on the street, the closest spot next to the doors at work, there was that Prius PHV again! I was quite surprised. Was that an amazing coincidence or will it happen again from time to time? Seeing another PHV sure is refreshing. It was quite a thrill, especially considering those routine Leaf sightings for me. Searching online, there are none to be found within 500 miles of here. Toyota is obviously trying to clear out existing inventory prior to taking the next step. That's quite a difference from the approach GM took. That underscores their fundamentals of not being the same. Expectations basically have nothing in common. Prius offers a variety of choices, including a model with a plug. Diversity is necessary, especially when offering a compact like Volt. Oddly, Nissan's decision to also limit rear legroom hasn't been as much of an issue. Why is that? At least it took the priority of price seriously. Whatever the case, it really does boil down to sales. When rollout happens here, making PHV readily available, how will consumers respond? Properly setting expectations is of major importance. We've seen what happened in the past when those expectations are unrealistic. Will people understand what PLUG-IN HYBRID means, what it is intended to deliver? Will see. Today's sighting provide a bit of encouragement. Real-World data is the best way to stir interest.
- 10-18-2013 Lease Residual.** The stories are beginning to trickle out. Residual value on leases is determined at the time of signing, not when the vehicle is later returned. For Volt, that situation is turning into a difficult problem to deal with for those who leased a Volt. Those extremely low rates were very attractive, since payments would otherwise have been too high. Purchase simply wasn't realistic then for some. Turns out, purchase now problem too. The residual (price to purchase) of their current Volt is higher than simply just buying a new one... which will have higher payments and none of the previous payments would count. That means starting all over again, requiring an additional cost they never imagined. To make matters worse, the banks which provided those leases are now stuck with having to deal with that loss of value. MSRP dropping \$5,000 wasn't in the plan. They will be forced to sell those lease-returns at a loss. Oops! It was a business approach that didn't make sense. It was too risky. Consequences some of us eluded to years ago are now playing out. To add to that mess, the vehicle itself isn't selling well either. What do you think will happen in the used market as a result of all this?
- 10-19-2013 Hauling Trash.** Today was a bit on the crazy side. Some reconstruction at mom's finally began, stuff that hasn't been touched since dad's passing several years ago. It resulted in 2 very full loads of trash getting hauled from there over to my place, where I'll sort for reuse, recycle, and proper disposal. Loading so much dirty material into a car isn't what most people would ever consider. But with a large tarp to protect, why not? I've taken full advantage of the massive cargo areas several times in the past... including the transport of wet leaves to the compost. There was a stack of leaky bags loaded inside. It was no big deal. Properly packed, that large space in back has proven very handy. I couldn't imagine what I would have done with a trunk? The haul included 2 glass shower doors and a large glass window. Imagine hauling that away unbroken without a hatchback. There was a stack of wood with nails too. No big deal. It all fit just fine. Of course, that mess is now at my house to deal with.

10-20-2013 Introduction Sales. That topic is what the media is focusing on now. I see this as a sign that Volt's fade away has left the reporting industry without an poster-child, so they are finding themselves having to be more creative about article subject matter. It isn't just the writing about GM's latest fumble. That's progress! On a new discussion thread about introduction sales, I posted: Comparing hybrid sales back then to plug-in sales now is not constructive. When I took delivery of my Prius in September 2000, virtually no one understood what a hybrid even was. Online discussions up to that point were with those actively seeking out that education and struggling to get enough correct information. The misconceptions were abundant. There was a major effort to undermine too. Then came 9/11, which ushered in the "*good for the economy*" campaign encouraging consumer to purchase guzzlers. After all, gas was just \$1 per gallon with no expectation of it going up. Remember GM's push of Hummer and claim that hybrids could never be profitable? At the same time, Ford had vowed to increase SUV fleet efficiency by 25%. Neither automaker was able to deliver though. Both were forced to change. Meanwhile, Toyota triumphed. Proof of success was a simple matter of looking around on streets and in parking lots. Prius were easy to spot by the completion of the second year of sales for the second generation. As the third year was underway and high-volume already achieved, a tax-credit was introduced to push hybrids deeper into the mainstream. That provided encouragement for the entire industry... 6.5 years after introduction here. Looking at 2011 as the start of plug-in sales, there was basically only Volt & Leaf. But by then, hybrids were already well-proven and gas was expensive. The entire industry was planning to deliver high-efficiency choices. All automakers were in agreement that battery & motor usage was the future. There was no disagreement about taking that next step. There were generous tax-credits available too. That spirit of cooperation, a very different market from hybrid introduction, is why comparing to plug-in sales is not constructive.

10-20-2013 Heater & Snow. It has begun. Temperatures have been 30's in the evening and will be dropping to the 20's starting tonight. We got what counts as the first snow today. It was the round pellet type. That's not rain, so it's official. MPG has already dropped too. So, I'll obviously be blocking the grille soon. Winter brings interesting change... especially when you drive a plug-in model. Efficiency is outstanding, but you have to aware of coolant temperature to make the most of it. When the coolant is toasty warm, you can be generous with the heater and not have any concerns about the engine starting. Driving EV doesn't work as well when the coolant is still icy cold. For short trips, the heated-seats do a great job of keeping you comfortable. You have to either run the blower on LO or crack two windows to circulate outside air to prevent fogging of the glass inside. That works great for short trips, a dramatic improvement over the regular Prius. But for longer distances through the suburbs, it's best just to fire up the engine. Grille-Blocking helps reduce warm-up time and extends engine-off duration. So, that's not too bad. Toyota has does an excellent job of optimizing heat utilization over the years; however, electrical resistance due to the cold reduces capacity of the battery-pack. It a reality plug-in owners know all too well. That makes you look forward to Spring coming again. In the meantime, here comes the snowy season.

- 10-21-2013** **New Tires.** The expectation of the factory tires lasting 35,000 mile is quite realistic. Sadly though, seasonal demands here in Minnesota sometimes force you to get new ones sooner. Sales promotions make timing even more of a challenge. As I type this, my Prius is at the dealer getting its routine 30,000-mile service. There's a sale: "*buy 3 tires, get the 4th for \$1*". That's a difficult opportunity to let slip by... especially knowing the forecast for this week is evening temperatures below freezing... which means any precipitation will be in the form of snow. We basically skip Fall some years, going from Summer to Winter abruptly. That actually makes the choice of tire replacement easy though. When you see a chance, take it. So, I decided to go with Michelin Energy Saver A/S tires. They're popular choice among Prius owners. Others must like them too, since they are often back-ordered. Online reviews provide a mix of impressions. I'm not sure what to make of that. But then again, much depends upon personal driving habits & conditions. I run tire-pressure close to the maximum too. So, there will be lots of subjective observations over the next few months from me. Finding those tires in stock and on sale while at the dealer anyway is a nice happenstance. My interest in them is based on being LRR (Lower Rolling Resistance) for better efficiency and the good experience I had with that brand in the past on my Iconic Prius. We'll see.
- 10-21-2013** **Oil Change Follow-Up.** 5 months later, I took the Prius in again for an oil change. With the free changes used up, I would normally do it myself. But there was fallout from that incident back in May... when the gasket was pinched and all the oil leaked out onto my garage floor. The mechanic responsible did a great job of personally cleaning up that, but the mess ended up being bigger than I had originally thought. It wasn't limited to the garage. Oil had dripped down and got soaked up by the blotter on the plastic door under the pan of the Prius itself. That caused the door to sag, exposing a breath-hole to catch spray, which contributed to even more sagging. That reduced ground-clearance and would clearly become an issue traveling through deep snow later. Needless to say, there was an obvious problem the dealership had directly caused. To my pleasure, they replaced the entire plastic section without question or charge. That was a nice follow-up to a situation which could of had a very different outcome. I sure hope no one else ever has to deal with the same thing. But at least they'll know there are some service departments willing to acknowledge mistakes and do what they can to rectify them.

10-21-2013 **Failure Confirmation.** When goals are forgotten and definitions are changed, you have your confirmation. Being well past the time-period when success should have been achieved, the best response to that is simply ignoring it. So, that's what I did today. The claim was made that he had stated a goal of "*with at least 30 EPA miles all-electric range*" since the very beginning, way back in 2007. I know that was just plain not true. His was one of those who pushed the "40-mile" mindset aggressively for Volt. I remember that well. Whenever he mentioned it, I rebutted by asking what happens in Winter. That frustrated him every time, often resulting in a hostile response... until he finally figured out that heating consumes far more electricity than he ever imagined. His belief was that real-world EV range didn't vary. Factors like speed & accessories weren't considered. His goal changed from all-condition results to EPA estimate and from 40 miles to 30... with the hope no one would notice. I certainly did and take that as a big confirmation of failure. The enthusiasts hate labels like that. But seeing a dramatic drop in price 2.5 years after rollout with heavy dependency on tax-credits and lagging sales still, what else can be said? It's time for that "Plan B" to be used. I always stated it should have been a second model. They fought me to the bitter end, embracing the one-size-fits-all approach instead. Now what? Watching other automakers introduce their plug-in choices means there are even more challenges to face. That opportunity to lead the way has passed. Mission not accomplished.

10-22-2013 **Wild Claims.** There's always reason to be suspicious when a first-time poster comes on the forum making wild claims. We've seen it so many times now, we are always on guard. This time, it came with a story of health issues and death. That was a new spin. The other part was quite familiar... a claim about advertised miles. We've seen that in countless different ways. Each has the same thing in common though... no detail. That new member will say something to anger people, then vanish. I was especially amused with his closing comment: "*I am currently planning to get rid of the Prius and buy a 4x4.*" That simply didn't make any sense coming from a supposed plug-in owner. Needless to say, the following day brought lots of posts... none from the person who had started it though. It had already become apparent the purpose of that thread was just an attack on the forum. Having such a harsh attitude, then showing no activity whatsoever afterward indicates something is very wrong. The facts themselves didn't add up either. I was the first to respond when that thread was first posted. Immediately noticing the behavior, I pressed for detail right away: This is the text on the TOYOTA.COM website about the PHV model: "*EV Mode is great for those shorter trips. Prius Plug-in has an EPA estimated driving range of 11 miles in EV Mode, and you'll be able to cover them quickly since it's capable of traveling up to 62 mph on electric power alone.*" The purpose of Prius PHV is to deliver a significant MPG improvement. That benefit is delivered even when the engine runs and the electricity being used isn't counted as EV miles. What were your MPG expectations and what did you actually get?

10-23-2013 **500 RPM.** It hadn't hit me until today. When I take the back way home from work, the climb out of the river valley is longer and steeper. Just before reaching the top, the initial EV-BOOST runs out. That's when you get a very generous amount of electricity provided to allow engine warm-up to be a more gentle process. RPM is held below 1500. That reduces strain, both for longevity and to help keep emissions lower. Just before that boost ends, the RPM will gradually creep up. With an aftermarket gauge, you can see it in the 1700's. Shortly before reaching 1800, the RPM abruptly speeds up past 2300. Especially due to that climb, you'd expect more than just a minor audio cue. After all, traditional vehicle shifting is quite a normal event to feel. But with Prius PHV, there's nothing in that respect. In fact, that 500 RPM jump is something I've never really even acknowledge from the perspective of feeling anything. I've been so focused on the quantity itself and when that happens, it hadn't occurred to me that the lack of sensation is a benefit of the design. Things like that going unnoticed is what really endorses the design. You wouldn't want a shift in operation to be noticeable. After all, lack of behavior responses like that are what people purchase luxury vehicles for. They attribute system aspects like that as a mark of quality. The smooooooooothness of having a planetary "transmission" rather than something with actual gears really makes a difference.

10-24-2013 **October Guesses.** Reality has sunk in. The third year of sales is coming to a close for Volt. That puts those who insisted on making comparisons to the early rollout of Prius in a difficult position. They now know that history didn't match. Hope has been replaced with dismay. Even the belief that price was high to help recover development expenses has fizzled. They honestly don't understand what some of us had been saying for awhile. Here's an example: *"I guess I still don't understand the whole Volt loss debacle either. They just dropped the MSRP by \$5k stating that was attainable due to cost reductions in batteries etc. So was their news release a blatant lie? If they're losing money, and they don't really care how much they sell, why decrease the price at all?"* When that price drop took place, we pointed out how there was no evidence supporting any claim of recent major advances for lithium battery production. We also recited the words of GM's CEO stating just months earlier that each Volt sale was losing money. Yet, they believed cost had been dramatically reduced anyway. For those of us who have taken accounting classes, we knew it was the rate of cost-reduction that had justified the lower price. In other words, if it could continue at that rate, the new price would become profitable within a reasonable timeframe. There was nothing in any statement saying that had happened already. Enthusiasts simply wanted it so bad already, they convinced themselves that's what they actually heard. So now, with overwhelming evidence that sales continue to just drag along at a level well below expectations, their guesses for October reflect a sense of disillusionment. Consequences of their intense focus on engineering and blatant disregard for business are revealing themselves. Too bad some still don't understand why. Perhaps the guesses being made now by peers will help them see the reasons.

10-25-2013 Dealer Inventory. Looking at new plug-in inventory for 2012 vehicles, we just plain don't why some are still available. The numbers are so few, it gives the impression some dealers simply held on to their older ones as showroom & demo models. That makes sense. Why have to discount another when the existing serve the same purpose just fine? Inventory of 2013 plug-in vehicles tells a different story though. Specifically highlighting the end of the Volt verse Prius PHV clash, we see 1,885 Volt and 1,219 Prius PHV available. Volt can be purchased nationwide. Prius PHV continues to be limited to those initial 15 rollout states. Of course, that does give the overall impression of a somewhat level sales status. Both seem reasonable... until you look at 2014 inventory. For Volt, it's 1,753 available. For Prius PHV, it's 0. Zero tells us an interesting story. Toyota has been holding out, an intentional delay to clear out existing vehicles sitting on lots first. Why push out new ones? That doesn't appear to have been a wise choice for GM. Even supporters haven't been able to spin that to a positive. Waiting to rollout 2014 to the whole nation all within the same relative time-span is sensible. After all, dealers have a partnership with the automaker. Getting stuck with old inventory isn't helpful in any respect. More than ever, I'm quite curious what next year will bring. 2013 certainly shock beliefs to the core. Approaches have changed as a result. What will that end up doing for sales?

10-26-2013 Good Combo. He summed up the situation this way: "*Prius + Pure EV. Good Combo.*" A friend of mine recently made that very same comment; however, this was from someone quite different. Early this year, he had engaged in several intense battles with me. He was a staunch Volt supported... heavily focused on engineering alone. He felt the combination of engine, motor, and battery GM offered struck a good balance. Cost wasn't a consideration. The business aspect was something quite unfamiliar to him. It was mostly a matter of principle, an ideal. Since then, reality has changed his view on priorities. The importance of other things, like sales growth & profit, are sinking in. This comment yesterday helped to confirm that: "*I think when my lease runs out on my Volt I will switch to a pure EV: either a Spark EV or a Tesla. So I think a good combo is a Prius for long trips and a Pure EV for around town.*" He, like many, assumed my endorsement for Prius was nothing but brand loyalty. He couldn't see past that old school mindset. He couldn't believe anyone interested in vehicle electrification could fight against any plug-in vehicle offering a pure EV experience. He didn't see the sacrifice GM made to deliver a plug-in with an engine. Now, he does. Now, he understands the consequences of business decisions based on want rather than need. It's very fulfilling for me to witness such an attitude change. Too bad the struggle to get there was so intense.

10-26-2013 **Hatred, part 1.** Waiting for those incendiary enthusiasts to finally get that "*vastly superior*" upset out of their systems was an exercise in patience. Some of them outright lied. They simply didn't care. No matter how much real-world data you'd present, they'd dismiss it and say anything they wanted. Others supported them too, enabling greenwashing so blatant, you felt a bit of hatred. It made the wait even harder. But knowing that profitable sales would become increasingly more difficult, it was just a matter of time. A great example of this from 6 months ago emerged yesterday, serving as a fantastic reminder of how bad the situation had actually become: "*So if your gas tank was empty, how far could you drive on the EPA test course? Answer = 6 miles.*" Over and over and over again, it was stated that the capacity of the Prius PHV battery-pack was rated at 11 miles and that 6-mile value was nothing but the hard-acceleration point during the test. You don't have to accelerate that hard. In fact, people rarely actually do. The test includes it to be thorough. The engine shuts off shortly afterward anyway, allowing you to continue on driving with only electricity for another 5 miles. Capacity is 11, not 6. I even posted a video showing a 9-mile drive in EV with the temperature at -2°F. That's dramatically colder than EPA tests are performed, yet distance exceeded 6 by quite a bit. Some absolutely refused to accept that reality, despite seeing it on video. My commute to work taking the river route during the warm season routinely delivers 13 miles of EV. That's twice as far as the implied range... without using a single drop of gas. Again, some just plain didn't care. It was very tempting to lash out, but refuting with anything but cold-hard facts would mean stepping down to their level. I'm not going to sacrifice my integrity to win a battle; instead, I wait. That approach has been paying off recently too. The war is against traditional vehicles, not fellow plug-in supporters... even those who intentionally lie and mislead... like that Volt enthusiast.

10-26-2013 **Hatred, part 2.** It obviously goes both directions. The belief that I was attempting to undermine clearly stirred strong feelings. Worry about what that would mean later was always present in the background. But then again, the same situation already played out in the past. Two-Mode was bragged about for years. Despite all the warnings about "*over promise, under deliver*", the enthusiasts kept talking big anyway. Their boasting turning into hostility at times too. Back then, online behavior wasn't as well understood either. Conduct wasn't as well controlled as a result. Moderators are much better informed now about what to openly allow and what to keep a close eye on. Anywho, by the time Two-Mode reached the end of its third year, the technology had basically been abandoned. So few were interested in such an expensive system that didn't actually meet the needs of consumers. Sound familiar? We have been witnessing similar circumstances with Volt. What had been hoped for and what was actually delivered were dramatically different. Seeing Toyota within reach of the goals consumers had established for Prius PHV made that bad situation worse. Aftermarket augmentations, countless surveys, and lots of research positioned Toyota well for reaching the masses. GM didn't care. In fact, they weren't even interested. Volt's target wasn't middle-market. There wasn't any intention to deliver a mainstream configuration until the second generation. The "*too little, too late*" concern wasn't taken seriously. Enthusiasts now understand this. They see their hatred was misplaced. Seeing that is a good sign.

10-27-2013 Winter Ready. The lower grille is now blocked. I seal it entirely, using 1/2-inch thick form pipe-insulation. By squeezing both sides together and pushing them into the slots of the grille, they stay in place all Winter long. No glue or tape or fasteners are needed. Even with several car-washes, they don't move. It's quite an inexpensive solution to a problem we all face during the cold season... heat retention. It only cost me \$2 and 30 minutes. The result looks really nice too, if you take the time to slice out bits for the vertical supports of the grille. That way, the foam appears completely flat along the entire span. Of course, with the regular spray of sand & salt Winter brings, looking good is somewhat of a non-issue. Regardless, the deed is done. MPG will be higher as a result. Heat will last longer, which causes the engine to stay off longer. There's also a small benefit when it comes to initial warm-up. Less air is allowed to pass through the engine compartment. That's obviously a nice perk. Posts online are growing. New owners stumble across information like this asking for more info. The experienced owners happily reply. My biggest frustration is the definition of Winter itself. Those living in places where the temperature might drop to freezing on a rare occasion have no concept of how cold it gets here in Minnesota. Their perspective of "*cold*" is quite different. So when we discuss grille blocking, results are often questioned... since they don't have the same encounters. I leave my Prius parked outside while at work. We routinely go weeks at a time without the temperature rising above freezing. We also experience several days each Winter when the temperature doesn't even climb above 0°F. Brrrr! That's when grille blocking provides a huge improvement.

10-28-2013 Blocking Results. This morning's commute was at 37°F. Much colder temperatures are on the way. Fortunately, the result of my 17-mile drive was 145 MPG. That certainly isn't anything to complain about... but definitely isn't reminiscent of the 400's that I'd routinely get in the Summer. The reality of Winter is setting in. Having something simple to help retain precious heat is nice. I do find it a bit amusing though. 20 years ago, seeing cardboard attached to the grilles of vehicles was a common sight. At least now, this is cosmetically much better. Some vehicles are even beginning to offer powered louvers. Prius doesn't, yet. Perhaps it will with the next generation. Until then, it's much cheaper using \$2 worth of foam each Winter. And with a cost so low, it easily pays for itself... especially considering how long Winter is here in Minnesota... where a few weeks from now 37°F will feel down right balmy in comparison.

10-28-2013 Leaf Contemplation. Since there weren't any declarations of superiority or wild claims of anticipated strong demand, Nissan's Leaf has always been treated differently than Volt. The smug & arrogance simply didn't exist for that way. Those interested just quietly supported their plug-in choice, knowing there was much to prove initially. That's what actually mimics Prius. They knew achieving mainstream volume would take years of further refinement of the technology, but what they had already would indeed deliver to the satisfaction of enthusiasts. So, they just drove. That's quite a contrast to what we saw from GM and those who favored Volt, who pushed a trophy mentality to convince us of obsolescence. It sure is nice that chapter in history is over. Such opposites really make you wonder about market... hence always asking the "who" question. Thankfully, we are now past that. Focus is now on regular priorities, the kind of things ordinary consumers consider when purchasing a vehicle. A big one is passenger & cargo space. By dumb luck, a Leaf was parked right next to a Prius today on our morning coffee run this morning. I asked if we could stop for a closer look. I told my friends to observe the interior of Leaf carefully, then look into the Prius. The legroom difference in back was obvious. Leaf is a compact. Prius is a midsize. That works out to 2.7 inches smaller in this case... very easy to see. The seats just happened to be down in back too. That made the cargo comparison a no-brainer. Prius has a high roof. Leaf has a short one with that dramatic low swoop. It was quite obvious the Prius offered significantly more room for cargo. Feature differences like that are what helped keep enthusiasts civil. The audience wasn't the same. Unlike Volt, the target for Leaf wasn't that of Prius buyers. There was no fighting. We could actual contemplate ownership situations in a sensible manner!

10-28-2013 Historical Spin. With the present so clear now, there isn't much else to do except paint a rosy picture of the past: *"GM pitched the Volt by saying: We will just make the battery big enough to cover the daily driving distance of the average driver of 40 miles."* Knowing that was spin on what actually was said and knowing that most people won't have any way of validating that history, I was intrigued. Would that point be fought if confronted? Turns out, the answer is no. That was good to find out. In the past, arguments were made about everything. Being constructive wasn't a priority. When enthusiast could get a red-herring to capture attention, they capitalized on it. After all, that is part of the formula for hype. You do what you can increase excitement, even if it there is no benefit to the topic of discussion. I've been documenting details of each day of my Prius driving since that crazy 230 MPG claim over 4 years ago. I knew the real-world data would reveal the lack of simplicity so many of those back-of-napkin estimates claimed. The variance is enormous. People drive to far more destinations than just back and forth to work with an occasional grocery run. The proof now is overwhelming. As for the history, I posted: It was not *"daily driving"* distance. The quote stated *"commute"* distance. That difference was a major source of conflict in the early years. People drive elsewhere in the evening. Disregarding that fact wasn't constructive. Another issue was range-drop due to heater use being ignored, despite the topic being brought up over and over again. Now, the resulting kWh consumption to stay comfortable at the sacrifice of available EV distance is a matter known all too well by owners. Keep in mind that living further from work often means living closer to other driving destinations. There's often a tradeoff. Lastly, weekend travel isn't addressed either. It can vary significantly from during-the-week driving. Friends & Family don't always live nearby. Other non-routine destinations are further too.

- 10-29-2013** **EV Symbol, part 1.** The difference between this [EV] and this [] isn't obvious to some Prius PHV owners. For unknown reasons, they don't seem to notice when the symbol becomes hollow. Rather than saying "EV", it is blank at times. That's an indication of the engine running, most likely for heat this time of year. But while driving at fast speeds on the highway, the same thing happens. We're a bit mystified why that indicator gets overlooked. You'd think the pattern would be recognized after awhile. Apparently, it's quite a while for some. I provided the following information to one such owner in a thread many owners happily contributed to: Though, the same thing happens while traveling faster than 62 mph. The system switches from EV mode to EV-BOOST. That means you're still getting the benefit of extra electricity from the plug, but it's obviously going to be lower MPG than 999. Fortunately, it's quite a bit higher than what the non-plug efficiency can deliver during warm-up. As for offering electric heat, that gobbles up electricity at such a fast rate, you'd be starting up the engine anyway. Between the capacity available and the increased resistance due to the cold, the penalty is too much. Also, keep in mind that heat-pumps don't work well in extreme low temperatures.
- 10-29-2013** **EV Symbol, part 2.** By the way, that same indicator is available with the newer models of the regular Prius. The only difference is power & speed thresholds are much lower than with the plug-in. It's yet another feature showing how the larger battery-pack and plug offering is really just a package choice, that Toyota planned for the design to support such enhancements all along. Being able to update software and select capacity is the kind of flexibility needed to sustain business. You really don't know what the consumer will actually purchase. Adjusting production along the way is a fundamental benefit, a very important aspect of supply & demand. Some us understand that and really appreciate the effort.
- 10-29-2013** **Reliability.** This was encouraging to stumble across: *"I read an article on Consumer Report website and it said Prius is very reliable but Prius Plug-in is not so I am confused."* Getting feedback of bewilderment rather than blind acceptance is fantastic. What a great improvement over past encounters. Of course, knowing how to respond to someone receptive to enlightenment information is someone uncertain territory. That's new for us. In the past, those newbie posts were either outright attacks or purchase regret. That response of confusion is a step up. There's hope! Even so, you still need to be somewhat direct in reply. Being too passive may end up just contributing to the confusion. Getting their attention is what I went for: Huh? The only "not reliable" rating I could imagine would be due to lack of data, a blanket "don't know" yet statement. My ownership observations would put it at higher reliability. Think about how much less the engine is used. The warm-up process involves lower RPM and short-trips sometimes don't use the engine at all.

10-30-2013 **One Hit Wonders.** It's been rather entertaining later. A well respected member of the big Prius forum put it this way: "*There have been numerous similar posts from one hit wonders of late.*" I appreciated the way he stated the situation. Posts from those who obviously thrive on stirring the pot come and go. The pattern is for their membership to be brand new, for the thread topic they start to be somewhat controversial, and for their participation to end abruptly afterward. It's a little bit frustrating to see how they sucker naive members into worry. But then again, that's how they learn about the intent of some being disingenuous. It's too easy to assume everyone is being honest. Anywho, this was my insert into the conversation: The frequency of "*one hit wonders*" has been increasing lately. (Thanks for coining that term.) They've become rather sloppy too. Claiming 27.4 MPG is quite extreme. Even with kayaks on top, I couldn't get efficiency that low. I haven't even seen that in the dead of Winter here, during the worst of the snow-trapped traffic. It simply isn't realistic of a claim. No follow-up is a dead giveaway something isn't right. The owner facts listed don't add up either. Prius sales remaining strong, despite the dropping of oil & gas prices, as well as certain other competition struggling is good reason to keep an eye out for attempts to undermine. That wastes our time. Put ultimately, it helps point out how resilient Prius actually is. Gotta like that.

10-31-2013 **Winter Questions.** I tend to really enjoy this time of year. It's when I get to share my experience without being overbearing. In fact, people often encourage me to contribute more. That provides incentive to collect more data. I'm looking forward to filming more cold & snowy driving as a result. That's what really endorses the technology. The driving outcome speaks for itself. Being able to conquer the roads here says a lot. And since I have no choice but to drive in those conditions anyway, why not make the most of it? So, I do. Today, it was with: This will be my 14th Winter driving a Prius in Minnesota. I've experienced everything the cold season can dish out. So, I'm not sure what to say at this point. In fact, it drives much better than my mom's 2004 Corolla on snow & ice. So, there's really nothing to prove. It works fine. The key is to enjoy the slower speeds required for safer driving. MPG shoots up as a result. It's a win-win situation. Heck, you'll look at commute congestion quite differently. That nightmare of wasting gas is replaced by silent satisfaction.

11-01-2013 **Stigma, blending.** Sales results stirred up the rhetoric. That was expected. I joined in with: Rollout of PHV has made sense. Like the Original model, only select markets would get the opportunity to purchase. Like the Classic model, production was limited to size small enough to cause dismay. Since the goal of Prius has been to reach wide & deep into the mainstream, rushing the design that offers an option both affordable & profitable wouldn't provide any benefit. Let the hatchback, compact, and wagon become common first. Also, it should have been obvious that Toyota didn't want to get sucked into the struggle GM was having. Volt sales have been neither affordable nor profitable. Taking such a profoundly different approach was good reason to keep distance and prevent association. After all, Volt goes out of its way to avoid using the engine and Prius PHV takes advantage of it. That sacrifice of electricity for the sake of purity is a fundamental difference which can easily contribute to consumer confusion... in a market already filled with misconceptions. Seeing PHV sales exceed that of Volt, despite only being available in 15 states, suggests that rollout decision is working. Knowing that only 1 of those states offers credit incentives beyond the federal credit, since there are 9 others for Volt but not for PHV, further supports it. Also, don't forget that the federal credit for Volt is triple that of Prius PHV. As more people discover plug-in hybrids offer more than just an EV experience with an engine backup, it will become easier to sell. A big part of that is simply having enough owners reporting real-world data. It's ironic how there have been many attempts to stigmatize blending over the years, none of which have been able to prevent the advancement of Prius. That only slows it down... which is exactly what's needed for greater acceptance.

11-02-2013 **Stigma, reactive.** We have heard about the importance of being proactive so often, the antagonists are taking advantage of that by attempting to convince people that being reactive is bad. True, if you were caught totally off guard and took an extremely long time to actually react, that would indeed be bad. But waiting to see what others do before taking the next step yourself should be common sense. In the world of online forums though, senseless arguing is what's common. That's really unfortunate. Oh well, we have no choice but to deal with the nonsense each time it comes up: Remaining flexible has always been a positive trait in the past. If your business cannot adjust to change, you lose opportunity & money. Clearly, the greenwashing effort to stigmatize being reactive has successfully entered the mindset of some. It's pretty obvious too. The definition of change itself has changed. In the past, success was measured in terms of looking at overall production. Nowadays, automakers aren't given credit for replacing their high-volume fleet. Focus is almost entirely on trophy vehicles instead. It's really unfortunate that adapting to the market as you go isn't considered being innovative and that conclusions are drawn without looking at the big picture.

- 11-03-2013 Stigma, reasons.** Sometimes, there is an element of disbelief which contributes to your stamina to rebuttal, a backfire on the part of antagonists. This quote definitely fit that: *"The only reason Toyota had to adapt to the market is because the problems with the PPI were ones they created."* I was amazed anyone would try to make such a claim. When has an absolute ever been the case? There are always multiple reasons. In this case, there are many many many of them. We try our best though to listen to what others have to say. After all, sometimes an antagonist will reveal what they actually feel... which is what we are really after, since words are commonly a disconnect to what they are really thinking. The key is to keep discussion brief and on-topic. Then, it defeats the effort to antagonize and helps to retain some element of being constructive. I fired back with: Only! Wow! This forum is loaded with other reasons. Haven't you been reading comments owners and those researching purchase have been making? Assumptions, misconceptions, and efforts to undermine are still a problem. Simply reducing price and advertising would not have overcome that. Of course, we all know that focusing on what could have been is a red-herring.
- 11-03-2013 Stigma, innovation.** There are some who fall victim to the greenwashing efforts, totally unaware that they're preventing the spread of progress. We see it originating from the belief that innovation only comes one way. They think pushing range & power are key indicators of success, followed by price. The thought that it can come in more than one form or fashion isn't ever entertained. When an alternate method is suggested, it's just outright dismissed. Even sales are disregarded. They don't see how altering a design to target middle-market could result in any type of advancement. Factors like gas prices being relatively low don't get acknowledged either. As far as they're concerned, fuel cost doesn't even come into play. That is the result of so many years of effort from others to downplay importance... mostly because consumers are purchasing Prius regardless of what happens with the oil industry. Volt depended heavily upon the price of gas being high... making its particular configuration more appealing. The small battery-pack with respect to EV choices and the low MPG after depletion compared to Prius PHV made it quite a gamble. Being perceived as innovative required circumstances that didn't materialize. As a result, we now have a small army of supporters supporting an inflexible design not matching the goals of mainstream consumers. So, they attempt to stigmatize. That's just another technique to undermine. But lots of people are fooled into believing the arguments without doing any research themselves.

11-03-2013 Good Observations & Questions. A owners noticed the drop of in charging rate that happens after about an hour. He asked if interrupting it was ok then, since the bulk of the battery-pack capacity had already been replenished. Several of us were delighted to respond to that. I did with: That's normal for plug-in vehicles. It's why charge-to-80-percent is so often quoted. That's the capacity which the highest speed charging can used without sacrificing batter longevity. Above that level, it ramps down the rate at which electricity is drawn to ease the burden on the chemicals within. Observant owners with L1 chargers at home take advantage of that knowledge. Being aware that waiting for the final part of recharging isn't required comes in handy. New owners assume the charging rate is linear, having no idea a large portion of the capacity is replenished right away. So, they wait the entire time. Good job on the observation, right away too. And it's more difficult to notice that difference with a L2 charger. I'm sure there plenty of other owners out there who won't make that same discovery for a very long time... or ever. You now know the system is more dynamic than many realize. Sharing tips like this add to ownership experience. Go ahead, unplug before recharging is complete.

11-03-2013 Took It To The Dealer. We cringe when we read that. It's often the first post from a new member. You never really know what their intent is or how they will respond. Today, it was the owner was unhappy with the estimate value having dropped. Naturally, he made no reference to actual MPG results. It was solely a concern about that much misunderstood range of electric miles they've come to expect but never actually pay close attention too. Lots of assumptions makes responding a challenge, especially if you cannot keep their attention for long. Some just need to vent. Some are too frustrated to listen. Fortunately, some do end up enlightened and drawn more to the technology as a result. We hope for the best. Maybe they'll be more receptive to our posts than their visit to the dealer. I provided: There are countless threads about the misconceptions of how EV range is estimated & delivered. At this point in the year, maximum is no longer available for those seeing temperatures near freezing. That's how batteries work. Capacity is reduced and electrical resistance increased. Of course, cold affects engines too. So, the end of the warm season efficiency is nothing new. Remember that Prius PHV isn't an electric-only vehicle. It's a PLUG-IN HYBRID. So even when EV numbers goes down, you're still getting the benefit of the plug-supplied electricity. Those miles are simply counted as HV instead. We call that blending EV-BOOST mode. It's what normally happens when driving at speeds above 62 mph. But with the engine starting more often due to the cold temperatures, you'll see it happen when going slower too. In short, stop focusing on the EV number. Expectations should be on the resulting MPG. Notice that it's still well above what a Prius without a plug could deliver.

11-03-2013 **Interpretation.** I liked reading this: "A very common conceptual mistake is to interpret battery "EV miles available" as a fixed rational unit of measure, such as gallons or liters are for volume, or miles or meters are for distance." I joined in by adding: That is an excellent point. Back when Toyota was rolling out the early model of plug-in to ordinary consumers for review, a common discussion was on how EV capacity should be represented. Most with EV background stated range in terms of PERCENT was their preference. That made sense too, since most addresses the most misconception. However, it is still misleading. Driving fast. Accelerating often. Using the Heater or A/C. They all have a big influence on outcome. Add to that the confusion new models introduce. An increase in kWh would result in much more EV, but that wouldn't be represented by a PERCENT value. It would contribute to problems in the future. That's why Toyota chose to use MILES instead. The number still misrepresents, but it gives a better idea of what you might get. It's too bad many people don't realize MPG in their traditional vehicle fluctuates too. Have a display that provides on-going detail about efficiency is a mixed blessing. The consumers who were used to just filling up their tank with gas every 300 or so end up struggling to interpret the wealth of information the regular Prius provides. Adding a plug complicates matters. They come from a world filled with assumptions. We introduce them to new concepts. That takes time & patience to get through. Some, like the poster who recently revived this old thread, assumed there was something wrong and brought his Prius to the dealer feeling lost and unhappy.

11-04-2013 **The Engine.** When it runs, those instances are noted. Patterns are observed after awhile. Detail is often missing. Incorrect assumptions are made. Advice is provided based on that. It turns into a mess. They don't understand a mistake had been made on their part. The trap is easy to fall into too. We do our best to educate without being pushy. Today, it was this that stirred the pot: "*In addition if you want heat or if you need some acceleration the engine comes on. Hope this helps.*" That sincere effort to assist another owner should be respected. After all, the forum environment is often filled with lots of people contributing thoughts. Hopefully this was worthwhile: Actually, you just unknowingly contributed to the generalization misconception we've been struggling to squash. Heat will indeed cause the engine to start, but it will shut back off too. People jump to the conclusion and just assume it never does. To keep warm, all you need is not engine coolant... which remains that way for awhile, even with the engine off. Years ago, I remember getting stuck in a really bad snow-congested traffic jam with my 2010. I was able to creep along with the other cars in EV, watching the engine remain off for 8-minute cycles. Acceleration isn't cut & dry either. I certainly can't accelerate onto a highway using only electricity, but turning onto the big 45 mph road through town in EV is no big deal. Climbing the steep 40 mph hill by my house from a dead stop at the bottom is no big deal in EV either. But even if the engine did fire up, when warm, it shuts off immediately after the acceleration is complete... and you sometimes get a little bit of electricity replenish from the engine at the same time. In other words, the system is much more dynamic than people realize and we often don't realize our side comments contribute to confusion about how it actually works.

- 11-05-2013 Party.** Things sometimes fall apart. Certain individuals like to provide their own "leveling" information. They want each automaker to be treated equally, regardless of the situation. That's not constructive. In fact, it's quite annoying. This got me going: *"Toyota will be very late to the party."* That was obviously someone coming out in defense of GM and Volt. Thankfully, 2014 isn't too far away. That automatic resetting of stance due to a new year starting really does help... because the doses of reality we provide certainly don't for some: The goal hasn't ever been to party. It has always been to change the norm, to break the status quo. There's a fundamental difference between targeting early adopters and appealing to middle-market. Fortunately, even those who has previously exclaimed *"vastly superior"* are finally accepting that reality. Selling in high-volume and making a profit doing it, without the assistance of subsidies, is what each automaker is striving for. None have achieved that yet. So, there is no concept of late either. The rush some insisted upon and careless disregard for consumer needs wasn't anything worthwhile to pursue. Seriously, what was there to lose by waiting? A midyear rollout to new dealers may sound good on paper, but in practice it takes awhile for salespeople to learn about the new vehicle. That takes time. Waiting until the 2014 model arrives instead makes sense. Step back to look at the big picture. Toyota has been working hard to replace traditional vehicle production with hybrids. That's the point. Expanding to offer a plug will draw in both PHV and more regular Prius sales. We see how many misconceptions and how much pushback there is still. Look at where the other automakers are with respective to replacement. Business is not a party.
- 11-05-2013 Japan Sales.** Honda's Fit unseated Prius from the top-seller position in Japan. Last month, 23,281 were purchased. (There, a hybrid model is also offered.) Sales for the regular model Prius were 20,886. For the smaller model, known as Aqua, there were 19,984. So, kudos to being able to compete so effectively with Toyota. I get a kick out of how much higher the numbers are there in Japan than what we see here. That wasn't always the case. Hybrid sales in the United States were leading the industry. Japan's economic recovery combined with the need to replace caused by the multiple disasters the population faced sure changed things for the better. Someday, perhaps that will happen here. Oh well. It's not like progress isn't being made. It's just slower here... frustratingly slower. But that's still a step forward. In this case, it's a month at a time.
- 11-06-2013 Must Be Replaced.** Sometimes, I need to vent. Certain individuals online thrive on attention, so they'll intentionally cause trouble. They are what I refer to as antagonists. They will do everything they can to prevent a discussion from ending. Drawing a conclusion brings an end to their entertainment. They aren't actually like trolls though, since there is an aspect of being thought-provoking. They don't just contradict and argue for the sake of spite. They repost old talking points over and over again. Fortunately, it gets old. Drawing focus back to purpose often ends a particular debate effort. It gets tiring though... but there is an aspect of curiosity. Do they care? Anywho, I posted this: That careless disregard for ordinary consumers never ceases to amaze me. But then again, it isn't at all a surprise. Automotive enthusiast interests weren't ever focused on middle-market needs. We all know how well positioned Toyota is already for delivering an affordable & profitable plug-in hybrid. That irritates to no end those who support niche efforts. The voices of the mainstream keep pointing out what's truly important. Continue distracting all you want. Pretending the big picture doesn't matter isn't constructive. It won't change the reality of the situation. Traditional vehicle production must be replaced.

11-07-2013 History Repeating. It is somewhat bizarre when it happens so many times, you not only recognize the pattern, you can also accurately point out what the antagonist will do next. That's what we've seeing lately with the downfall of Volt. It is no longer considered "*vastly superior*" by the enthusiasts. They've officially withdrawn from that war... finally realizing surrender isn't necessary, that their conflict was artificially created by them... that the true war is competition with traditional vehicles. With the plug-in Prius matching sales, despite not having the federal or state credits like Volt, it was reason enough for this attitude change. But seeing the steady rise of Ford was a very good wake up call. I simply didn't make any sense waging battles against those trying to win similar victories. Thankfully, that took us back to fundamentals. First was attacking those who were correct all along by claiming their intent was something other than what it actually was. After all, pride still influences actions. I've seen this before firsthand. They'll imply you said something, but won't actually refer back to any quote... despite your requests to see the supposed quote. It hard to know why they don't. Often, emotion clouds memory... hence me writing blogs to preserve exact quotes. That makes searches to find the original post simple. They don't do that. They make assumptions instead, which contributes to incorrect associations. Self-Convincing is a powerful healing mechanism. Second, they spin the difference between want and need. You can clearly point out an example, like the need to be able to seat 4 people. It should be easy to point out that more leg & head room is a want. But instead, they reply with the introduction of something slightly off-topic. Today is was: "*No one needs a prius, let alone a prius phv.*" We all know there is a need for improved emissions & efficiency. That's why Two-Mode became such a major controversy. 22 MPG wasn't enough, period. They wanted a monster-size vehicle. But the necessity to improve the traditional offering was blatantly obvious. Long story short, there are some who will do everything they possibly can to prevent conclusions from being drawn. They are so desperate to retain the status quo, they are willing to say just about anything. My advice is to state facts and move on. Don't argue with them. I didn't this time. I wasn't willing to repeat that.

11-09-2013 Evening Errands. Virtually all the discussions about plug-in vehicle use focus on commuting. The drives you do after work are rarely addressed, even though those miles can add up to quite a lot and the vehicle may not have much or any charge left at that point. Of course, that would be the very reason why the topic isn't discussed with Volt. Depleted mile means very low efficiency, MPG like a high-efficiency traditional car... not even close to what Prius delivers. Anywho, that's why when the topic is encountered, it's with respect to pure electric-only vehicles instead. I couldn't resist the topic came up tonight. It was a well timed opportunity to share my recent experience: Perfect for going to get groceries? That usage works fine for a small EV, but not for what I did last night... Late in the evening, with my battery-pack fully recharged, I headed out to the hardware store. There, I purchased brackets and two 8-foot shelves. With the front seat lowered, the entire load was swallowed up by the Prius. It's no big deal carrying cargo that large inside. The entire drive was with only electricity too. That practical design of Prius is what has won over many owners. They were drawn to Prius by the emission & efficiency improvements, but it was that ability to haul lots of stuff that sealed the deal. Competitors tried to convince people that it was the unique look, that it served as a smug declaration of being green. Those actually purchasing a Prius knew that wasn't true. This is why Toyota placed such a high priority on PHV design not interfering with existing interior space. Getting a plug wouldn't mean having to sacrifice the ability to haul large objects.

11-09-2013 New Tire Update. We're seeing a lot of questions about Winter driving and tires now. This is my latest contribution to the discussion: I've only had my set for 2.5 weeks now, so there isn't much to report yet. The only snow we've got so far melted right away. Reading online comments outside this forum, opinions were all over the place. Since road conditions can differ dramatically, as well as the way people actually drive, I went with the consensus here that they'd do well. After all, I tried the HydroEdges way back when they were still quite new and had pleasing results on snow & ice. And living in Minnesota, I'll certainly have lots of opportunity for Winter driving. We got hit especially bad a few times last year, so I still have vivid memories of the factory tires. Those tires only made it to 30,000 for me, since actually reaching replacement wear-level would have been mid-Winter. I took advantage of Fall sale prices and the fact that they were in stock. I've heard backorder waits are common for them. The initial impression are these tires will get my recommendation too. Driving at 44/42 PSI, road noise was my first want-to-know. Thankfully, they were actually a little quieter. For traction on dry & wet roads, they've been nice. They seem to take corners fairly well. But the ultimate test hasn't come yet. Snow handling will tell us a lot. In the end, like most owners, I want a tire offering a nice balance of traction & wear that delivers great MPG for a reasonable price. Stay tuned for updates. Right now, I'm still trying to enjoy the final days of Fall.

- 11-09-2013 Purity & Naysayers.** There are a few that have an extremely difficult time looking forward. Still wanting to win arguments lost long ago burns them up inside. You catch a glimpse of their frustration every now and then: *"Also note that a pure series design would take a lot of the wind out of the sails for Volt naysayers. The fact that the engine connects to the wheels in some driving modes seems to create a lot of negative image issues for the Volt."* Ask yourself who cares about that anymore; even most of the enthusiasts have moved on. I pointed out: For years, Volt enthusiasts praised the purity design. Then when it was discovered that wouldn't actually be delivered, there was a huge uproar... by them, not the naysayers. The rest of us always knew about the benefits of blending and were in dismay about how that approach had been shunned. The negative image was self-inflicted and continues to be. Notice your own comment in this thread: *"Tesla feeds on the *more is better* mentality, but in the end there's really no need to haul around..."* That's another example of the same thing, image dominating discussion. It eludes to the actual problem, but ends up missing it. Heck, even a diminishing-return graph was included. The need is to improve overall efficiency. Using more electricity doesn't necessarily accomplish that. It transfers consumption from one fuel to another. The same lesser gain (diminishing return) comes from MPG. Yet, we see that being flaunted as the indicator of success. Higher is promoted as better. Real-World impact of factors like heater consumption and vehicle size aren't taken into account with graph averages. Things like weekend errand-running and trips to see friends & family aren't represented either. Everything must be improved. One size does not fit all. In other words, the hope that a small battery-capacity increase can compensate for an efficient engine isn't a real solution. With the price of oil currently at \$94.60 per barrel and gas no down to \$2.89 per gallon for some regions, it should be a wake-up call that selling high-efficiency vehicles will continue to be a major challenge.
- 11-10-2013 Always That Way.** A sign of defeat is when they make that claim. Today, it came with in an argument starting with this: *"First off, EREV has always been a subset of the plug in hybrid definition. Just like mild, assist, and full are subsets of the hybrid one."* That was astonishing to read. I was left flabbergasted. That isn't the slightest bit true. People have selective memories though. That's why I blog. Being able to easily search the past comes in quite handy. I chose to respond to that with: I have many, many quotes in my blogs contradicting that claim. They were documented back then knowing attempts to tell a different story would occur later. Enthusiasts had much different expectations. What they hoped for is not what ended up being delivered. But guess what, it doesn't matter anyway. The label continues to be vague and the official organizations have simply moved on. CARB wants significant emission reductions. *"BEVx"* is a good example. The new category is their push toward which: The vehicle must have a rated all-electric range of at least 75 miles (higher than the 50 miles required of a zero-emission vehicle); The auxiliary power unit must provide range less than, or at most equal to, that battery range; The APU must not be capable of switching on until the battery charge has been depleted; The vehicle must meet "super ultra low emission vehicle" (SULEV) requirements; The APU and all associated fuel systems must comply with zero evaporative emissions requirements.

- 11-11-2013** **Asking Questions.** That's what ultimately brought the antagonist rhetoric to an end. Everyone lost interest when they kept avoiding what was asked. Instead, they'd accuse you of what they were guilty of. It's the pattern of behavior often attributed to the end of chapter in history. In fact, you'll get accused of continuing to bring up the past because they refuse to discuss the future. I find it all quite telling. Basically, you can flush out which areas of concern they are most worried about by observing their reactions. In this case, it's the fact that Volt is no longer thought of as distinct. It's simply thought of now as a plug-in hybrid with a larger battery and a smaller body that GM is struggling to sell. Since all of the posts are taking place on the big Prius forum, you have to wonder who they think their audience is. They are supporting claims with real-world data like I would do on the big GM forum or that daily blog for Volt. Posts have been nothing but an effort to get people to not look forward... which makes sense, when there's nothing to look forward to. Think about it. How will Volt compete in a market rapidly filling up with other choices? All it has going for it is a large battery-pack. Ford, Honda, and Toyota all offer higher efficiency following depletion and mainstream consumers aren't interested in electric purity. We see Tesla & Nissan dominating the EV market. The other choices, like Focus & Spark, are barely stirring any interest. In the end, it boils down to what I had been saying all along. GM is competing with itself. When Volt doesn't stand out among the other automakers, those loyal to GM will simply purchase another GM vehicle. That choice continues to be another GM traditional offering. Malibu, Cruze, Equinox, and even Sonic are selling much better. The other offerings, like GM brand: Camaro, Captiva, Corvette, Express, Spark, and Buick brand: Enclave, Encore, LaCrosse, Verano, and Cadillac brand: ATS, CTS, SRX, XTS are all selling better too. Then when you take a look at the trucks, like Silverado, Suburban, Sierra, Acadia, Tahoe, Traverse, Terrain, and Yukon, it's quite obvious Volt barely even gets noticed. That's why asking questions works so well. They absolutely refuse to look at the big picture. By seeing that list, it's pretty obvious why.
- 11-12-2013** **Intentional Misleading.** Reading a post like this is maddening: "*The EPA rates it as 6 electric miles, the 11 mile rating is the EPA rating that uses gas to get the 11 miles. I'm not sure why most people think it's 11 miles. It says 6 miles right on the sticker albeit in a smaller font...*" I couldn't let that go, especially since it was a clear effort to reach out to a new audience on a new blogging website. I knew who it was and what he was up to: Not sure why? People keep bringing it up to confuse and raise doubt, to intentionally undermine acceptance. That should be obvious by now. We keep pointing out that the capacity is 11 miles and the fact that the EPA test breaks it from being continuous due to a hard acceleration at the 6-mile mark. The engine shuts off afterward. You continue driving along using only electricity for another 5 miles or so. On my commute taking the river route (max 55 mph), I average 13 miles continuous. In the dead of Minnesota winter, it drops to 9 miles. During the nicest days of summer, it climbs to 15 miles. So, that 11 miles is quite realistic. But it really doesn't matter. The purpose of a plug-in hybrid is to deliver a significant efficiency improvement. 1.5 years of driving mine (31,323 miles), the overall average comes to 76.8 MPG. Clearly, the purpose of the added battery capacity has been fulfilled.

11-13-2013 Moving On. The ironic nature of a person doing the most to hold back progress complaining about others doing that very thing is fascinating. We see it all the time. Do they? The contradiction should be obvious to spot. Yet, we still get this: *"Yes, I would like to move on and not continue to have past conversations."* That stirs anger, since bringing up the past is exactly what continues to happen... by him, not us. It's a not-so-typical example of a troll. The reasoning is simple too. Just ask yourself what his purpose is, why is he there? No answer to that question indicates he actually thrives on repeating conversations of the past... hence routinely bringing them back up... in defense of Volt, of course. Nonetheless, I took a stab at it anyway: What would you like to discuss? When I bring up the big picture, it becomes an all-out assault to change the topic to something other than what to sell. The most hypocritical thing I hear on a regular basis is the claim that Toyota has invested so heavily in the Prius design, they are unwilling to invest in something else. Reading that never ceases to amaze me. GM sold 42,660 Silverado Pickups here last month. How can we possibly be taking the situation seriously by ignoring that? That certainly looks like an extremely heavy investment. To make matters worse, getting acknowledgement that need requires focus on replacing high-volume traditional cars like Camry, Fusion, Malibu, Impala, Corolla, Focus, and Cruze is basically impossible. That leaves us without an audience to discuss. It started out reasonable having a profitable target being set at \$30,000. That got abandoned though. Things fell apart from there... leaving us with nothing to move on to. Past conversations were attempts to find out what comes next, to move forward. What should our expectations be for mainstream consumers, those middle-markets buyers who are simply looking to purchase a practical & affordable choice that offers higher efficiency and lower emissions?

11-13-2013 Pride & Money. We keep hearing about GM's desire to compete directly with Tesla. That doesn't make sense without context. Supposedly, that means a 200-mile EV for about \$30,000. Who will the market be? Wasn't the goal of Volt to reach the very same consumers or is this something that somehow still has range-anxiety? With all the anti-EV campaigning of the past, it's really uncertain knowing what to actually expect... which is the very problem Volt had in the early days of development. Remember how all those vague & ambiguous statements led to false hope & disappointment? What about all the hype in the meantime? Someone tried to be the voice of reason today, but an example of Volt becoming a higher performance vehicle clouded judgment. It's history repeating yet again! Remember all the excitement about 0-60 times? Ugh. Anywho, this was the comment: *"GM does not need a hotter Volt, it needs a cheaper Volt with one more seat. Given the low sales, it's hard to imagine GM putting a lot of resources into Volt features that won't enhance its mainstream appeal."* I joined in with: GM's resources will be focused on where the profit comes from. 42,660 sales of Silverado pickups last month were purchased last month. That's what provides business-sustaining revenue, which means it will continue to get the attention to maintain sales. How Volt will compete with that is a mystery. Funding a low-volume seller is a very real problem. It must change in some way to attract significantly more buyers; otherwise, it will remain a niche offering. Like it or not, that's the situation Volt faces now. Cheap gas and a growing array of choices of other automakers is a sign of greater challenges to come. The advice to just wait for the next generation to work out issues is very risky. Time is working against Volt. Talk about an SS model is a step in the wrong direction.

- 11-14-2013 Choices & Reality.** Needless to say, my comments went nowhere. Certain people have no problem dismissing facts and ignoring the big picture. That still amazes me, no matter how many times I encounter it. Hope is great. But hope without consideration of the situation is a recipe for failure. Oh well. I keep trying: Don't you see the pattern? Seriously. It's played out several times now. Maybe that isn't obvious, but the lack of any conclusion should be. It's a worldwide market which is actively changing. Toyota's improvement goals cannot be achieved on paper. So no matter how much you speculate, it just plain doesn't matter. That avenue has already been exhausted. There's nothing left. Everything that could possibly be tested in a testing environment already has been tested. Understand why Toyota's choices were made? They selected the best approaches for each audience based on research information collected and released each configuration into each region. It's real-world data that will influence the next decisions. They will observe and adapt. No amount of online posting will change that reality. The "best" arguments just plain don't work. With all the driver, traffic, distance, temperature, and other differences, there's simply no other way of finding out what's effective without actually trying. So, that's what they're doing. See it now?
- 11-15-2013 Defensive Spin.** The big GM forum is dead, there's no Volt discussion there at all anymore. It's as if the vehicle never even existed. Considering the participants are strong supporters of GM, that says a lot. They've clearly moved on. What had once been the premiere source of information for Volt, as well as the biggest contributor to hype, has grown very quiet lately. It's not silent, since content from the host website posts a copy of articles there too. But the focus is on the industry in general. There is literally no outlook anymore for Volt itself. This is why the antagonists only post on the big Prius forum now. They've turned to defensive spin. Nothing constructive comes from them anymore. At least in the past, there was some sense of direction. That's gone now. This is why I pushed so hard for so long for goals. Even if they weren't met, at least they'd have something to keep focused on. How do you promote a vehicle without a clear purpose? All those mixed messages and stance changes wrecked any aspect of cohesion they had built up. There isn't anything left. Starting from scratch next year should be interesting. Wait for a new audience. Plant a new idea... because the seeds of doubt certainly didn't make any difference. Prius remains strong. They didn't like how I concluded that long exchange about purpose either: Goals were clearly stated. Goals were clearly met.

11-16-2013 **Final Spin.** The rebuttals went no where. It's clearly over. I'm looking forward to next year. Something tells me they are not. This is how I concluded the exchange: Reading claims that the plug-in Prius had different goals is quite vindicating. It's easy to spin now, long after the fact. But I documented what was said back then, in great detail. I know how Volt was hype to deliver 50 MPG after depletion and a 40-mile range prior to that... all for an affordable & profitable price. Instead, cost was much higher, range took a massive hit in the winter, MPG afterward was much lower, and the engine didn't even achieve a green emission rating. Seeing Prius hit much closer to the mark and also be a larger vehicle makes it understandable why some would go to great lengths to preserve reputation. We even knew the damage-control effort would be so thorough, some would accuse Prius supporters of doing the very same thing. Fortunately, we know what actually happened. We know what is happening now. There isn't even much to argue with either. One of the complaints about the Volt design early on was its lack of flexibility. The platform took a one-size-fits-all approach. What business could thrive with such lack of diversity? The topic here is sales. Toyota has delivered an array of engine, motor, battery configurations. That variety of offerings has worked well to confirm the HSD design. The next step has been taken by expanding battery choice and including a plug. We see Ford striving to do the very same thing. Honda would like to as well. That leaves GM in an awkward position without a clear direction of how to proceed. Options are quite limited. That's why there is so much resistance to discussion about 2014.

11-16-2013 **New Spin.** With all the usual venues exhausted, the only outlet for comments is on the blogs for general audiences. With those, you get a very diverse set of participants. Like usual, detail & follow-up are almost non-existence. Nonetheless, it is intriguing to read what gets posted: *"Ugh, Toyota, seriously... what is this, some kind of compliance car or tax credit grabber... a 10 mile range is just barely useable, almost not even worth plugging the car in for. I don't understand the rationale behind designing it this way."* That was in response to the CARB proposal to limit ZEV credits to vehicles able to deliver full EV for a minimum distance. Since that approach doesn't take overall emissions into account, there is obviously some opposition. Challenges to the proposal are emerging, with Toyota being the loudest voice. Being well aware of design tradeoffs, focusing on technology rather than outcome doesn't please. Setting clear criteria makes sense, but at the cost of this isn't worth it. To be specific, the vehicle must unconditionally deliver full EV for the first 10 miles. I wouldn't like having to sacrifice capacity for that. It would be the loss of a "hold" button, increasing the speed threshold, and requiring electric heating. Why would I want to give up the choice of starting the engine sooner to save EV for later? It's with good intent. But the results would be a net loss. I responded to the comment with: The rationale is simple. The plug improves efficiency in an affordable way for the masses. I've been averaging 76 MPG with mine over the past 1.5 years (33,000 miles). That's an undeniable improvement over the regular model Prius, while still being able to carry large cargo in back. Efficiency after depletion is improved a little too.

11-16-2013 Delay Excuses. The beginning of this year brought hope. Ford had just rolled out the Energi option, their plug-in hybrid design. It introduced an unknown into the market. In the past, Toyota had throttled back plans to allow friendly competition to get a foothold first. That made sense. Why fight another vehicle with the same purpose? After all, sharing goals is how industry changes. The catch is, delay cannot be too long. Waiting until 2014 rollout for plug-in Prius nationwide availability made sense. Ford supporters appreciated that. Volt supporters took every advantage to exploit & undermine instead. The difference was striking. But with the next generation of Voltec planned for rollout at the same time, they had reason for that smug. Then they found out it wasn't actually going to be an upgrade (as they had coined it, the "1.5 version"). That news caused a great deal of upset, resulting in retaliation... using Toyota as the scapegoat. It was a sad display. To make matters worse, it meant increased competition. But later was all they could hope for. So, we got a slew of delay excuses. In the end, it boiled down to lack of diversity. GM decided to invest in a loss-leader, spending money on a low-volume vehicle for "*halo*" benefit. Even the most staunch of Volt supporters knew how bad that looked. GM was clearly not following the path of Toyota; the biggest delay excuse they had been using was discredited. Oops! I summarized that disenchantment with: Highlander & Camry were the variants that followed... both were middle-market vehicles... in a format quite different from Prius. One was a SUV with AWD and the other a top-selling family sedan. It's 3 years later. Rather than the next rollout being a variation of Volt configured to reach the masses, we get Cadillac ELR. What the heck?

11-17-2013 Divided Support. Now that Volt enthusiasts basically no longer exist, having been replaced by true supporters, it's easy to see there's a clear mindset divide. On one side, you've got those who have went to great lengths to describe the design & operational detail of the system. Complete with diagrams and even patent references, we have been shown Voltec is the successor to Two-Mode. Having been told GM would eventually reconfigure it for use in smaller vehicles, that makes sense. There's no conflict or contrition. They accept that as natural progression of the technology. On the other side, there are those who absolutely insist Volt is brand new, that nothing GM had done in the past applies. Seen as a fresh start, they figure it should be given at least 5 to 6 years before any mainstream expectations can be made. Separation, in their mind, provides an excuse for delay. Promises of the past don't matter. It puts them directly at odds with those other Volt supporters. As a result, the behavior is to not acknowledge their existence. Instead, they claim any remarks made on their behalf are really just defenders of Toyota and the plug-in Prius. I find that divide fascinating. It means there will be arguments about approach & goals to come. Watching that play out, while Toyota steadily penetrations into middle-market along with Ford and possibly Honda, will solidify the best-of-both-worlds decision. Striking a balance, to take a decent step forward without over doing it, is what's needed. Meanwhile, there will be Volt struggling to send a message to consumers, who will get negating claims from divided supporters. Ugh.

11-17-2013 **Realistic Focus.** Random comments like this make you wonder: "*The Volt is becoming more and more an attractive offer.*" Some people make assessments based solely upon observation. They don't actually research. They assume what they encountered is a true reflection of technology advancement. Being unaware of market influences is nothing new. That's why expectations are so often a complete disconnect from reality. Of course, some people have the perspective of an individual purchase and simply aren't interested in what everyone else has to contend with. You never know. So, I responded with a question: The current MSRP from GM isn't profitable yet though. So, don't expect it to be an option for the masses... unlike with Toyota's approach. Volt is also considerably smaller in back too. Legroom and head positioning simply cannot compete with the larger interior Prius PHV offers. The ability to carry large cargo doesn't compare either. As for the "AER" rating. People continue to overlook the actual kWh capacity. That's what matters, not whether or not EPA testing criteria is perfectly matched. In fact, people use to complain about automakers rigging their configuration to deliver maximum EPA rating results. Kudos should be given to Toyota for not doing that. The point is to use the electricity available most efficiently. Delivering a pure-electric experience under all driving conditions doesn't actually do that. Looking at real-world data, we see the overall benefit of blending... which sadly, the proposed ZEV credit qualifications don't take into account. Setting a minimum sounds realistic. But is it really worth it if the electricity isn't used effectively? Shouldn't we focus on best use instead, especially configurations with high-volume sales potential?

11-18-2013 **Basic Accounting.** With the discussions of Volt pretty much dead now, it's nice getting back to the basics. I was thrilled to finally see this emerge: "*In terms of basic accounting though, products that incorporate new technology or a novel concept generally aren't profitable until the second generation.*" Of course, I don't expect much to actually become of it. But at least the mind-numbing circular arguments aren't getting traction anymore. It certainly would be nice to get thoughts on 2014 sales & promotion. But that isn't realistic considering the lack of options available... and we know what blind hope leads to. What should we expect? I'm seeing market preparation (education, attitude, charging stations, etc.) swinging favor toward Prius PHV. The ordinary consumer is looking for a plug-in option, one that's simple & affordable. I don't hear the claims of greater capacity being a necessity from that audience. It's much like the enthusiasts of the past. They don't understand how mainstream purchase priorities are different from theirs. They lose touch with those who don't put a great deal of importance on their vehicle. Transportation that's focuses on being well-balanced & practical is what sets them apart from being enthusiasts. Why can't they see that? Anywho, I simply responded with: The catch is, that wasn't the plan for Volt. GM had planned to hit mainstream volume in the third year. They even stated a production capacity target of 120,000 with the hope of actually needing it. Falling well short of that with sales and the drop in MSRP raises good reason to ask what the intent is with the remaining years of the first generation.

11-18-2013 Dropping Temperatures. That stirs lots of participation online. New owners are especially vocal. Some are quite intrigued and willing to purchase an aftermarket gauge to learn more. This is the information I provided to one such individual today, who asked specifically about coolant temperature: 195°F is the norm for full warm operation, the usual sight for summer driving. Your observation of 190°F (88°C) is typical this time of year here. (I'm in the Twin Cities, like you.) It may or may not get higher. That all depends upon the conditions outside, travel speed, distance, stoplights, heater & defroster use, etc. Having an aftermarket gauge showing coolant temperature allows you to know what will happen when, allowing you to take advantage of heat that otherwise may have been assumed was unavailable. Avoiding engine use causes some owners to make unnecessary sacrifices. Watch what happens at 145°F in NORMAL mode with the heater on. The engine will start when it dips below that. Simply by switching to ECO mode, the engine shut back off. It's because that mode lowers the threshold to 114°F. Did you know that? Blocking the grille helps with heat retention. You'll discover how valuable that is in 2 months, when the bottom drops out on the thermometer. Fortunately, Prius still delivers great efficiency, despite low temperatures outside. In fact, watching coolant on the gauge, you'll see that EV is available even then. Add RPM values to display on the app. You'll find the MG1, MG2, and Engine values quite informative. The system is much more dynamic than most people realize. Those two motors interact with the engine in a variety of ways and their RPM frequently changes. The system takes full advantage of having a power-split-device. Enjoy that new tool for learning more about what happens behind the scenes while driving a Prius.

11-18-2013 Industry Resistance. What a great topic. Automakers fight change. We see that all the time when it comes to regulations. They'll kick & scream even to do just the minimum. Example are abundant too. It's sad. Ironically, Toyota has actually worked that to their advantage with respect to Prius. Think about how unstoppable the advancement of Prius has been. There's simply too many ordinary people that purchase them. Those are the consumers who just plain don't care about the rhetoric. For that matter, they don't even follow it. Their purchase decision primarily comes from checking out the car for themselves. Stopping at the dealer for a close up inspection and a test-drive convinces them to buy. It's a simple formula... deliver something practical & affordable. The hype surrounding Volt was amazing. I kept asking the "Who" question in dismay, wondering how that could possibly appeal to someone from middle-market. It was a vehicle with characteristics which didn't match that of other mainstream offerings. How could something so different attract enough sales? The efficiency and green approach has drawn in many for closer looks. The midsize seating of Prius and generous cargo area won them over. Adding a plug requiring nothing more than the same knowledge & outlet required to recharge their phone as a package comparably priced with other upgrades option positions it for mass appeal. Where's the resistance going to come from with that? What good would it do for other automakers to resist offering something similar? If they try to step it up by offering a system with larger capacity, it would act as an endorsement for Prius... confirming the addition of a plug is safe & reliable. Notice how the computer industry thrives on purchases of products with well-balanced features? Only the dedicated purchase systems with large capacities (storage & processor). The major just get something in the middle. How is the automotive industry any different? Think about where production & profit are focused.

11-20-2013 Morning Commute Video, appdata. Prius uses a power-split-device to allow the interaction of 2 electric motors and a gas engine. Each operates independently to take advantage of efficiency opportunities. Some are quite brief, a few seconds. Others can last much longer. Being able to adjust RPM is how the system achieves improved use of the energy available. With the regular Prius, that means all energy is ultimately derived from gas. Yet, much improved MPG is delivered anyway. Having the ability to quickly adjust is the key. Adding a plug, like the PHV model of Prius offers, further expands upon those opportunities. Most people have no what actually occurs when that happens. This video will help to reveal what those motors and the engine actually do. At times, you'll see the engine off while the MG2 (the large traction motor) provides propulsion. Other times, you'll see the engine provide some power. That power is directed to both the vehicles wheels and to MG1 (the smaller motor, which operates as a generator). When coming to a stop, MG2 becomes a generator to capture the unneeded kinetic energy. It's all an interesting dance of energy flow, continuously changing. It's also important to keep in mind that the primary purpose of Prius is to deliver cleaner emissions. The system will sacrifice some MPG for the sake of reducing pollutants from the engine. This is achieved by cleansing, using heat. That's what makes knowing the coolant temperature so important. Engine heat is used by the emission system. When it is cold outside, engine heat captured by the coolant is what warms the interior of the Prius too. SOC is the battery-pack's State of Charge. 85% represents "*full*" and 23.5% represents "*empty*". Not actually recharging the battery-pack to 100% or ever depleted to 0% helps to prolong its life. Either extreme is stressful on the chemicals within. So, the system goes out if its way to avoid that. Watch the video of my commute to work, presented at 5 times normal speed. Note the outside temperature of 25°F, which marks the early signs of Winter here in Minnesota. Parked in an unheated, but insulated, garage overnight is why the coolant shows a little bit of warmth. The engine is still ice cold when I enter the ramp for the highway. Fortunately, it warms up fairly quick. At the end, you'll photos of the dashboard displays in the Prius. They show a summary of the drive. In this case, the 16.8-mile trip resulted in an overall efficiency of 128 MPG. That works out to about 0.13 gallons of gas and 3 kWh of electricity (including charging losses). Note that the average-speed value measurement includes the time while the Prius is stopped, waiting for a light to turn green. Lastly, that screen showing the on-going data while I drive is video of an application running on my phone. It's connected to the Prius OBD-II port using Bluetooth. I setup a camera to capture that information, then just combined it with the video of the scenery from a second camera afterward...
[video: Morning Commute \(appdata\)](#)

11-21-2013 Stalled Interest. The blog has been dead, nothing seems to stir any movement... even a provoke. No one knows where Volt stands anymore. It has befallen to silence. Today, there was a new article about ELR, the Cadillac variant. The topic was it offering a "smart-grid ready" feature. Being so far removed from what ordinary consumers seek, it was no surprise this popped up in the discussion: *"Too bad GM didn't give the ELR more battery range than the Volt instead of all the stuff that doesn't really matter. For the price they want a bigger battery should have been part of the package."* That peaked my interest. Would responding result in anything constructive? That's unlikely, since the blog is known for down-voting facts. Who knows how or even if anything will come. Heck, even on the big Prius forum the discussions of Volt have stalled. Pretty much everyone has given up. So, I posted: With such heavy promotion of the "40 mile" range importance, offering more would undermine the technology. After all, there were quite a few mixed messages and a serious lack of clarity in the past. The last thing GM wants to do is contribute to that again. Put another way, they've backed themselves into a corner with respect to perception of the technology. Advertised as an EV with engine backup and falling short of the growing 50 MPG expectation, options are limited. So, we are left waiting for the next generation, an uncertainty period which contributes to other automakers building recognition of their own offerings in the meantime. Volt was a rollout with lots of risk, depending upon a quick market shift to electric. That hope didn't pan out. The concerns of cost & acceptance were proven to be factors which should have been given much higher priority. GM is stuck having to backtrack and offer creature-comforts while we wait.

11-21-2013 31.1 Million Shares. There was much celebrating today. First quarter next year was the expectation for the final sale of the last remaining share of GM still in possession of the federal government. No one really knew how long the selling process would actually take. So, it was quite a surprise finding out there was only that many left and they would be sold soon. Of course, put in perspective, that's still a lot... but nowhere near as much as the 500 Million originally purchased. GM supporters hated the stigma those shares caused. It was this dark storm cloud reminding everyone of their unfortunate past. I didn't care for them either, but my perspective was that of a reminder to the desperate measures the pursuit of profit caused. The bankruptcy was ugly. So, the shares were necessary. Sadly, we are seeing some of the same problem emerge again. Heavy emphasis on money from Pickup & SUV sales is the worry. It's a red-flag, a behavior matching the past all too well. Lack of balance is the heart of the issue. Not offering a diverse product-line should be concern for a major business. Being able to self-sustain depends upon that; otherwise, it won't be protected from market shift. In this case, it's the focus to fuel efficiency. What choices are available? GM has a massive gap between their traditional vehicles and Volt. That continues to be a very real exposure. At least the burden of being partially owned by the government is no longer an issue.

11-23-2013 Engine Use. When you first get a plug-in hybrid, you are overcome by the insistence too avoid engine use. It's a natural response. The smoooooooooth silence of just gliding along on electrons is quite fulfilling. But when the vehicle as has an engine and battery-capacity is limited, you know that gas will inevitably be used at some point. Understanding when become a question frequently pondered. Eventually, you end up making a comment just like this one in a post today: *"My view, now, is that we spend more energy than is deserved worrying about the ICE starting."* I replied with: That sums up the situation well. The point of being a PLUG-IN HYBRID is often lost to the perception of EV being the ultimate goal. The point is to deliver the best balance of features, not to maximize electricity use. My commute home this evening started with 7.7 miles of EV, despite the temperature only being 28°F outside. So what if the I was able to climb to steep hills and drive along at 50 mph without the engine starting. That's nice, but the entire trip was 17 miles long and I needed heat after awhile. So, I fired up the engine on the 55 mph portion. When I got home, the average for the day (recharging both at home and at work) was 118 MPG. What reason is there to be disappointed about that? Heck, it was only 19°F on the commute to work this morning. What other vehicle the same size & cost could deliver that under those conditions? Let's not forget about overall emissions either. Engine heat is also used to cleanse what comes out of the tailpipe.

11-23-2013 Expiring Leases. Many have wondered what would happen when those first drivers of Volt had their leases expire. The 3-year option back then was a steal of a deal. GM celebrated conquest sales, not taking into consideration what would happen afterward. The gamble was the market would be so good and resale value so high, the choice to purchase or lease again would be a no-brainer. They allowed sales opportunity to slip away in favor of pushing that particular configuration. It didn't work out. Now we are getting reports of some of them switching over to C-Max Energi. It works out to a reasonable balance of power, range, efficiency, and size... which is why Ford has always been considered an ally rather than a foe. They didn't make sacrifices as much as GM. It's sad that extremes were used for promoting Volt. The cost of that is not making itself apparent. Not being able to keep consumers from leaving is a very real problem. Volt retention was assumed. The same is actually expected for the plug-in Prius, but purchases were focused on instead and the timing is much better. After all, national rollout hasn't begun yet and the next generation will be available prior to expiration for those who actually do lease. Anywho, GM wasn't able to attract many who were replacing an old GM vehicle. That hasn't been the case for Toyota. We've seen that former Toyota owners switch over to Prius. That transition from traditional to hybrid is a big deal. Offering a hybrid with a plug helps further the reach, reducing market size of choices we want to phase out. I'm intrigued to read about more lease expiration choices. Deciding what to get is a big deal. That's why consideration of more than just the here & now has been an on-going theme. Whether enthusiasts like it or not, winning battles doesn't mean you'll win the war.

11-24-2013 **Rewriting History.** Here is yet another attempt: "*Notice how long it took the Prius to catch on. Our resident Prius blabbers conveniently forget how long it took for hybrids to be a common sight on our roads. It wasn't until the 2nd gen Prius (2004) that hybrids took off in popularity.*" You have to wonder how much of that they now believe. After all, if you repeat a lie often enough... Needless to say, I wasn't about to allow such obvious greenwashing to take place... especially when it's just an effort to defend struggling sales and falling short of several design goals. There's no excuse for misrepresenting competition anyway. Doing it by rewriting history is pretty desperate too. They only do that when nothing else works, when all other options have been exhausted. My reply to that was: There's nothing to forget. That isn't what happened. Toyota strictly limited availability. They only planned production of 15,000 in 2001 and 20,000 in 2002 for our market. There was never any intent to provide more. The high-volume wouldn't come until the next generation. People ended up on long lists waiting for delivery as a result. The 2004 model (delivered late 2003) was quite different. Right from the very start, the plan was to remove the limitation and deliver as many as the market demanded. There wasn't a generous tax-credit either. For that matter, there wasn't even any competition. Gas was cheap too. Of course, knowing the true history doesn't really matter. Claiming Volt will take off when the next generation is delivered provides confirmation that the expectation in the meantime is continued weak sales. It's by no means a guarantee of high-volume later either.

11-24-2013 **Intentional Confusion.** The level of greenwashing we witness at times is truly remarkable: "*By the way, there seems to be some confusion about the range of the Plug-in Prius.*" That statement seems innocent enough. To the casual reader, they have no clue it was an intentional effort to confuse. It's the same nonsense by the same few individuals over and over again. No matter how much detail you provide as a rebuttal, even video of an entire drive, they continue to flat out deny the information. Some just plain don't care. This is nothing new. We've heard many, many, many stories over the decades of salespeople saying whatever they want to prove a point. But online, there's accountability. It's easy to reference and follow up. So, you'd think they'd be more careful. They try, by being excessively vague. You know they got the message. You know they've seen the facts, You know they decided not to accept them. The only recourse is to posts a response. I did to that today: We've been through this countless times already. By not explaining what is actually meant, posts just like that add to the confusion. No definition of what "all-electric" or "blended" refer to makes the situation worse. The plug-in Prius offers a battery-pack with capacity of 4.4 kWh. That allows owners to drive around 11 miles total. Sometimes the engine starts. Sometime it doesn't. You still get the benefit of the electricity regardless of whether or not those miles are continuous. It amazes me to no end that no matter how many times onstructive information is provided to end the confusion, the spreading of misleading content persists. The plug improves emissions & efficiency. What the miles are labeled as makes no difference. That goal is still achieved.

- 11-24-2013 Failure Fallout, summary.** These are strange times. Volt, as it currently exists, is pretty much dead. Niche purchases will continue, but expectations of mainstream acceptance are long gone. Supporters are finding ways deal with the wait for the next generation. Enthusiasts have basically vanished. The rest of the online community have moved on. The auto show season has begun. Posts are on other offerings from other automakers. ELR, the Cadillac enhancement of Chevy's Volt, is stirring nothing but negative criticism. So, focus on that is unwelcome. Disappointment is unanimous. Fortunately, that doesn't mean the idea of plugging in a hybrid has been abandoned. It just means the expectations are growing more realistic. The timing works out well for Toyota. Their decision to wait seems to be getting some vindication now. GM took a risk and failed. There's nothing stopping them from trying again. But next time, they'll need to join the rest of the industry rather than burning bridges... again. I'm looking forward the changes 2014 brings.
- 11-26-2013 Failure Fallout, bad.** Unfortunately, there is some hate still. That's happens when what you devoted a great deal of effort toward ends up failing. Not everyone moves on as quickly as others. Some people need more time. Some people need to say their piece. Some just want to go down fighting. Some choose to outright lie, to spread misinformation, to greenwash. This example makes that point all too well: *"Either way you compare, the Volt currently has about 6 times the range of the Plug-in Prius."* I was amazed that anyone would be so bold to post a claim so easy to disprove. But when you are truly desperate and have nothing to lose, I suppose he figured what the heck. I posted the following, then waited 2 days and followed up. Here's both: Adding that information after I posted a response was quite a surprise to see. It's neither constructive nor accurate. Volt offers about 62% usable capacity from its 16.5 kWh battery-pack. Prius PHV offers the same, about 62%. But taking that value from the 4.4 kWh battery-pack is not even close to 6 times. It's only 3.75 times... $(16.5 * 0.62) / (4.4 * 0.62)$. 2 days later, still no acknowledgement of the blatantly incorrect claim. That's unfortunate. But it does serve as yet another example of the greenwashing we've had to deal with. Looking at facts, things just plain don't add up. Comparing another way... $(38 \text{ miles} / 11 \text{ miles} = 3.45)$ That isn't close to 6 times either.
- 11-26-2013 Failure Fallout, good.** Thankfully, there is a bit of redemption. When one of the biggest troublemakers ends up posting this, you can breath a sign of relief: *"BTW, one thing that irks me is that GM should have built the Volt on Epsilon II instead of Delta. Had they done that they'd have easily convinced people the price was acceptable. A car the size of a Regal or Malibu would more easily justify in everyone's eyes the \$40k price tag. And, it would have much more room. I doubt there'd have been that big an impact on range, either."* He has posted over and over again how the current compact size was just fine. Clearly, there's been a major change of heart. Over and over again I pushed the importance of appealing to the Malibu buyers... getting shunned & ridiculed each time. Now, he acknowledges it was a good idea after all. Remember all that concern about *"too little, too slowly"* we repeatedly warned about? Not understanding audience until well after rollout is costly & unfortunate. It will end up being an extra 7 years. Talking about lost opportunity. Oh well... better late, than never. But then again, competition is increasing and tax-credits won't last forever.

11-27-2013 Failure Fallout, sensitive. There was a discussion today about the growing threat Ford presents. Their plug-in hybrid delivers a top electric-only speed of 85 mph. That irritates Volt owners to no end. They were able to easily dismiss Prius PHV simply by pointing out the slower limit of 62 mph. But with C-Max Energi, the vague definition they used to distinguish Volt has completely fallen apart. Now that some plug-in hybrids are matching criteria or even exceeding which was only supposed to apply to EREV, they are at a loss about how to respond. Rather than just striving to offer the best plug-in hybrid, they wanted an entirely unique category. Each time the topic was brought up, they'd immediately dismiss it. No comparisons, period. That's yet another self-inflicted wound, something which could have easily been avoided. But when the goal is to achieve bragging rights, getting blinded by things like that is easy. After all, a goal like high-volume sales would take away from any distinctiveness. Being common isn't what they really ever wanted. So, any reference to mainstream stirred emotion. They yearned for something above & beyond all else... but failed to get it. From that new thread, this particular quote stood out: *"I'm hyper sensitive to any comment implying the position that the Volt is not superior to short range plug in..."* That mindset of wanting to be vastly superior obviously still persists.

11-29-2013 Failure Fallout, voices. Those few particular individuals I keep quoting have become well established online spokespeople. The rest of the members are enablers, cheering them on when they post misleading information and insult those attempting to provide clarification. They are the voices for what Volt has evolved into. Nothing else stands out anymore. Those mixed messages of the past prevented anything actually constructive from getting a foothold. We have no idea what the heck the purpose is anymore. This quote posted today from one of those individuals summed up the situation well: *"If Volt drivers are only getting 75% EV then the Volt battery needs another 5-10 miles of EV range to bring more drivers under the bell curve."* Notice how he used the word "If" to lead the discussion, even though it is well proven that the actual percent is much lower. The article clearly points out 62 percent from real-world data collection. That means even greater EV range would be needed. Of course, the very realization that the 40-mile range didn't actually fulfill requirements for owners undermines the supposed core goal of Volt. That number was hoped to be nearly 100%. Missing the mark by that much, especially with early adopters, is quite disheartening. They had promoted the *"range extender"* as an emergency backup... not a feature that would be used so routinely. Then when it was confirmed that the MPG it provided was sub-standard for a hybrid, they made even more of an effort to downplay the role of the gas engine... hence those voices emerging. Now, 3 years after rollout began, real-world data is making them look bad, really bad. And with a group holding pride with such high regard, that hurts, really hurts.

- 11-29-2013 Cold EV.** Yesterday, the Prius sat outside unused for a little over 9 hours. Capacity remaining was estimated at enough electricity remaining to travel 6.7 miles. It was 9:30 in the evening when I left. The condition outside was a blustery 18°F. Since I was dressed well and was out in the garage working before having left, all that would be needed was the seat-heater set to high. The drive consisted of several blocks of 30 mph travel (roughly 1 miles), then a turn onto a 50 mph road. That became a long 45 mph stretch with several stoplights, a few which caught be with red. 5 miles into the journey, that electricity had all been used up. At no time while driving those 5 miles did the engine start, despite the cold. That leaves me scratching my head wondering why some owners state their experience is quite different. Their engine starting even with the heater off and EV still available. The only thought that comes to mind is the battery-pack has a short opportunity to warm up prior to needing a faster speed. (Note that I have the entire lower section of the grille blocked, the top is entirely open.)
- 11-29-2013 On-Going Improvements.** I certainly liked reading this today: *"It does 36.4 km per litre in the Japanese cycle, but the new Aqua will top that with 37 km/l, says Toyota. They eked out an extra 1.6 km/l by reducing frictional resistance in the engine and improving motor control."* That information was the highlight of an article published about the new model year of Prius Aqua (known as the "c" model here) now available in Japan. It's a big deal since competition in Japan is so much higher with hybrids, where they strive to squeeze out improvements at an on-going basis. We don't see that here. Our market doesn't place as high of a value on engine efficiency; sadly, the bar for actual MPG is set much lower too. So, we typically only get updates from the rollout of new generations. This is what I posted on the discussion thread about the news: Minor system enhancements along the way are always nice to see. It certainly is a welcome change from the old school perception too. Remember the days when any revision to the design following rollout was given the stigma of having been delivered with a defect? The competition would spin any update as a shortcoming being fix. But now with software updates on our phones becoming routine, the thought continuous improvement is coming an expectation. Heck, even the idea of plugging in at night isn't a big deal anymore.

12-01-2013 **Unbelievable.** To think it would have come to this. That's unbelievable. Yet, it did indeed happen. Being able to look back at the chapter now closed is great. But not everyone sees it the same way: "From 2007-2010 many naysayers thought the Volt was just vaporware. This was actually a very prevalent feeling back then. That's why GM made some design decisions that were less than optimal to get it out on time. The result is a fantastic car (I love my Volt), but its heavier, more costly, and less efficient than it could be. That's why the Gen2 Volt design will probably be a very different. They now have time to optimize things properly." The twisting of events is nothing new. People have differing perspectives anyway. Some just don't want to see that. I'm happy to point them out: Those supposed naysayers already knew the engineering was realistic. That wasn't ever contested. It was the timeline that brought about the vaporware claims, not if the technology itself was possible. Delivering all that had been promised by the end of 2010 was the argument. So much was expected in just a few years, they were in dismay about the reckless attitude. There wasn't anything to support the ability to produce & sell a high-volume plug-in for a profit. Hope blinded the faithful. Refusal to acknowledge the mountain of evidence showing expectations were unrealistic for such a short amount of time caused posts to turn into hype. Cheerleading drowned out the voice of reason. Constructive discussion became impossible. Then when the end of 2010 arrived, reality of the situation became overwhelmingly clear. Lessons of the past had not been learned. It was yet another example of "*over promise, under deliver*". Those having made the vaporware claims were vindicated. Damage control caused focus to rapidly shift over to the next generation. The current would limited to enthusiasts. Mainstream ambitions were delayed. 3 years later, attempts to distort that unfortunate history continue. But at least expectations for the future have become realistic. The painful experience of recognizing the difference between want and need is over. Fallout consequences are being overcome. It is now understood what those vaporware challenges actually were and what they still are. Hope has finally replaced hype.

12-01-2013 Out Of Time. Reality has come crashing down to such an extreme, even those attacks that come from the posting of disenchanting facts have vanished. Starting the 4th year of sales for Volt has brought about the acknowledgement that it has not and will not achieve mainstream acceptance in the next few years. That challenge has been overwhelmingly transferred to the next generation, following initial rollout. Not only must it achieve the goals set, it must also garnish accolades from owners... which takes time, a lot of time. That's why this question was asked today about it taking so long even for just the goals themselves to be confirmed: *"How much time did GM need?"* It really makes you wonder how executive decisions were actually made. We know that the pursuit of profit and the draw of praise can lead to trouble. But you'd think they'd learn from the mistakes of others. Apparently, not. I chimed in to that question with: GM still hasn't decided who the market for Volt actually is. Continued mixed messages about intent holds back progress. How can the next step be taken if they don't even know which direction to go? With BMW, we see clear intent. The i3 offers a small, minimum power engine with a small, minimum range tank. Its purpose is for non-routine drives, when the owner goes outside the usual distance traveled. There are obvious tradeoffs to that configuration, but at least the audience is clear. With GM, we still don't know who the heck will be targeted for the next generation model of Volt. The current ended up for enthusiasts only, not reaching mainstream consumers as originally hoped. Some of that came from not specifying purpose. It was always just a vague reference to electric-only driving. What does that mean from the business perspective? Will the approach really be to only offer a plug-in as the high-efficiency choice, without anything to compete against regular hybrids? That lack of diversity should be a concern for those wishing to see on-going profit. It means high-volume production & sales is required. It also means having an outlet available is required. Why does GM still need more time? Who's making decisions now? When will we get answers to questions that should have been cleared up many years ago?

12-04-2013 November Sales. The entire industry did fairly well this month. Economic recovery is undeniable from this aspect of revenue exchange; however, there were many warnings about it not lasting. Truck sales are through the roof, very strong. Much of that is claimed to be as a result of the construction industry finally making long postponed purchases. New equipment, like pickups, are the kind of financial burden easily delayed. But at some point, there comes a time. That time appears to be now. For the automotive industry, that's good news. The vehicles are very, very high-profit. That puts the spotlight on Ford & GM, leaving the hybrid cars to survive without any attention. That's a challenge when some are being sold below cost, at a loss. Volt clearly falls into that category. And to my surprise, not a single thing was said about it. This is the first ever month totally silent. None of the antagonists said even a peep. That's quite the confirmation of market. It's stuck as a niche until the next generation. Meanwhile, I got a mass-email advertisement from my local dealer listing the hybrids they are selling. The plug-in model Prius was listed. Hmm? Are they expecting delivery of their first soon? That would be right on time for the arrival of the 2014. Needless to say, I'm intrigued. There haven't been any available anywhere in the Midwest. They are still limited to just the 15 initial rollout states. Anywho, there are some sales numbers for November published now. This is what we are aware of so far: 9,801 Prius liftback. 2,227 Prius v. 3,001 Prius c. 1,100 Prius PHV. 2,003 Leaf. 1,920 Volt. 2,398 C-Max. 941 C-Max Energi. 870 Fusion Energi. 68 Accord PHEV. 1,031 Civic Hybrid.

- 12-04-2013 Remember October 1997?** I really enjoyed posting this reminiscence of the past: Toyota revealed Prius then. It was an amazing technological achievement, all done in secrecy as a result of having been excluded from the PNGV program. They decided to develop an high-efficiency design on their own... and passed the Detroit automakers in the process. They had a fully functional vehicle already. That wasn't the shocking part though. What amazed the world was the announcement that it would be available for sales just 2 months later. Think about that when you consider what Toyota's next steps may be. They have a diverse & profitable offering which continues to be improved. That ultimate goal of replacing traditional production is growing more and more realistic.
- 12-04-2013 Statistics.** When discussions are led with stating percentages, be wary. There's reason to be concerned. It's easy to mislead when the numbers to provide perspective aren't also included. In this case, it was: *"The Volt's November numbers represent a 26.4 percent increase over 1,519 units sold in November 2012."* Notice the complete absence of scale. It's only a comparison to itself. No consideration for the market itself is taken. Lack of context is a key of greenwashing. Anywho, I sounded off with: With a \$5,000 price drop, shouldn't growth have been quite a bit more than just an increase of 400? After all, the monthly sales expectation set 2 years ago was 3,750 per month... which was under the mainstream minimum of 5,000 per month. 1,920 still falls well short of either. If GM had a plan "B", some other method of advancing the platform, it wouldn't be so bad. Suggestions of offering a model with a smaller capacity battery and an engine tuned more for efficiency fell on deaf ears. GM chose to invest in ELR instead, a much more expensive configuration trading off efficiency for luxury. Where the heck is high-volume production that had been hoped for? 18,200 Cruze. 14,405 Malibu. 13,418 Impala. 5,068 Camaro. 4,712 Sonic. What does that tell us about the new GM's priorities for cars? Forget about the trucks. Forget about the other automakers. How much longer must we continue to wait for something that actually competes with GM's own cars? Those traditional choices are absolutely crushing Volt.
- 12-05-2013 Change.** Yeah! The charging-station count at the ramp I park at for work recently went grew from 2 to 6. Today was the sweetest experience yet. There was a Leaf, Volt, and Fusion Energi. It sure makes the 2014 outlook something to ponder. The crazy superiority roars have succumb to sales reality. Phew! That being over is quite nice. Perhaps now, the actual competition will get a recognized and the proper audience addressed. It's hard to believe how far off track some got. We now have plug-in vehicles leading the way. That will draw even more people in for the purchase of regular hybrids. Misconceptions have been replaced with mainstream acceptance... at least for Prius. Several other automakers are striving to reach middle-market consumers too, so there's hope. It's always slower than you'd like. But at least we see growth potential for some. I'm looking forward to the rollout of Prius PHV here. My dealer sent out a mass email recently, which included mention of the plug-in model. That was a first. Online listing of 2013 inventory seems to indicate the 2014 availability is realistic. So, that might mean something. But then again, the temperature here right now is just 1°F... which is far for ideal for a plug-in. Though, I did still manage 75 MPG from driving 46 miles with 2 recharges. Anywho, maybe they'll be a surge in sales for the plug-ins this month from those wanting to take advantage of getting their tax-credit money in just a few months rather than having to wait over a year.

12-06-2013 Morning Commute Video, dashcam. With the temperature at -8°F and snow from the day before, it was a great opportunity to try out my new video configuration. I wanted to capture both the dashboard activity as well as what was happening in front of my plug-in Prius as I drove. Those 2 very different lighting situations combined with the refresh flicker of a display screen made it quite a challenge with just one camera. But I had timed it just right with the morning commute. I took the back route, which is slower but scenic. Starting the engine right away to warm the system was a must with it so cold out. That directly affects the EV range estimate, lowering it with an approximation of what that alternate use of battery power could have. In other words, the electricity is consumed while the engine is running instead. So, the computer counts those miles as HV instead. Ultimately, the measure of performance is determined by MPG, since the amount of electricity consumed is always the same. My commute to work will always use the entire plug-in capacity. That's roughly 2.75 kWh, including charging losses. What varies is the amount of gas. The more the engine has to run to provide heat for the cabin and emission cleansing, the lower the overall efficiency. On this particular drive, the total 17.3 miles resulted in an average of 128 MPG. That's quite remarkable considering the extreme conditions... [video: Morning Commute \(dashcam\)](#)

12-08-2013 Extreme Cold. When the daily high is well below 0°F, you get lots of opportunity to make extreme cold observations. There's the usual watching of coolant temperature, observing how much heat is available with the engine not running and how long that heat lasts. In cases where the rest of the system has reached the full operating level, the threshold is lower. Coolant temperature is allowed to drop all the way down to 87°F. Most owners are unaware of that on-the-fly alteration. In fact, some aren't even aware of the usual 114°F tolerance. They are only familiar with the 130°F and 145°F levels. It get confusing, even with an aftermarket gauge to help you see more data. There are simply too many parameters to make those types of observations. But in the type of Winter we are now having in Minnesota, I certainly get to. That's why I was caught by surprise to discover that heater settings make a difference during initial warm-up. Toggling between LO (that's outside air) and 65 (the lowest setting for heat), I noticed the engine RPM changing. It went up by 200 when going from LO to 65 and back down again to LO. I did that several times while sitting at an intersection waiting for the light to turn green. The same thing happened when switching from LO to DEFROST (the special button for window-only blowing). That actually impacted RPM even more, by 300. The system response makes sense. Running the engine faster will generate heat quicker... which is the very thing you are requesting by pushing those buttons. But that isn't an obvious behavior. Most people simply wouldn't even realize anything was different. But in the extreme cold, it's much easier.

- 12-09-2013** **It's Finally Over.** The last share of stock has been sold. What a relief. No matter how times we pointed out the importance of delivering a mainstream hybrid, something to directly compete with high-volume traditional cars, the discussion would ultimately get spun into it somehow really being about GM's financial struggle. It never was. The problem remains. There still isn't a choice available for middle-market consumers. We all see how the other automakers are targeting their own production, offering high-efficiency vehicles similar to and the same as existing inventory. Had GM also done that, while including Volt as a choice, the situation would be quite different. Instead, it's the one-size-fits-all approach. Why isn't the market as a whole addressed? How come is there continued refusal to acknowledge strong sales of traditional cars? Shouldn't that be a concern? When will something actually competitive be offered? Needless to say, it's nice that the government ownership excuse is gone. Having that used as a distraction from the true problem got quite annoying. There's even time still available for something able to achieve business-sustaining profits to be delivered. After all, isn't that the point?
- 12-10-2013** **Constructive Attempts?** Uncertainty is the situation now. That finality yesterday brought big change today. A new CEO for GM was announced. It was a change people from many different perspectives were happy to welcome. Focus was almost entirely on proper business, how on-going profit could be made. The well-being of the business certainly got the attention that has been lacking in the past. That obviously left Volt supporters wondering what comes next. There was barely a mention of that struggling platform. That realization of trophies not paying the bills has become a very real concern. It's about dang time! So naturally, we seem to be getting a few attempts at constructive discussion. It makes you wonder what the intent actually is though... since nothing was suggested. Still refusing to state goals is the first red flag, a warning of potential that the past could repeat again... since that's how it started before. Tired of watching blind hope led people astray, not wanting it to happen all over again, and the need to actually deliver, it's difficult to know how to respond. What's different this time is how sales is getting far more attention. So, restating the original claim seemed worthy of a next step: TOO LITTLE, TOO SLOWLY is very much on the topic of sales. The distraction was claiming purpose wasn't that. Today's shake up at the top supports the situation too. Not having any profitable high-efficiency vehicle to offer middle-market and relying heavily on trucks instead is clear evidence of not having advanced forward. In fact, it's basically a reset to where GM was prior to the financial collapse. Selling something competitive is required. Status quo is not enough. How much longer must we wait?

- 12-11-2013 *The Game.*** There is literally only one person left playing it. That shouldn't be much of a surprise. No matter what I post, it's always somehow twisted to make it sound like I'm declaring "vastly superior" for Prius PHV... which made those die-hard enthusiasts of years past for Volt absolutely furious. Now, all but he has moved on. This was today's example: *"You can claim the prius phv is mainstream and the better selling volt is not, but here you simply are making up your own flawed definition of mainstream, and of course the topic is not mainstream or high efficiency."* Pointing out that GM was competing with itself, crushing Volt with its own offerings of Malibu, Impala, Cruze, and Equinox, was information that simply never gets heard. No matter what, the discussion would keep getting redirected back to "not the same" arguments in comparison with Toyota. When Ford and other automakers are mentioned, they post gets ignored. He wants to go down fighting. No one else even bothers to respond anymore. I'm getting quite short with him myself. My response was: That's the game. I'm not taking the bait. Thanks for the quote.
- 12-12-2013 *Toyota Advancements.*** It's nice that the member posts on the big Prius forum related to Volt are gone. The playing offense to keep attention didn't work. That one person would drop bait and a few others would "like" it to show support. We still have webmaster topics to deal with on the blogs, but at least that's a different venue. It means the way is clear for those with constructive things to say to actually post them. Today, we got: *"And if Toyota fails to update their now essentially 10 year old drive train anytime soon there are a lot of new hybrids coming out right now from other brands. So the competition is good for us customers - we have other models and brands to choose from - no need to wait for the Prius."* That's good stuff, something we can actually chime it with a variety of perspectives. The days of dealing with "vastly superior" are gone. Yeah! My post to that was: That only applies to those in the market at the time. And it would be fascinating to find something actually competitive with Prius. The choices so far have taken different approaches. For that matter, HSD itself has too. The age doesn't matter. Good thing, since the cars most people are still buying use much, much older drive trains. 4th generation pretty much brings an end to the "new" perspective, that's all. It means there's nothing left to prove. The time of speculation & doubt is over. Everyone agrees the technology is clearly here to stay. Failure would be not investing anymore, to allow Prius purpose to fade. Instead, we already know the next will bring even greater engine efficiency. Having to wait a full product cycle leaves you hanging, but ultimately, that is good business.

- 12-13-2013** **Much Cheaper, intent.** When the purpose of a blog is to draw attention and stir participation, expect things like the following: "*Volt's 5-year ownership cost is much cheaper than Prius*". Upon inspection of the data itself, that situation clearly wasn't the case. But controversy of ambiguity and contradiction is what venues like that thrive on. So, it's quite intentional. My curiosity as to how that particular group (Volt enthusiasts) would respond to the insurance aspect coxed me to respond with: Since tax-credit availability is temporary and the analysis purpose is long-term, we should consider the difference without. That leaves the difference with Volt at just \$637. And since Prius clearly offers more seating room in back and a larger cargo area, that in itself is enough to make the difference a wash. What I find misleading though is the insurance premium. Why the heck is Prius an average of \$706 more per year (for a total difference of \$3,529) and who is paying such a high rate? Factoring in the price of gas really changes things. The expectation of it going up is very realistic, again, since this is long-term. Going up changes the equation... hence the need to consider the plug-in model. That raises the question of bringing region into the equation... since we all know how winter really impacts outcome. Then of course, how many owners will choose to purchase & install a L2 charger for their home. With a larger battery-pack, that's more likely.
- 12-14-2013** **Much Cheaper, response.** It was the same old trouble resurfacing again. Rather than simply state goals, it was cherry-picking. I especially liked how the reduction of gas usage and carbon emissions was sighted as important, but no mention of electricity usage or smog emissions. That reliance on the tax-credit stirs anger too. It continues to show the expectation of low sales for several years still. No clear purpose and the lack of any push for better, we end up with status quo. After all this time, why can't they see that? If you don't strive to improve, it won't happen. This isn't rocket science. It's just basic economics. To deliver a cost-competitive product, the business must work to deliver on clearly stated priorities. Now into the 4th year of sales for Volt, you'd think that would be obvious. Step away from that group of enthusiasts and those venues which cater to them. Read the comments posted in other online sources. Doing that provides a great eye-opening experience, a wake-up call for those who think all will be fine if they simply just wait. The need to be proactive, for supporters to make a large effort to share experiences and to educate others, should be overwhelmingly clear. Take a look at the recent recall of the VW Jetta hybrid as an example. Confidence in the technology isn't there. Reliability concerns dominate posts. Whether or not there was ever any problem for a customer never gets addressed. They don't look at corrective steps to prevent possible long-term issues as acceptable. The word "recall" of any sort has a negative stigma. Sadly, aspects like "fun to drive" still get far more attention.

- 12-14-2013** **Coming Soon.** National rollout appears to be coming soon. Here in Minnesota, there has been a single 2014 delivered to a dealer. Hooray! Just 1 available is a whole lot more than the none we've had. It's really encouraging to see some progress. Waiting until the 2013 inventory was pretty much sold out prior to expanding required quite a bit of patience. That opened up the opportunity for antagonist spin too, making a sensible business decision sound like something had went terribly wrong instead. Where I park for work, there are now 6 charging-stations available. I share them with a Leaf. Soon, a Fusion Energi is expected to join us. The owner has plans to add more as demand increases. That's quite encouraging... and quite a relief considering the rhetoric of the past. By the time Winter's thaw arrives, some owners will be celebrating 2-year anniversaries. That real-world data is priceless in the support of sales expansion. Next year looks really encouraging.
- 12-14-2013** **Winter Efficiency.** This hot topic of cold subject matter is an endless source of posts. Each year, it's the same thing. When will that finally change? This is the latest post I decided to join in on: *"Now, my other car, a conventional gasoline powered, small AWD SUV, is not significantly impacted by these weather conditions, and my fuel efficiency is almost the same, winter and summer."* It's somewhat frustrating that the actual MPG isn't included. That's common, but what are you going to do. It's the same thing each Winter. I provided this: That always low under any conditions is an interesting situation to consider. It amplifies & confuses the situation for those not aware of influencing factors. We see it. But conveying that message is problematic. Overcoming the 50 MPG barrier presents challenges. There's lots of fine-tuning required to take advantage of thermal dynamics. It can equate to cost & complexity, something really only Toyota is in a position to address. They will too. We can see the opportunity for Gen-4. Beyond that is a mystery. But then again, engine optimization faces diminishing returns anyway. Delivering more than a solid 50 MPG average with PZEV isn't really necessary. Shifting focus over to electric efficiency makes sense at that point. After all, the measure of "kWh/mile" is rarely gets mentioned currently. Think about how few people know what the vehicle they drive now actually delivers for MPG. Sadly, your observation isn't common. Even worse, most still just settle for low efficiency, not placing a high priority on using less gas.

12-16-2013 What It Wasn't. For many years, we listened to claims from enthusiasts about how Volt would be a game changer. Only problem, what they praised never actually got delivered. It's now a classic example of moving goal-posts. They just altered the definition rather than staying true to their cause. The hope was a vehicle that would feature a small engine, just enough to allow the vehicle to continue to be used in the rare event travel is still required after depletion. Primary power would come from a battery-pack. All the propulsion, heating, and cooling would be electric. Range would be 40 miles under all conditions. Production would be high-volume. Cost would be competitive & profitable. Things obviously didn't work out. Instead, the upcoming ELR is contributing to a great deal of supporter arguments and the market is looking at BMW's new i3 as the solution GM promised. To further confuse matters, there are some who making up false history about Prius to justify the mess. We know what it wasn't. We have no idea what it will become. We have a good understanding what the market actually needs. Problem is, time is up. The opportunity to leap-frog has expired. The early-adopter phase has passed. We're entering the second chapter now. Automakers are striving to diversify, each making an effort to attract consumers seeking new options. The choices are growing. Some will win. Some will lose. That need will become more and more clear. Here comes 2014.

12-17-2013 Gas-Guzzling Horror. A new stir to the market came today in the form of an article published stating the gas-consumption per-person in 128 countries. It brought to light the extreme difference between the United States and the rest of the developed world. We heavily subsidize oil and encourage waste. It's an embarrassing reality most here don't want to admit, hence the stir. That's not the kind of attention those who guzzle want to draw. That inconvenient truth really hurts. The kind of backlash this type of mention will result in is quite uncertain. There was a massive number of comments posted online, but things like that rarely actually change behavior. There's a disconnect between what people say and what they actually do. So even if there is anything encouraging posted, it likely won't amount to anything on dealer's lots. That's sad. Government invention must continue to change. Automaker priorities must continue to change. Consumer mindsets must continue to change. Progress is painfully slow and those purchasing now will be stuck with those vehicles for the next decade. That's the real horror story. Even with realistic solutions, it's too expensive to part with a guzzler that's still has a number of reliable service years available. We're forced to deal with waste legacy. To make matters worse, there are organizations dedicated to maintaining the status quo. It's a very frustrating situation. Fortunately, we have efforts like this attempting to influence change.

- 12-18-2013 Optima Hybrid.** My first ever sighting of this Kia offering was today. It was quite subtle, very easy to overlook. But with sales over 1,000 every month, you'd think there would be more. They rarely even get mentioned those. In a way, that's good. The fallout from the Hyundai & Kia MPG labeling is good reason to lay low. Collecting real-world data and building reputation is better than drawing lots of attention for misrepresentation. With gas at just \$2.84 per gallon currently, there isn't much demand anyway. I like seeing variety like that on the road. Each automaker must offer something worthwhile and that is a genuine attempt to do exactly that. It takes time to get it right too. Each consumer base is different. But whatever the business-sustaining high-volume product is for that particular automaker, a hybrid version must be made available. There's simply no way to survive in the upcoming market without. People won't be willing to put up with guzzlers for too much longer. Pressure from upcoming CAFE regulations will force the offering of a high-efficiency choice anyway. That means each automaker must do something to remain competitive.
- 12-19-2013 Cadillac ELR.** Watching another disastrous rollout is a interesting historical perspective. It's about to happen and you know the outcome will be bad. Why? It's because enthusiasts want the new Cadillac ELR to represent more than it was actually intended. Setting expectations well beyond design is a recipe for disappointment. Sadly, it opens up opportunity for those who just want to stop progress in any way possible to label the effort overall as a failure. Why give them that? Intrigued by the new discussion, I added: Seeing that new plug-in hybrid is an interesting topic. Rather than attempting to reach ordinary consumers (which clearly didn't go well for either Two-Mode or Volt), this time, GM intentionally created a niche vehicle. Sightings on the road will be few and far between. Being a Cadillac, what will those visiting the dealer think? Other cars available there, like ATS and CTS, have a far lower base price. It seems that will be the "*halo*" vehicle Prius was claimed to be... the difference being lots of people actually purchased Prius. GM's expectation for ELR is only 300 per month. What would compel a salesperson to sell it? The sales pitch would somehow have to address Tesla offerings. With an estimated range of 208 miles for \$5,000 less, what would you say? For \$5,000 more, the estimated range increases to 265 miles. Why bother with an engine when you can get kWh capacity like that for a similar price? It makes you wonder what comes next.

12-22-2013 **Fundamentals.** It's always fascinating when the situation ends up coming down to the basics: *"Let's not forget that after 80 years of manufacturing, GM never set a goal for efficiency in smaller sided autos."* That statement from a well-respected Prius supporter hit the automaker when it really hurts. Pointing out a fundamental issue hurts. That's why pointing out the problems with Two-Mode stirred so much anger with Volt enthusiasts. They could see the parallel, but hoped somehow the same choices would result in a different outcome this time. Clearly, they hadn't learned lessons from the past. I sounded off with: Squeezing more out of less has never been a real priority. Bragging rights about engine displacement was a very big deal for over a half century. Smaller was considered a sales hindrance to the business and a sacrifice to the consumer. Sadly, some of that mindset persists. It's the root of some advancement problems. That's why even just entertaining the idea of a smaller battery-pack stirs so much emotion. Supporters fiercely resist the idea. The fact that Toyota worked so hard to get so much irritates. Achieving 50 MPG from a 98 horsepower engine propelling a midsize car really hurts pride. Gaining another roughly 25 MPG by switching to lithium and adding just 3.15 kWh with a plug adds insult to injury. To make matters worse, a common attitude shift in our society is to now say: *"it is what it is"*. Rather than striving overcome barriers, people are just settling for status quo. That's very disappointing. What happened to our pride? We use to deliver amazing feats of engineering. So many inventions. So many benefits to ordinary citizens. There are excuses. Ugh. A fundamental change is required. Either it is proactively embraced or it will come in a painful way. Emerging from the bankruptcy recovery with a heavy dependency on profits from large vehicles and nothing competitive for high-efficiency is a red flag, a warning of trouble to come.

12-22-2013 **Will Still Eat.** Thoughtful questions are always a nice change of pace: *"With a full charge from the wall and the ICE warmed up, the PiP will still eat through about 4 miles of EV range while in HV mode. I can't figure out why... Has anyone else seen this?"* I posted this, which to my delight, generated a bunch of likes: Prius PHV is a plug-in hybrid. That means it will use the electricity in the most efficient way possible. So... you'll see EV consumption while in HV mode. It's a fundamental part of the design to achieve high MPG and clean emissions. You'll also see the EV capacity reduced to a lower level for longevity. In other words, the "full" level of 85% is not the ideal for maximum battery life. It's in the low 70's. So, no matter how much you try to sustain a capacity above that while driving, it will consume electricity to stay at that happy place. Kudos to you for being so observant and asking questions. The system is well thought out and there are many variables at play. Of course, when we provide more information, it tends to open a can of worms. But understanding what goes on and why certain approach decisions were made has to start somewhere. What I find most interesting is how rapid the transition from engine to motor is when the system is warmed up. You can take full advantage of gas to accelerate and immediately switch to electricity the moment you let up on the pedal. Antagonists spin that as a shortcoming. But with a such an efficient power-split design and a small battery capacity, forcing the system to rely entirely on electricity doesn't make sense.

- 12-22-2013 Mercedes E400.** That's the first ever non-GM hybrid using the Two-Mode system I've ever seen. For that matter, it's the first non-truck too. The encounter today was very frustrating... since the owner clearly didn't give a crap. There were only 2 plug-in spots. It was parked in one of them... not plugged in, since that hybrid doesn't have a plug. The ramp was busy with Christmas shoppers and the owner simply wanted somewhere to park. The fact that there were signs clearly posted saying the spot was only for plug-in vehicles didn't matter. The bright green paint marking the parking area itself didn't either. I asked security if they had a policy to do anything, like leave a note. They sent me to guest services. There at guest services, they sent me back to security. That got me thinking. Why not pretend I am security? I could mark the vehicle's window exactly like they would, using those same bright easy wipe-off automotive markers. (They are just \$2.) That way, everyone else would know what the person had done and no harm would come to the vehicle. It would only hurt the owner's pride. Of course, that's if you are polite. I'd simply write "*parking violation*" and include the date. Asking online what others would write, the suggestions were far less kind. That choice of action is tempting, let me tell you. When the ramp owner installs charging-stations, the expectation is those spots will be used by patrons willing to pay for the opportunity to recharge. That Mercedes owner obviously didn't care. Think about how frustrated an EV owner would be encountering that same situation.
- 12-24-2013 Start/Stop Reality.** The fact that GM abandoned the second attempt to deliver a mild hybrid made everyone wonder what would come next. Had the reality of failure finally caused a better step to be taken, for a genuine investment in something capable of being competitive to be made? Short answer to that question is no. BAS resulted in such a small return for the large cost, it required a rethink. eAssist came as a result; supposedly, it was an improvement. Instead, that was the same "too little, too slowly" outcome. So today, we got this from the GM marketing manager: "*Mileage benefits of a hybrid without the cost of a hybrid.*" It was the description of what the new start/stop system in the 2014 Malibu would feature. How the heck is that beneficial? Most people go way out of their way to avoid stops, in city driving. On the highway, they obviously don't stop. When will such a design deliver anything competitive? Needless to say, even the die-hard GM supporters are upset. Knowing that Volt wasn't able to attract mainstream buyers, they've been putting hope in Malibu. This turns of events is yet another disappointment. With Ford doing so well selling Fusion, both regular & hybrid, their usual Camry insults aren't effective. They feel true pressure now. Online comments didn't provide any encouragement either. With year-end sales results about to stir next-year expectations, there really isn't much to look forward to. The warnings were not heeded. Consequences of not being concerned about advancement for the masses will soon become apparent. But in the meantime, executives will assure everyone all is well.

- 12-26-2013** **New Attacks.** A well known Prius antagonist showed up again. He's been attacking the big Prius forum relentlessly, trying everything he can to post endorsements for Honda's Insight and VW's diesel. It's the same old nonsense we've seen for over a decade now. My guess is he returns as soon as his ban expires. You know, cause trouble until getting kicked out, then wait for the next opportunity. Those acts of desperation are absurd. It's especially bad when he starts new threads claiming something that just plain isn't true. Trolls drop bait too, but never in such a blatant way. His purpose is different, it's to fulfill a vendetta. That's harder to deal with. Even the troublemaker I dealt with recent isn't that bad. He simply enjoys debate. This guy is seeking out a fight, wanting to inflict harm. That's sad. I remember one of his attacks way back when. Nothing we tried got him to stop. Finally, I tried a direct assault... challenging him by providing encouragement. It caused panic. Some were shocked by the approach, fearing the worst outcome. Instead, he ended up falling. The arguments had little substance. I took the risk of assuming he wouldn't actually be able to support his claims. Sure enough, he got burned by his own rhetoric. I wonder how it will play out this time.
- 12-27-2013** **PHV Sighting.** To my surprise, there was another Prius PHV... just like mine... same color. That light warm blue is only available for the plug-in model. So, secondary confirmation wasn't necessary. I did take a closer look that anyway. It was indeed a PHV. Sadly, they still isn't available for purchase here in Minnesota. But then again, purchasing one now would be rather disappointing. True, you'd get over 50 MPG... but barely, due to the extreme cold. The sub-zero temperature results are still amazing when you think about it. Being tough enough to deal with Winter is great too. Summer is so much better in comparison though. I enjoy the seasonal change regardless. That cycle is refreshing. Good thing too, since it's rather lonely. Someday there will be more. Someday my PHV will be warm & clean. It always requires patience. At least I got that surprise today to hold me over in the meantime.
- 12-28-2013** **Signs of Change.** The attacks continue. I've been amused by the acts of desperation. They've been pretty bad. This is how I summed up the situation: When outdated & obscure topics are posted, it's a good sign. The pattern fits. We've seen that many times before. New threads like this one only appear when the competition has failed to deliver. In fact, bringing up references to an old survey which referred to "hybrids" in a extremely vague way is a perfect example. Adding to it by claiming discontinued vehicles could deliver the same performance confirms the desperate situation. Heck, my 1984 Omni could also deliver 50 MPG highway. But what's the point? It was a small vehicle without any safety features, a high center-of-gravity, no A/C, manual windows, manual brakes, and a manual transmission. We are now at a turning point. With Prius so well proven and other automakers struggling to offer something clean & efficient, the paradigm shift is happening. Vehicles which grossly exceeded need have went from being a symbol of prestige to having a stigma of waste. Attempts to stir discussion like this confirm the market change. It's just too bad the choices available aren't competitive yet... hence references to the past rather than looking forward. Think about how few people actually understand what a Prius with a plug delivers. No old survey can reflect that.

12-28-2013 **What To Expect.** I found it amusing how a strength will be downplayed. For example: *"The ONLY silver lining is that I do see a day coming where a low-end PHEV shouldn't be significantly more expensive than a regular hybrid is today. So vehicles like the PiP should become standard."* That emphasis on "only" gives the impression you should expect more. But given serious thought, what else could there be? The entire point of the battery/plug upgrade was exactly that. It was designed with affordability a major priority... so lots of people will be able to purchase it. That quote came from a thread on a forum dedicated to Volt, where the discussion of the next generation resulted in this post: *"Lets look at 2016, GM indicates they will release a car with 200 miles of battery range and a backup gas engine for \$30,000."* It's amazing to see posts like that appearing again. Hype in the past emerged the same way. Someone would hear about something, not get all the details or ever follow up, then expect that to be a delivery promise. In reality, that situation is quite different. GM was indeed hoping to deliver a plug-in vehicle with a 200-mile range. But it wouldn't include a gas engine. That assumption somehow came about. Probably a misunderstanding or inaccurate hearsay. Whatever the case, not only is the engine part wrong, the range potential is too. An advanced new battery technology won't be delivered. What was promised by Envia for upcoming GM production ended up becoming a case of fraud & theft. It turned out to be too good to be true. Unfortunately, that poster is completely oblivious to that reality. Instead, it is believed an amazing improvement in high-efficiency vehicle choices will be delivered in 2016. Knowing what to expect is important. Sadly, some people aren't aware of what really happens and why or even how.

12-30-2013 **Irony.** It's an interesting reality, an aspect of life some don't notice until it's too late. Today, I couldn't resist pointing it out in response to this: *"I'm sick and tired of people still talking about "smugness".....thanks to the a-holes @ South Park, it appears this meme will never go away!"* That's been a topic of much emotion & discussion over the years. Now, we can interject a new twist... and unexpected outcome for some: Ironically, that same footage is now having a positive effect. Most people haven't noticed how effective of a barrier it has become. Rather than getting attempt after attempt to insult & discredit, that single episode withstood the test of time. The misunderstood attempt to educate at the expense of supporters was so entertaining and so powerful of an opposition tool that it has prevented any other material from being created. As the meme grows older and older, less and less can compete with it. That leaves those hoping to mock hybrids with nothing but a single arrow in their quiver. They cannot prevent progress with such a limited arsenal. It's a great example of how a battle won early on can actually have the opposite effect in the long-run, contributing to the loss of the war in the end.

12-30-2013 **Original Insight.** This question was interesting: "*Did Honda stop selling the original Insight in 2006?*" It came about as the result of a original owner throwing a fit from a comment made way back then but from the eyes of today. That difference still doesn't get recognized by some. They forget how much changes in over time. This was my answer, hoping to keep the asker engaged and the owner at bay: I don't readily recall. My blogs have that detail somewhere. Back then, things were different anyway. It was more about proving the technology itself rather than focus on individual models. People seem to forget how measures evolve over time. The difference between ASSIST and FULL hybrids was a big deal through that first stage. The beginning of the second was clearly marked by the start of 2006... when the tax-credits were introduced. The purpose was to push acceptance deeper into the market. Emission rating was always a challenge to get any attention at all. Honda wasn't even pushing it. The manual transmission earned a ULEV and was the more desired model. That put the CVT earning the SULEV rating in an awkward position. Meanwhile, Toyota was racing ahead and Honda's focus was on making the hybrid Civic popular. Carbon emissions started to gain attention then too, making the true green (smog reduction) an even greater challenge. The end of 2006 brought the introduction of ULSD (Ultra Low Sulfur Diesel), which was suppose to help with that. Instead, it came up short, not being as green as hoped... hence calling it "*clean*" diesel rather than keeping focus on actual emission ratings. MPG took a hit as a result too. Long story short, these look backs at history are distorted at best. You cannot judge a time quite unlike now using current standards. Expectations were different then. Gas was cheap. The economy was thriving. People were still buying monster-size vehicles. New offerings weren't getting much serious attention.

12-31-2013 **Changing Times.** When one of the troublemakers starts to post things like this, it's a sign of change: "*Enough range for 80% of the public in even the worst winter temps. Right now the Volt drops to mid-20s in cold weather.*" This particular Volt owner joined the big GM forum to combat me... since I was supposedly posting misleading information about Volt. Ironically, he is now posting the vary same information I did back then. But being hypocritical is progress, nonetheless. So, I won't hold any grudge for needlessly being attacked. I will point out the situation though. That's how you prevent history from repeating. Having learned from the experience is a good outcome. There is finally clear acknowledge of the problem pointed out long ago. The reduction of EV range caused by the heater is significant. Stating the drop would be into the 20's resulted in a "*troll*" label. You were considered an enemy of Volt. Believing I was being constructive with the intent of keeping expectations realistic was the last thing they would ever consider... since it cast a distaste light on their vehicle of praise. Thankfully, that is no more. The impact of Winter is well known now. That's really encouraging, a definite change for the better.

- 1-01-2014** **Saw This Coming.** When recently asked this question: *"When did you decide that electrification is the end game, rather than hydrogen or some other alternative fuel, in terms of fuel-efficient vehicles?"* It was no surprise to get this statement as an answer: *"It was a gradual turning point. I've always been receptive to new technology, but what annoyed me in 2005/2006 was all of this credit that Toyota was getting for the Prius. Only the Japanese, only Toyota could do this. General Motors had hybrids like that running in 1968. We just never elected to produce them because it was a bad business proposition. That was a mistake. But I continually said, we need to do something to get GM's reputation for advanced technology back."* The heavy emphasis on reputation and the lack of actually delivering something competitive was quite predictable. With the third-year sales results for Volt about to be revealed, we saw this coming. Remember how the plan was to deliver a hydrogen vehicle to consumers by 2010, that hybrids were just a "stop-gap" solution? He was responsible for that anti-hybrid campaign as well as for Volt itself. He has since changed his mind. He was wrong. The only thing gradual about it was acknowledgement of the mistake. As for the credit, that was due to sales. Exceeding 100,000 per year in 2005 was a very big deal. Meanwhile, GM's count was still a zero. Why shouldn't an automaker be given praise for achieving mainstream volume?
- 1-02-2014** **Insurance Rates.** A new and very strong ally in the fight against climate change has emerged. Whether or not there is scientific evidence to support efforts to deal with the problem is becoming less and less important. Insurance companies are no longer willing to take that risk. Their claim data is telling a compelling story of high exposure due to our environment being altered. They don't care what the cause is. Business is hurt from all the damage. As a result, insurance rates are going up. That means, even if you are a obstinate denier, it will affect your wallet. Less money in your pocket is a strong influence in opinion. Change came about due to gas prices going up. Cause didn't matter. Filling the tank was more expensive. The outcome was modified behavior. How is this any different? Choices will be altered as a result of having to pay more.
- 1-02-2014** **0 High Temp.** The new year has ushered in extreme cold. When the high doesn't climb about zero (that's 0°F), don't expect pleasant driving experiences. Thankfully, they aren't necessarily terrible either. In fact, on the drive home from celebrating New Year's, we had to fire up the engine and wait about 4 minutes before driving. The inside of the windshield had flash froze from us unloading the Prius, opening several doors right away and leaving them opened for an extended duration. That real-world experiences firsthand, the kind of data I thrive on observing. Anywho, on the drive home, I observed the coolant temperature climbing to a high of 188°F. That was nice. It made the interior quite comfortable. People worry about the engine frequently being off or run at a low RPM causing a lack of heat. The interplay of electricity & gas is too complex to explain. The switching of energy flow is too frequent to envision. The lack of understanding how traditional vehicles actually operates contributes to confusion. Thankfully, the results are easy to see. We were quite comfortable on the drive home. I'm not really looking forward to these first two weeks of January. They typically bring long periods of cold. At least MPG will be nice and there's no worry whatsoever about engine starting. The hybrid system handles those conditions well.

1-03-2014 **Repeated.** *"If GM built a \$75,000 Super-size EREV truck, it would have been just as successful as their overpriced Super-size hybrid trucks were..."* It's quite a feeling to read former foes to now be saying what you said all along. It's too bad history had to repeat. Rather than learning from the initial effort, they wanted to see if what would happen. I recognized the pattern early on. But that was mostly due to having blogged heavily. They didn't want to believe the same mistake could be made again. They now see it though: *"Lutz was spouting this exact same BS when they decided to build the 2-mode pickups instead of a Prius fighter. Look where that got them. Tojo sold a MILLION Prii and the 2-mode sank without a ripple. I almost got to the point where I was starting to respect Bob Lutz, but this stuff isn't helping me. He who ignores history is doomed to repeat it."* Ironically, there is little posted about how that gained knowledge applies to Volt. Attention is still heavily focused on the largest vehicles. And since Volt is a compact, rather than a midsize like Prius, it's difficult to get constructive discussion going. Efforts to address high-volume profit-making vehicles still struggles for an audience. As a result, that part of history could repeat again. On the bright side, the online battles have ceased. That's progress.

1-03-2014 **On Par.** Sales results were released today. 2013 ended up being an equalizing year. Leaf & Tesla plug-ins ended up selling just as well as Volt. Purchase preference for the *"vastly superior"* didn't happen as hoped. There is now confirmation of what some of us had been saying all along, including prior to rollout over 3 years ago. Thank goodness that nonsense is over. The rhetoric slowed acceptance and worked against what some of us had been reaching out for in the first place, an ally... because in the end, it always comes down to competing directly with traditional vehicles. Fortunately, as enough time passes, even dealing with shortcomings becomes easier. Those who unrealistic expectations pretty much vanish. We saw that with the demise of Two-Mode. That was a disaster from the beginning, a series of poor business decisions aimed at far too small of a market. Volt suffered from the same problem. Enthusiasts didn't understand how complex the situation was or how long it would actually take. They disregarded warnings and focused on hype factors. What a mess. But now in the 4th year of sales, all doubt has been eliminated. Like it or not, there's recognition of mainstream-consumer purchase-priorities. The chance of a birdie is long gone and course is clear. No more arguing. Yeah!

- 1-03-2014** **Diesel Denial.** It's absolutely hysterical when an article is published in favor of diesel intentionally excludes Toyota hybrids. You have to shake your head in disbelief. How can they ignore such an obvious competitor? Needless to say, one of my friends posted a comment about that on the website, using the counts I provided. It quickly disappeared. Deleting data is remarkable. They declare victory by posting only the numbers showing their favor. How is that appropriate? Whatever the case, we know the true story. No matter what story they spin, it can't totally conceal what's going on. We know they post controversial articles to draw audiences too. Making money from such actions is rather desperate. But some keep doing it anyway. It's a nice confirmation that hybrids are winning the war too. Anywho, this was my response to that: Excluding Toyota hybrids is quite amusing. Talking about denial. Geez! Using their same criteria, by adding Toyota & Lexus like they did for VW & Audi, with counts through November... Prius - 135,291; Prius C - 39,169; Camry - 41,722; Prius V - 32,879; Avalon - 14,988; ES - 14,856; CT200h - 13,284; Prius PHV - 11,169; RX400h/450h - 10,154; Highlander - 4,798; GS450h - 478; LS600h - 109; HS250h - 5; ...the total comes to 318,902. More popular. No.
- 1-04-2014** **Categories.** Once established, they are extremely difficult to change. They become a foundational part of thinking, a mindset without perspective. That's why comments like this are such a challenge to address: *"Luxury is not something that should be "affordable" or easily acquired. Those who want and have the means to purchase a true luxury vehicle will pay the price. If you can't afford it, don't buy it."* Prius directly contradicts that category. It is an affordable vehicle that's smooth & quiet. Why must we pay more? It's the point of progress to continue to offer improvements? That simply pushes the "luxury" choice to expand into new territory, exploring new creature-comforts and drive-refinements. However, Prius is already doing that. Mine offers LED lighting, HUD instruments, and dynamic-cruise with collision-detection. To the person making who I quoted, that shouldn't be. A vehicle aimed directly at mainstream consumers shouldn't provide such a choice. Those features should be limited to the elite. To that, I say too bad. Change happens. By the way, the squirters for my headlights do a fantastic job of washing away the Winter mess of sand & salt. The convenience of pushing a button to clean while I drive is fantastic.

1-05-2014 **Mass Appeal.** 2014 brings a repositioning for Volt. There's nothing left to prove anymore. Plenty of real-world data is available at this point shows what owners wanted to convey about efficiency & reliability while also confirming plug-in supporter concerns about purchase priorities. Now that we're seeing leases expire and talk of the second generation dominate discussions. The early stage is over. Volt is fading into the mix with a variety of other plug-in offerings... where it should have been from the very beginning. The superiority arguments have fizzled into the past. Market awareness has finally become apparent. Hope that the draw to electric-drive will change buyer preference is gone. Appealing to the masses, with they priorities they hold, has been accepted. It was a wild journey... so many pointless fights... all leading back to where it started in the first place. Some have to learn for themselves, regardless of how painful of an experience it could be. Oh well. It comes down to the traits Prius has focused on all along. They were very similar to other popular sellers Toyota offered. Enthusiasts for GM found that distasteful. The thought of endorsing vehicles like Camry & Corolla was a horrible thought. But in the end, that's what is still needed. That's what the masses purchase. That's what they find appealing. Volt taking on aspects not "performance" oriented was reason for all those online assaults. What a waste. Oh well. The damage is done.

1-05-2014 **Extreme Cold.** There are quite a few posts recently discussing the extreme cold. These are different from the past though. There are quite a number of owner who have experienced Winter with more than one generation of Prius. Having that basis of comparison available was rare in the past. For the online community, it's becoming common. That's great. With the technology in Prius so well established, understanding what a generational upgrade brings is new subject matter. The same is true for handheld devices, such as phones & tablets. People simply never paid attention to detail like that in the past. Now, they they seek out the information. Seeing who is yet another sign confirming deep mainstream penetration. There's excitement from new forum members with very little technical or automotive background. I joined in the active discussion with: I've owned all 3 generations over the past 13 years. Even the 2010 couldn't compete with what I experienced today with my 2012 Prius PHV. The high temperature was under 0°F. Despite the extreme cold, which included spending over 3 hours parked in a shopping lot, the drive back and forth to home with a side-stop along the way (23.5 miles total) resulted in an average of 49 MPG. That's amazing for such nasty conditions. Being able to plug-in is great, even when the engine runs to provide heat. Today was a perfect example of how well thought out the system is. Summer is much nicer. Engine warm-up is rapid and the A/C runs using electricity. MPG is double as a result. But with a lower temperature forecast of -26°F tonight, the warm season is a long way off for me. Blah!

- 1-06-2014** **Patience.** 14 years later, it's still required. Fortunately, we have examples from years gone by to draw upon. They taught those who participated much. For those who joined afterward and refused that wisdom, they were doomed to repeat some of the failures. One such examples stings a bit still. But there's hope 2014 will quickly wash that away... The problem with Volt was it being marketed as a wide-audience solution even though it didn't match requirements of high-volume vehicles. So, even though the technology worked, there's no way it could compete. That's made progress difficult. New challenge emerge from the realization of it needing to be reconfigured for the masses too. Fortunately, emerging beyond the so-called "*early adopter*" phase is making it somewhat easier to understand the circumstances of what did and didn't draw sales. Unfortunately, it's what those of us who have supported Prius for years recognized prior to rollout. Enthusiasts simply didn't want to accept it. Toyota knew the situation would get messy and there were be fallout of sorts, hence the delay rolling out their own plug-in. It certainly would have been nice not having to wait for that choice. But experience of the past made the benefit of patience clear. Mainstream acceptance means the choice must be affordable, a reality GM only recently began to deal with. When this crazy cold finally subsides (believe it or not, -15°F was the high temperature today), we'll start to hear something about national availability for PHV. Expanding to southern states right away would be nice, but inventory overall is low. That could indicate a promotion campaign on the way. After all, that's worked well in the past for Earth Day support. We'll see. But it nothing else, only using a 4.4 kWh battery-pack means being affordable is far more realistic than others. Remember, that was a very big deal for mainstream acceptance of regular hybrids. Adding a plug means that same criteria must be adhered to... but not forever... hence the "too little, too slowly". Toyota can deliver with this current generation.
- 1-07-2014** **Debate.** The effort to stir discussion has floundered. Those few who tried didn't have any successful. Interest simply isn't there. We all see that hybrids are the goal, that their purpose is to replace traditional vehicles. With every automaker striving for the same thing, there's nothing to debate. The antagonists try to provoke with taunts of declining sales due to increased competition, but that requires ignoring the market as a whole. Success of another automaker will help stimulate interest with others. Low gas prices will be an influence too. Staying relatively low stimulates diversity... which ultimately erodes traditional offerings. Obviously, high gas prices will do the same. That's a win-win situation either way. In other words, those nasty exchanges of the past are a memory from the past... a reality some will deny ever got so extreme. They at least understood what was at stake. And even with those failed intense endorsements, that understanding lives on. Sadly though, their method drawing interest targets the wrong audience. Appealing to the masses takes an entirely different approach.

- 1-09-2014** **-10°F Video.** Preventing window reflection for the camera means covering the dashboard with a black mat. Unfortunately, that covers the vents. To keep the windows from fogging up as a result, I have to crack windows to circulate fresh air. Fortunately, I have a heated seat and heavy clothing. It worked out... and I captured great data showing what happens when you don't use the heater in extreme cold with a plug-in. The Prius was parked overnight in my unheated but insulated garage. That allowed the drive to start with the system at 28°F. Of course, it took me 14 minutes with the car running outside to finally get all the filming equipment setup. That ended up consuming 2% of the battery-pack capacity that was available. Oh well. At least I'm refining the quality of the app-data capture coming from my smart-phone. Watch the coolant temperature in relation to speed. You'll see the engine shut off (RPM of zero) a number of times while HV driving (after the plug-in capacity has been depleted). The interplay of gas engine and the 2 electric motors is quite dynamic, thanks to the power-split-device. That flexibility is how high efficiency is achieved. 8.5 miles of EV was the outcome. Then, the engine fired up with the remainder of the trip in HV. The end result from the 17.3 miles of driving with the contribution of 3.0 kWh of electricity (which includes charging losses) was 96 MPG. That's great, see: [Prius PHV - Along The River -10°F, No Heater \(appdata\)](#)
- 1-11-2014** **50 MPG.** Lacking the opportunity to recharge, I only had 10% capacity from the battery-pack available for EV. That's far from ideal on a day you know you will be running around. Oh well. At least the temperature had risen to the 20's. That's a heck of a lot better than the driving at -10°F just a few days ago. 43 miles was the total distance traveled for the day. The average worked out to 50 MPG. I was elated. That was better than I had expected considering the circumstances. Just think what it could have been if I was able to plug in. Looking at the extended forecast, the long extreme cold is done for the season. We aren't even expected to get a brief cold snap. It looks like an uneventful Winter for the rest of the season. That sure is a welcome change for the better. As a result, I can look forward to pleasant driving. What a contrast to the combat last year. Phew!

1-12-2014 **Which Generation?** It's interesting to read a thread started by someone researching the purchase of a Prius asking that question. There was a variety of responses. His openness to consider the variety of new & used choices available combined with the reality of a just a commute 2 miles each way had me captivated. This is what I contributed to the discussion: Your circumstances would make the PHV (plug-in model) a great choice to consider. I fired up the engine on mine just a little bit ago, to provide a sampling of what to expect even when those 2-mile drives aren't exclusively EV. Taking the suburb route, to ensure getting hit by as many stops as possible, I ended up hitting 3 lights red and 1 stop sign. With the temperature at 36°F, the engine warmed up and shut off 1.9 miles into the drive. The MPG then was 39. It increased to 40 at the 2-mile mark. That's a pleasing outcome for a drive that would have been 999 MPG, had it not been for me forcing the engine on. Back when I had my 2010, I clearly remember non-owners arguing MPG was horrible on short trips and have proven them misleading with actual data. The situation may be somewhat distorted with the online diversity now (wide diversity of experience and observation levels), but the blogs from back then are intact. Worse case with start-then-drive-away-immediately was around 30 MPG for short trips. For longer trips, you'll do well with any model or generation Prius. I'm especially pleased with PHV when plugging in isn't possible. Results are actually a little bit better than the regular (non-plug) model... something many had insisted couldn't be done. They claimed the "*dead weight*" after depletion would be a penalty. Toyota managed to reduce the weight difference down to just 99 pounds. Combine that with the better performance from Li-Ion batteries rather than the usual NiMH, you've got a winner. With my particular drive sample today, I ended up traveling 7.3 miles to my destination. That leaves 45% of the EV capacity available for the drive home later. The average, despite the engine unnecessarily running, came to 120 MPG. No complaints about that.

1-12-2014 **Cruze-Diesel verses Volt.** A recent article from a Detroit publisher sure has caused quite a stir. It was the typical attack from within, the same nonsense Toyota use to see on a regular basis. This time though, it's GM... which is at a distinct disadvantage. Comparing Prius to Corolla was relatively straight forward. The holes in the argument were easy to reveal. But with this, there's a third vehicle involved... the gas version of Cruze. Since that is so often misrepresented, it takes away from the credibility of the diesel model. After all, they are considered competition of each other rather than complimentary. Nonetheless, there's still lots of hybrid misleading. The most common, though less obvious, is to exclude information about smog-related emissions. Clean was entirely with respect to carbon. That's rather blatant greenwashing from the Prius supporter perspective. Oddly with Volt, not so much. You'd think they'd sight that as an advantage. Whatever. Next problem was the price. Stating \$40,000 for Volt is just plain wrong. True, we don't have any evidence whatsoever that GM is making a profit yet on the significantly reduced price. But that's no reason to misrepresent by not stating current MSRP. Following that came the MPG average stated. For Volt, it was an overall for 40,000 miles of driving. For the Cruze-Diesel, it was this extremely vague comment: *"Yes, diesel power too requires research on where you can fill up in the metro area. But averaging 35 mpg with its big 15.6 gallon tank, my Cruze would travel more than 500 miles before refueling."* Avoidance of detail and specific examples is nothing new. Antagonists do it all the time. That's a common technique used to undermine. Reading the comments posted, nothing stood out. They mostly just stated the writer's math was faulty and GM was to blame for such poor marketing. With so many mixed messages, compounded by changing goals, invited this situation. What a mess.

- 1-13-2014** **Snowy Night Commute.** I was curious how well the camera mounted on the dashboard could handle darker filming conditions. The sunset had already set on that overcast day. So, the remaining light would fade quickly. It would go from gray to black during the drive home, on my commute along the river route. Notice all the streetlights and vehicle headlights are on right from the start, even though the outside appears day like. Since fresh snow had fallen earlier and some was still falling, it was a great setting to try to capture. Unfortunately, the amount of time it would take to drive in that slower Winter traffic hadn't occurred to me until I was on my way. A few miles into the video, you'll hear rustling and then see an abrupt camera clunk (just as I drive under the bridge). That's me flubbing for the cord, then plugging in. The battery doesn't offer enough capacity to record 1080p footage at 60 frames-per-second while also broadcasting a live stream. Thankfully, it's just a simple USB connection. Anywho, learned the camera does remarkably well. To my surprise, the brightness setting on the dashboard didn't need to be up to avoid refreshing distortion from the screen. I ended up turning it down as the sky grew dark anyway. So, that worked out nice. The commute itself was uneventful. Roads weren't too bad and most people drive better this far into the cold season. It was a fairly ordinary example of Minnesota conditions after a typical snow. When I started the drive, statistics on the screen were from the morning's commute in. So, you get to see exactly what I see routinely, rather than resetting before filming. Showing the round-trip results is more informative. The driving came to a total of 34.9 miles with an overall average of 74 MPG. For just the half on the way home, it was 64 MPG. I'd consider that remarkable when you take into account the temperature was -2°F. By the way, I really like how there was just enough snow on the windshield that I could easily use the wipers to clear it. The effect at high speed (5X) is quite amusing. [Prius PHV - Snowy Night Commute \(dashcam\)](#)
- 1-14-2014** **Aluminum.** The internet certainly was a buzz about Ford's announcement yesterday, especially with comments from GM supporters. With focus shifted over to trucks and consumer pickups specifically being the primary source of business-sustaining profit, it was to be expected. The new F-150 having shed 700 pounds was a huge announcement. That surprised many in the industry. They had no idea such a major accomplishment would have been achieved. The big weight reduction was achieved by switching from steel to aluminum... which is a more expensive metal and challenging to weld. I was amused by the immediate response claiming aluminum corrosion would be a problem, so GM had nothing to worry about. They didn't realize Prius has been using for the hood & hatch since back in 2003 without any issue whatsoever. The strength & durability Ford expects owners to experience has those on the other side of Detroit really worried. How in the world will GM compete with that? It should result in a inarguably better MPG. With fuel-efficiency such a concern for those large vehicles, this is a very big deal.

1-15-2014 **Abandoned.** Remember all the hype? Enthusiasts of Volt declared it to be "*vastly superior*". They claimed vehicles with only a plug, like Leaf & Tesla, were a terrible idea that consumers wouldn't want anything to do with. For a mainstream vehicle offering both plug and engine, Prius PHV, it was endlessly mocked. They would stubborn & determined, quick to dismiss data they found unappealing. I clearly remember the first winter-driving report. It was a whole year prior to rollout. You'd think they would have an open mind, saying that experience was a work-in-progress. Instead, references to it were deemed efforts to undermine. They were wrong, on many accounts. Rollout proved it. Sales were well below expectations. Then came the first true competition, C-Max Energi. That particular plug-in hybrid wrecked their own already ambiguous definition of EREV. But at that point, the hype was already gone. They were in damage-control mode. Things continued to get worse when the Fusion & Accord hybrids with a plug came along. The backlash emerged and rapidly grew. The enthusiast market was exhausted and efforts to appeal to ordinary consumers were failing. The "*vastly superior*" rhetoric was just a memory of the past. Inventory was piling up, threatening to make a mess of the new model production & sales. The price was dropped dramatically. That didn't make much of a difference. The one-size-fits-all approach continued to suffer. Finally, it was BMW's i3 that ultimately killed it. This plug-in hybrid actually delivered by Volt originally promised. As a result, the topic as well as the car itself has been abandoned. Looking on the big GM forum, that's really easy to confirm. There aren't posts anymore... from premiere vehicle to easily forgotten.

1-16-2014 **6 Million.** That's how many Toyota hybrids are now officially on the road around the world. The most recent million only took 9 months to sell. That effort to replace traditional vehicle production with hybrids is clearly making progress... which is good news considering how low gas prices have been lately, in terms of both actual & perception. People are paying less at the pump from having switched to a smaller vehicle. That downsizing alone makes quite a difference. At the same time, they are growing use to paying around \$3.29 per gallon for gas. Reaching out to attract more buyers is an ongoing challenge. It doesn't get easier as more are seen on the road due to that moving target. Some people are simply content. Others don't want to deal with change, even if there is some interest. Mixed messages from automakers don't have either. They heavily promote their traditional vehicles, obscuring their intent with hybrids. Fortunately, Toyota often includes Prius in their advertisements. Maybe that makes more of a difference that we think. It's hard to tell. But with such limited inventory from the others, the emphasis is definitely in favor of non-hybrid vehicles. Thankfully, real-world data continues to reinforce the technology. That's something which cannot be obtained by any other means. We must wait. It will really be a great endorsement for the next-generation Prius. That should influence sales in a very positive way.

- 1-17-2014** **Change.** What can I say about it? The difference is blatant. 2014 bares little in resemblance to 2013. Remember the big news exactly one year ago? The expectation was a major announcement from GM, an upgrade to their plug-in platform. Enthusiasts were very excited about what they had coined as "*Voltec 1.5*" The reveal of Cadillac ELR would provide detail. The system was hoped to be much improved; instead, it turned into a marketing mess. The hype had no substance. It was a collection of vehicle refinements. Nothing was really done to the engine, motor, or battery. There were only adjustments to deliver a smoother, quieter, more powerful drive. The result was a backfire. The very aspects Volt enthusiasts had praised were now looked upon as less. All those remarks about being a top-class ride were suddenly usurped by GM itself. Now, a full year later, they even want to talk about it. The field has finally been leveled. That ally I looked for all those years ago is slowly becoming a reality. As a Prius owner, they thought my effort to befriend was actually a clever scheme to make Volt fail. They were blinded by fear and enchanted by hope. The result was learning the lesson in a painful way. Thank goodness that is over. Change is obvious. Hooray!
- 1-18-2014** **Obsessed?** This quote made me pause: "*Let's be honest here, most hybrid owners are a little obsessive regarding mpg.*" There were many ways to respond. I chose: Have you noticed how most of the rest of the population is totally disengaged, not even aware of what MPG their vehicle actually delivers? From their perspective, it would indeed be reasonable to use an "*obsessive*" label for our awareness. From our perspective, we show a respective disappointment for their lack of concern. I am left in dismay seeing such a large quantity of people simply not interested, claiming MPG in the 30's is good progress. That makes it even more refreshing when new hybrid owners seek out information, asking questions to learn about what actually affects fuel efficiency. That active participation may be interpreted by some as being a little obsessed. We don't see it that way. As for identifying "*hybrid owners*" based on some thread samples and perhaps some random in-person encounters, think about how many there actually are. Of the 102,284 members on this forum, how many actually exhibit the obsession? Most are just quiet owners reading posts. Toyota has sold over 6,000,000 hybrids. How many of them?
- 1-18-2014** **Dealing With The Mess, part 1.** There aren't daily topics on the Volt blog about Volt anymore. In fact, they are quite rare... few and far between. It's just industry news about electrification at this point. The enthusiasts are speaking out, finally. Now into the 4th year of availability, that's long overdue. This series of favorite quotes, in order as they were posted by various discussion participants, provided a summary of the situation as they see it: "*GM sure seems to be sitting on its ass watching the competitors fly by in terms of electrification.*" and "*All I know is that the lease on my Volt is up in May and GM has made only minor tweaks with nothing new available.*" and "*I think that there is no point in GM introducing a Volt 2 without a radically improved battery.*" and "*After seeing all the truck and muscle cars at the auto show, I do wonder if they have fallen off the wagon and into their old ways again.*" and "*I didn't overestimate the Volt, but I have apparently overestimated GM.*" They never believed this situation could happen. They thought engineering alone would triumph. They now know that isn't the case... and never was.

- 1-18-2014** **Dealing With The Mess, part 2.** This was the ultimate find, that statement which seemed an impossibility: *"GM is sounding more and more like they are going to slow-foot the Voltec technology. Pity. I really like my Volt, but back in 2007 when this site started up, there was a feeling that it was going to be so much more. Then the price went up, followed by the lowered bar on the CS mpg, and finally they fell way short of 40 miles of AER that they had predicted. Then they decided not to build as many cars as would be needed to allow for sales to expand."* He watched expectations evaporate. Posts which seemed to disparage Volt turned out to be constructive criticism. The experience has been a rude awaking for many of the enthusiasts. Hope was based on hype, not supported by either engineering or history. It was the *"moonshot"* effort botched in several respects. When leases expire, more and more just end up moving on to something else instead. So many of them assumed Prius was the enemy. They learned the hard way it wasn't.
- 1-18-2014** **Dealing With The Mess, part 3.** What happens next? The mess is bad, really bad. Other automakers are pushing forward, with clear strategies. Supporters of GM don't have a clue. The next generation of Volt is a complete mystery. No goal of any sort has been set. It's a disheartening silence. Not having any idea, nothing whatsoever, to even provide direction leads to abandonment... making us wonder who will deal with the mess. We watched Two-Mode sink to an unimaginable low. Volt didn't do so bad, but being unprofitable comes with consequences, which ultimately could lead to the same outcome... especially with this highly competitive market now emerging. Designing to be cost-effective is much different from the bragging-rights approach taken for the first generation. Rollout proved that was an unwise choice. That makes designing the next even more difficult. It's challenge enough to optimize. Changing direction at the same time presents some very real problems. The new CEO has some serious decisions to make, very quickly.
- 1-18-2014** **Dealing With The Mess, part 4.** The price of gas is considered affordable. Efficiency in the low 30's is considered acceptable. Climate change is thought of as a political game. How do you deal with that? Sighting the problems of Volt doesn't address those bigger problems. The issue of how Prius sales will increase is a concern. Will people care that the next generation delivers MPG in the 50's? Will they be drawn to refinements the next plug-in model will offer? Will they become complacent as a result of the economy having recovered? Just because a choice is affordable and proven reliable does not mean it will be purchased in growing quantity. So even with taking design into careful consideration, expending a great deal of effort trying to match consumer priorities, success is not guaranteed. Increasing purchases is the goal. Traditional vehicles must be replaced.

- 1-19-2014** **Increased Capacity.** That topic comes up often. There's a wide variety of opinions on what Toyota should do next. I put it this way: Since a major priority of the design was to keep PHV competitive with the true competition... tradition vehicles ...it's not realistic to expect a major increase in battery-pack capacity. Too much would easily push the cost out of reach for mainstream consumers. That would sacrifice both cargo-space and depleted-efficiency too. Toyota could offer an additional model with higher specifications, but that's clearly not what the masses have been asking for. I drive close to 20,000 miles per year. Being able to recharge at work is nice. It doesn't cover my entire day though, not even close. I also take frequent trips well out of that doubled capacity's range. There isn't even a pattern. Each day is different, as my daily driving graphs clearly show. Fortunately, the demands of real-world are well suited for the Prius design. Lifetime MPG is above 75. That makes the benefits of the plug, despite lots of miles per year, very easy to see. Toyota delivered a system available as an affordable choice without having to give up the aspects of Prius which made it a popular. The next generation will build upon that. We'll see improved engine efficiency and refinements to EV mode. A modest capacity increase is realistic too. But don't forget about the importance of keeping it competitive with the true competition.
- 1-19-2014** **Third Time.** I hadn't posted anything on that daily blog for ages. Content didn't have anything to do with Volt anymore. All the rhetoric & spin are just a bad memory now. In fact, I can't even remember the final attack. You know, when they down-voted a fact because they didn't like the way it portrayed the situation at hand. Gotta like that. So, I've moved on. Today though, it was ok to join in. After, many of the once die-hard supporters are now speaking their mind on how to clean up the mess. I ended up posting: After years of it being said, the concern is finally recognized & understood. Strong beliefs in the engineering allowed business aspects to be neglected. Now, consequences of that are playing out. Focus was misplaced. Hype got out of control. Consumers lost interest. That can't be allowed to happen again. Those countless posts of the past speak for themselves, confirming the required change of priorities. Do they need to be reiterated or is it enough to just state "*too little, too slowly*" one last time? At least there won't be arguments about goals anymore. The strategy tried clearly didn't produce the results expected. Both Two-Mode and Voltec were heavily promoted and neither was able to demonstrate sustainability after 3 years of sales. The conclusion for both was that redesign would be required. Is third time a charm? Don't allow history to repeat.

- 1-19-2014 Shopping.** I went to the mall today. It's been awhile. In fact, I've been avoiding it since the lead up to the gift-buying last year. Parking was still on the crazy side, even though the holidays are long over. My guess is that this was the first nice weekend we've had for awhile. That made it a good time to go out. Anywho, I took advantage of being able to plug in again. That meant an hour and a half for me to roam around in the meantime. I made the best of that, even though I didn't need to. The charging price is \$0.49 per kWh. There's no time restriction. I could stop whenever I wanted. I could stay as long as I wanted to as well... but didn't want to. After all, there's only 2 spots in that ramp and 2 in the other. 4 for an entire mall makes them rather scarce. When I did leave, there was a Leaf parked next to me charging up. I bet seeing a plug-in Prius in a state not selling them yet took the owner by surprise. Whatever the case, the people watching me unplug sure were surprised. My activity in the side-corner of the car obviously caught their attention. Long story short, I enjoyed the experience, got the stuff in the mall I had stopped there for and purchased \$1.29 worth of electricity.
- 1-19-2014 70 Cents.** The price of a barrel of oil has been in the 90's for quite a long time now. That has settled the price of gas at \$3.19 and diesel at \$3.89 per gallon. With an on-going difference of 70 cents, how do certain automakers expect their plans to significantly increase the market-share of diesel passenger cars to succeed? Beside the higher fuel cost, there is an obvious noise increase (the clutter from the engine) and fewer refilling locations. Add to that the higher price of the vehicle itself, the numbers just plain don't add up. No amount of spin will overcome that. It makes competing with the gas counterparts a heck of a challenge and regular hybrids a source of endless debate. Fortunately, it's basicall impossible for traditional diesel vehicles to compete in any way against plug-in hybrids... and that's without even having to point out the need for diesel emissions to be cleansed with urea. The on-going cost of refilling that reservoir and the trunk space it consumes is a real issue to content with regardless of what the competition is.
- 1-20-2014 Focus Energi.** An interesting rumor emerged today. It was that Ford is actively working to deliver a third plug-in hybrid option. That obviously really irritated the Volt enthusiasts, who had fought the one-size-fits-all problem for years and was only made worse by GM rolling out ELR. Offering several different size hybrids and some with different size battery-packs is exactly what needs to happen for the business to be viable. We see that happening with both Ford and Toyota. The benefits of a having the goal to offer a diverse set of choices are undeniable. Yet, some still fight the idea. Ask yourself: Why? The answer to that question should be easy to figure out at this point. They hope the market won't accept anything less than what Volt offers. They want that to be the minimum. They are learning the hard way that hasn't been a wise path to follow. The realities of business simply don't support such a paradigm shift. Over and over again we get examples confirming the differences between how the market works and how some want it to work. Ugh.

- 1-21-2014** **14 Minutes.** My driving results were skewed somewhat. It was the first day of the second half of winter. I started the cold season with the bottom grille blocked entirely. The top was open entirely, until yesterday... which I switched to 50% blocked. The real-world results were compelling right away. To my surprise, there was a quite noticeable improvement in heat retention. I had thought it would be modest. But driving alone in EV with the heater still pulling warmth from the coolant, I could easily tell it was lasting longer. I also got an opportunity to try the "wait" test. After leaving the highway, with the engine toasty warm, there was a 1/2 mile drive that brought to a restaurant. I arrived really early. So, I turned down the heater temp to 65 and the fan down to the slowest setting, then sat there. The coolant temp dropped from 188°F to 123°F. I was kept warm for 14 minutes before the engine started.
- 1-23-2014** **Understanding the Plug.** Most people have no idea how the transmission works in their own vehicle, the one they've been driving for years. So how do you answer a question like this: "*Does anyone know how the plugin transmission works?*" Pointing out the differences between a what they own and a hybrid system is quite difficult. You lose attention and are open to misinterpretation if words aren't chosen carefully. Think about how many problems understanding the difference between ASSIST and FULL along the years. That was quite a challenge to deal with. And of course now, there's difference between FULL hybrids with a plug and whatever the heck EREV supposedly is. Remember, we have to deal with intentional misleading too. That makes the situation quite a mess when you are genuinely trying to be helpful and guessing at what the person's background may be. I gave it a shot today with: The lack of gears & shifting prevents it from being called a "*transmission*" as most people know them. There are power carriers permanently connected which transfer energy in a variety of ways. It connects the gas engine and two electric motors to the wheels. They rotate at different speeds & directions to optimize efficiency. The plug-in model takes advantage of that by powering the traction motor more than with the regular model.
- 1-23-2014** **New Topic.** This was posted on the parent website: "*Is the Chevy Volt Destined To Remain GM's Niche Product?*" That one is constructive and openly welcomes a diverse group of posters. It's quite a contrast to the child website, the one specifically for Volt; that daily blog. We've seen many topics start on the parent, then move to the child later. The contrast in attitudes is stark. It's remarkable to see such differences. I'm curious as ever what the other will bring. This is what I posted to start things out: "*Who is the market for Volt?*" was the question asked countless times prior to and following the rollout. It was quite clear the target audience was not mainstream consumers, those who would otherwise purchase a popular GM vehicle... like Malibu, Impala or Cruze. "*What will the next Volt offer?*" has become the new question. Goals of the first did not match up with purchase criteria of the masses. Agreement of it remaining a niche until their are major changes is easy to get now. Expectations are better now that there's an understanding of the market. The key is being able to compete head on (be profitable & high-volume), without the help of a tax-credit. That's been a fundamental strength of Prius which has irritated GM for a very long time. Adding a plug complicates matters, making sales growth an even greater challenge.

- 1-24-2014 The Other Website.** That same topic got posted there today, on the child. The parent didn't end up stirring much debate. It was mostly a collection of various opinions. There were pros & cons mentioned. Participants were quite civil, no strong emotion in any manner. The exchanges were constructive. There was a welcome tone. Either side of the fence felt comfortable contributing. What a drastic difference the daily blog brought. Right away, you could tell it was going to get hostile. And boy did it ever! To my surprise, there was an outright lie posted: "*There is a center seat area in the C-Max Energi, but the leg room is the same as the Volt.*" Huh? I responded with the official measurements: "*C-Max Leg Room - Rear = 36.5 and Volt Leg Room - Rear = 34.1*" That was my entire post. No opinion. No comment. Nothing else. Just facts. They didn't like that at all. Whoa! Having sat in Volt and played with the seat adjustments, I know being a compact competing with midsize vehicles is a sensitive topic. But such blatant attempts to mislead lately has been a surprise. You'd think they'd just move on to something else.
- 1-24-2014 Another Example.** This was another example of unexpected blatant misleading. This one came with an insult too: "*The plug-in Prius only has 6 EPA miles all-electric range. This is so pathetic...*" How many times must the detail be posted before the rhetoric ends? Even some of the Volt supporters are getting annoyed. I was happy to provide more facts: Rather than mention the actual available capacity of the battery-pack, the outcome of a specific test is stated. That's called cherry-picking, by most. Some call that type of data omission greenwashing. Whatever the label, it's misrepresentation. As for the adjective used, that's a sign of desperation. It's a 4.4 kWh battery. Available capacity for EV mode is from 85% to 23.5%, which is 2.7 kWh. Knowing that EV driving typically consumes 27 kWh/100 miles, it's very easy to confirm the distance is not 6 miles. In fact, you don't even need a calculator to see that it's 10. And knowing that the battery-pack isn't actually empty at the depletion point, that it's still "full" for HV mode (which offers EV driving), you can add another mile. That comes to 11 miles, exactly what the detail on the window-sticker states.
- 1-24-2014 Outside Opinion.** It's clearly not welcome there. No matter how constructive your criticism, having shown acceptance of a competitor makes you an outsider and your opinion an attempt to undermine. You'd think they'd be long over that by now, that they'd recognize the need to realign to target middle-market. Clearly, that not happening. The enthusiasts still think change isn't necessary. This comment from a friend really got them riled up: "*GM wasted a \$billion chasing a market that does not exist with a car that could not sell without heavy government assistance.*" Now into the 4th year of sales, well under expectations and far from being self-sustaining in any respect, it's amazing to see such unwillingness to compromise. Anywho, this was my follow up to his post: For all those who refused to answer the question "Who is the market for Volt?" and chose to downvote instead, it is quite clear why that was continually asked. Everyone now has confirmation that the assumed target audience was far too small. GM should have been chasing their own Malibu, Impala, and Cruze customers. Enticing them to purchase a plug-in rather than one of their traditional cars should have been an obvious goal. Instead, focus was on trophies and praise. That means Volt needs to be reinvented. Changing the configuration fundamentally to grow sales is required, especially since the tax-credit won't last forever and the vehicle must be profitable.

1-24-2014 **Advocate.** They still don't want any who doesn't own a Volt. That type of resistance is amazing. Why? Heck, I park next to a Leaf everyday at work. Supposedly, there will be a Fusion Energi joining us later too. What's the big deal? Despite my obvious endorsement for both lithium batteries and plugging in, some feel compelled to attempt to discredit anyway. That's bizarre. I'd gladly welcome a Volt owner to our little slice of parking paradise. I don't have any personal gripes with purchases. It has always been the misalignment of product and market. With GM selling what it wants rather than what it needs, that disconnect should be obvious. Whatever. My effort to demonstrate plug-in vehicles for mainstream consumers are realistic continues, regardless of what a select group of enthusiasts believe. This was my sound off about the topic: Being a strong advocate of affordable hybrids for the masses, especially after so many years, it's quite common to see posts from some who make stuff up about me. It's hard to know if the intent comes from frustration or simply not remembering correctly. But since they keep inviting me to respond, I do. The delivery of a plug-in Prius which provides a significant efficiency boost without sacrificing interior space or depleted MPG and achieving it at lost cost pretty much makes anything I say sound like an endorsement for a specific brand. It's not. It's an effort to promote the replacement of traditional vehicles. It's unfortunately certain individuals still don't acknowledge that. Thankfully, it doesn't matter. I'll keep driving and plugging to help demonstrate how realistic the technology is, as well as how little it takes to purchase yourself. That's the key. Besides necessity to be within reach of mainstream budgets, there's also an intimidation factor... another reality not being acknowledged.

1-25-2014 **Rewriting History.** Attempts to pretend the vaporware claim was proven true continue. That's nothing new. Why they continue to try to rewrite history is a mystery though. What would that actually prove? I guess in the mind of an enthusiast, it supports hope that the next generation will deliver as well. The catch is, the first didn't. Yet, the claim keeps being made anyway: *"GM did deliver on the Volt from concept in 2007 to customers in Dec 2010."* With this daily topic already getting way out of hand, what is there to lose by posting so more facts, sprinkled with comments: The Volt revealed back in January 2007 is not what was delivered in November 2010. Remember that car called "Volt" we heard about initially? It would deliver 40 miles of EV under all conditions, 50 MPG after the battery was depleted, and be nicely under \$30,000. It would accomplish that without ever driving the wheels directly too. Remember all the bragging about it being a "series" hybrid, about the purity of always being electric-only propulsion? Needless to say, the "Volt" that was made available to consumers ended up quite different. That's why there's such a silence about goals for the next. Being burned so bad by the *"over promise, under deliver"* problem a second time (first was Two-Mode), it's better just to improve the system quietly. The hype of unrealistic expectations got way out of hand. It limited design opportunities too. The next "Volt" will bring improvements to widen appeal. It will disenchant enthusiasts, but that's what happens when a vehicle goes from niche to mainstream anyway. Just look at the top selling cars for a dose of reality. Those choices being purchased profitably in high-volume better match priorities of ordinary consumers. Look at GM's popular vehicles. Tell us what traits Volt should share for its sales to grow.

- 1-25-2014 Banning Hybrids.** When someone outright hates hybrids and regularly attacks the forum, how do you respond. This particular individual goes well beyond the typical troll. His motives are obvious too. He's a strong supporter of diesel and sees the threat hybrids, especially the plug-in models, are to him. This is what we got yesterday: *"I would simply ban all hybrids from using the chargers."* It was on a new thread discussing how a limited number of chargers should be used when the population of plug-in vehicles exceeds them. Some of us are amazed by his outright discrimination and choose to carefully think out responses. Here's mine: Banning all plug-in hybrids would be telling those living within EV range, too bad. And what about those who live just a little beyond it and barely use any gas? You'd also be catering to EV owners who have capacity that greatly exceeds their commute distance to recharge, even if they don't need it. When someone chooses to purchase a vehicle with a plug, they should have the opportunity to plug it in. Ride share programs have been available for decades. Why not start a plug share program? You get a number of plug opportunities per month. Owners find ways of making it work. After all, how many hours to you actually need to be plugged in? Count & Duration can easily be limited by the chargers. Think about it. If you are given 4 hours to recharge and don't unplug & repark before that session expires, another session is deducted from your account. If you repeatedly violate the opportunity, you aren't given more sessions later. It's not complicated and there's no need to ban.
- 1-25-2014 Banning People.** What happens when the posts are on the topic of discussion, when members there simply don't like certain suggestions? Some cry out for the person to be banned, even when they are polite & constructive. It's how some deal with change, or in this case, the lack of... *"I agree about the right to express one's opinion. I'd even go so far to say we NEED people like him."* That was specifically about a friend of mine. I was mentioned in an earlier post, but with hostile intent. This kinder, more objective response resulted. I replied with: The sense of balance and willingness to share goals hasn't emerged yet, despite now being into the 4th year of sales. Those negative votes are a clear indication the enthusiasts are still not ready to do what it takes to make a Volt offering for mainstream consumer appeal. They thrive on the niche status. Becoming a ubiquitous vehicle, one so common it ends up fading into the crowd, hurts the sense of pride they've grown so attached to. Trading trophies for accounting numbers is a difficult transition. Watching a vehicle be transformed from performance to practical is something enthusiasts want to avoid. They hope for a miracle in the meantime, to prevent having to give anything up. The word "compromise" has been given a bad stigma, rather than it meaning mutual concession. At some point, you have to draw the line though. Choosing to ban certain input, despite those suggestions already having already proven successful, is a choice available. That means forging on alone. Accepting the risk of taking on different goals, despite massive competition (traditional vehicles), is something others have chosen to avoid. Alliance with other plug-in owners has been easy with all but Volt. Why? Do they fear no longer standing out is too great of a loss? Unwillingness to acknowledge middle-market purchase priorities was big a problem in the past. Is it still? What will it take to recognize need?

- 1-25-2014** **2014 Change.** The new year certainly has ushered in change. Discussions have transformed. Who would have thought efforts to forge an alliance would return? I had given up on that years ago. But when that moderator of the daily blog intentionally stirred by pot by declaring Volt a niche and asking if it would remain that way, it definitely ruffled some feathers. The thought of competing head on with traditional vehicles is not something they are not ready for yet. That's quite obvious. So on the other side, the effort to find cooperation at charging-stations with other plug-in vehicles, is an issue they aren't even addressing. The choice of Volt enthusiasts to isolate from everyone is drowning out the few Volt supporters who would like the mutual aid. It's a dynamic none of us have dealt with yet. There's both cheerful willingness and staunch resistance. I get the impression that's a sign of progress. In the past, fierce denial of the need to change resulted in an abrupt abandonment. Those who fought against no longer feel welcome, since everyone else accepted change. We'll see. The year certainly is off to an interesting start.
- 1-25-2014** **Too Little, Too Slowly.** That concerned wasn't taken seriously, right from the start. Such heavy focus on the looks of Volt was a big clue of problems to come. The disastrous "230 MPG" campaign overwhelmingly confirmed it. What a mess? Not even being able to get past such basic misinformation should have set off alarms; instead, the downplay began. It kept getting worse. How could they not see that was slowing down the progression? Of course, upon debut, they were already shifting focus to the next generation. Slowing down acceptance by adding another 5 years is far too long of a delay. Yet, that was the path chosen. Consumers ended up with little in return. Hope rapidly faded. 3 years later, the thought was attitude would change and the stumbles of the past would have long been forgotten. You know, acknowledge mistakes and move on. Instead, they still resist. Making adjustments to match preferences of your target audience is a basic business fundamental. Didn't any of the enthusiasts take an economics class? What the heck? True, my bachelor's degree includes a business minor. But you'd think that knowledge wouldn't take a college focus to understand. Hmm? You'd think observation of the market itself would inform you for changes that need to be made to attract more sales. Apparently, that's not the case. Of course, there are some who are too stubborn or too proud to admit when a mistake was made. Errors happen. Get over it! Calling for delay and hoping for a miracle in the meantime isn't a good plan.

1-26-2014 **Caught Misleading.** The spreading of incorrect information generally comes in two flavors... intentional and transposed. The first is an obvious attempt at greenwashing. Sadly, we encounter than far more than you'd like to think. Thankfully, that's relatively easy to deal with. The next isn't as nice or as simple to overcome. It's when the poster mixes up details. They'll use wrong quantities and mess up timing. In their mind, the information is correct. I know when they are wrong. It's just a quick search of my blogs to confirm that. The facts are spelled out in great detail, documented when those events happened. Trying to recall them years later is prone to problems. Looking up the history written as it was happening is far more accurate. Some get irritated when caught misleading. Some make up excuses. Others pretend it never happened. Here's an example of some misleading I had to deal with today: "*As I remember the Prius in it's early years got a tax rebate which could be carried forward.*" This particular one was complicated by being so blatantly vague. But in the context of the posts it immediately following, the intent of greenwashing was obvious. I responded to that with: There was only a \$2,000 tax DEDUCTION for the first 5.5 years of sales. That worked out to \$300 to \$400 for most of the buyers back then. The \$7,500 tax CREDIT for Volt is dramatically more. When Prius did finally get a tax CREDIT in 2006, it was only less than half that amount (\$3,150) and was only offered for the first 60,000 sold per automaker. GM gets 250,000 right from the start. Expecting more on the road as a result is reasonable... which makes designation of "niche" an admission of not being up to the chore... which explains the posting behavior seen on this topic.

1-27-2014 **Chapter Closed.** Remember the "*up to the chore*" nonsense over a decade ago? It was a lively discussion thread that went on for 1.5 years. The propaganda of the time just plain could not get hybrids to die. No matter how hard they tried, proof that they were capable continued to come in and mess up their arguments. I had never seen desperation on that scale before. It was amazing, especially from the eyes of an active participant. The same thing happened again, but this time it was a different outcome... well, sort of. Rather than traditional vehicles leading the fight and losing, they actually won. Volt is technically a hybrid. GM declared this generation a niche. That official word of not being able to compete in the mainstream arena was taken two ways. Those who strongly believe Volt can with modifications look forward to the next chapter to begin. Those who feel the sting of defeat wanted someone to blame & punish. That meant Prius and those like myself would be relentlessly attacked, faced with having to deal with the same kind of desperate lashing out we've become all too familiar with. It was nasty, for them. We actually got compliments for remaining civil. Stay calm & polite makes a very good impression while at the same time allows the attacker to vent and tarnish their own image. There was definite anger this time... because Prius is a hybrid, yet it won. The fight against traditional vehicles is no where near as simple as certain individuals believed. And despite being warned, they ended up learning that lesson the hard way.

1-28-2014 **Parting Thoughts.** This is what I posted as parting thoughts on that explosive "*niche*" thread: For over a decade, the definition of mainstream has meant monthly sales here of at least 5,000 and the definition of niche was simply not being enough to be mainstream. Prior to Volt's rollout, GM set that very target (in terms of 60,000 per year). The reason made sense, volume is required to achieve production cost savings... since automakers are publicly-held for-profit businesses... and none of the excuses or claims otherwise will change that. As for the "*compared to approximately 5 for electrification*" comment, I continue to be astounded how GM supporters refuse to acknowledge the past. Development of EV1 began back in the early 90's and work with batteries & motors carried on throughout the 00's with BAS and Two-Mode. Their fuel-cell vehicles were electric too, which included battery-packs. We all know what needs to be done at this point. Cost must come down dramatically. To break out beyond niche, there is no other way. How well the technology works doesn't make any difference if few actually purchase it. That means reconfiguration is needed to appeal to buyers of GM's high-volume vehicles. They are the market for the next generation of Volt. And since we are finally closing this chapter, to all those who swore this situation would never happen, I suggest taking a course in business economics. You obviously have an excellent handle on the engineering, but it's overwhelmingly clear the influences of consumer behavior were not understood.

1-28-2014 **Ironical Timing.** Or was it? We know that Toyota was keeping a distance from GM. They've done that several times in the past. We've seen it with both Ford & Honda. That's a wise business move. If something goes wrong with consumer acceptance of a competitor's product, you don't want to be included simply by being in the wrong place at the wrong time. Heavily promoting Prius PHV while Volt was struggling with problems on several fronts was obviously a good thing to avoid. In the meantime, real-world data could be collected in mass quantity. That's priceless. In fact, it is one of the most important aspects of having a successful rollout. Anywho, a little more detail about the next generation of Prius was offered by Toyota yesterday. The timing was fantastic. Volt never materialized as a "*game changer*" like Prius. That leaves the path wide open for Prius to face the challenges of generational improvement head on. Cost is a very big deal for Toyota too. Refinements to the hybrid system design will help to achieve that. Increasing the value of the vehicle itself will too. Toyota will achieve that by delivering higher MPG through the increasing of thermal efficiency for the engine. At the same, there will be weight reductions. Switching to lithium batteries will be considered too. The goal is to make the next Prius directly competitive with traditional vehicles to the degree that it can no longer be argued reasonably. And that's without gas prices going up. If they do, favor swings toward Prius even more. I find it interesting that diminishing returns hasn't become too much of a struggle yet. Of course, it won't matter as much when the next generations successor comes about. At that point, the idea of plugging in will be common. Plugging in offers opportunity for further enhancements. But for now, we still need to wait. This one is expected the end of next year. What do you think of that timing?

- 1-28-2014** **Still.** Some of the issues still remain. You wouldn't think things like this could persist for so long: *"Nobody cares anymore about a few more mpg in the Prius. Toyota, stop chasing diminishing returns..."* when there are others saying this: *"If only Volt had a proper modern hybrid-oriented engine, they'd have got one of those instead. A gas engine that could get 50+mpg highway would have sold them."* Making hybrids stand out from traditional vehicles is a must for those who understand the market. But then again, some people don't bother actually reading what's published. They just post comments to belittle & insult. Both quotes were in response to an article with this after the introduction: *"Keeping cost down will be one of the major concerns of the new Prius."* The method of reducing costs highlighted was the making the system smaller & lighter. That naturally results in improved efficiency. It's that lack of understanding (or caring to understand) that is still a major problem. You'd think something as simple as meeting the 50 MPG target would be a no-brainer. Currently, the highway rating for Prius is 48 MPG. Squeezing out 2 MPG is well under the diminishing return threshold. In fact, it's only 4% more. The size & weight improvement alone could achieve that. The article also mentioned the engine refinement. That too will deliver a few more MPG. Combined into the next generation, the reasoning to purchase a Prius becomes easier. After all, traditional vehicles continue to represent major competition.
- 1-29-2014** **40,000 km Report.** 2 years of ownership and that many kilometers of driving prompted the report. It was from a Volt driver... one who absolutely hated me... which makes this particular situation quite ironic. His main complaint was the technology works well, so well, he's frustrated by how slow and how little GM has done over the past 3 years. Sound familiar? Even the most staunch owners are now recognizing the *"too little, too slowly"* concern. That select group absolutely refused to acknowledge the barriers Volt faced back when I was pointing them out. Now, in a very humbling way, they've learned I really was sincere and all along just wanted to help out. Being vindicated like that is strange. I hadn't even expected the denial to get so bad. What a relief that it's now over. The realization of things going bad with Two-Mode wasn't anywhere near as bad. Enthusiasts just faded away back then. This time, it was continued fighting for a dead cause. The next Volt will be so different, it doesn't even make sense to associate it with this one anymore. That's why GM declared the first a niche. Anywho, the other complaint was the size. It should have been bigger. The legroom in back really was more of an issue than he wanted to admit, but ultimately finally did. So much focus was put on performance, the most basic of requirements was carelessly dismissed. Now the consequences of each of those choices along the way are quite easy to see... 40,000 km later. Ugh. Why did it have to take so long?

- 1-29-2014** **Know Your Audience.** That topic of marketing & economics sure is making its importance known now. The example of GM having totally misjudged what people would actually buy made itself clear with Volt. The regard for need was dismissed by executives, engineers, and enthusiasts. The car delivered was based on want. Who did they think purchases would come from? Sales of high-volume vehicles are that way because they fulfill the requirements of those ordinary & plentiful consumers. Remember when Prius was still perceived as "new" technology? The primary reason automotive magazines published articles on it was the attention doing that brought. Looking through previous copies, mention of mainstream vehicles was nowhere to be found. They didn't write about Camry or Corolla. Their audience simply didn't care. They knew their audience. It was the thrill of what the new technology had to offer, not the performance in any respect. Volt enthusiasts didn't recognize that. They seriously thought the average person would care... despite the fact that they didn't share anything in common. It was yet another example of history repeating. Prius owners knew the audience and tried to point out the mismatch countless times. Warnings didn't work. They found out for themselves, the hard way.
- 1-29-2014** **Mass Market.** For the past 11 years, J.D. Powers has been conducting surveys on this very topic. They know the audience and just published results of their most recent findings. The top-5 priorities mentioned, in order of importance, for mass-market vehicles were: 1. *Gas mileage (fuel economy)* 2. *Reliability (freedom from breakdowns)* 3. *The "Deal" (interest rates/rebates)* 4. *Exterior styling (design)* 5. *Performance (power, handling, etc.)* Seeing that easily confirms the problem. Enthusiasts of Volt absolutely insisted number 5 was actually number 1, performance was the key. They also claimed number 1 was meaningless, that electric-only miles were all that mattered. Of course, overall MPG is so random with a plug, they couldn't promote a clear expectation anyway. Reliability never got mentioned, most likely due to obvious added complexity compared to Prius. The allure of the tax-credit was heavily flaunted, but the reality of its delay and the possibility of not being able to collect due to AMT avoided. As for appearance, you know how that gets spun. Lastly, note that size doesn't come into play when comparing vehicles of the same class. Long story short, it's very important to know your audience.
- 1-30-2014** **No Recharging.** With the daily high temperature below 0°F, then need for heat has prevented battery-pack capacity from being used entirely on my daily commute. I haven't been recharging at work as a result. To my delight, that hasn't impacted efficiency as much as I thought it might. After 50 miles of driving, each of those days ended with MPG in the low 50's. The engine runs more to produce that heat, but it's not in the on/off fashion people tend to assume. In actuality, the RPM is just higher at times. That adjustment works well. Producing heat also produces electricity. So, there really isn't as much waste as you would think. The hybrid system still proves quite beneficial, even with such extreme cold driving conditions. I do miss Summer though. The Prius always being dirty and virtually no outdoor activities is a sad. Of course, a warmer Winter would do the trick. There's plenty of recreation possible when the temperature is closer to just under freezing... in other words, 30 to 40 degrees warmer. Waking up to -18°F is just plain nasty. But seeing the temperature still negative when you drive home from work is even worse. Blah!

- 1-31-2014** **Plug-In Rage.** That new topic has had an interesting thread going on the big Prius forum. I added this to it: It's somewhat puzzling to read posts about whether or not employers should provide the ability to plug in when there isn't even a requirement to provide a spot for employees to park their traditional vehicles. No regulation or mandate will make people to be civil with each other either. Good behavior comes from people sharing a common goal, a clear & concise objective that benefits many. That's what we need to find & spread. Waiting for the situations emerging to somehow work themselves out on their own isn't exactly the approach we want. That's attitude is common though, so it's understandable. But being reactive is not how change comes about. We need to proactively seek out solutions. That requires actions like engaging other plug-in owners by holding gatherings... because it obviously isn't effective to have direct confrontations at charging-stations. Anyone remember how effective gatherings were, over a decade ago when hybrids were still new? We're only now reaching the stage where our efforts can even be effective. Getting over the chaos of initial plug-in rollout was rather painful at times. Those first attempts unable to reach the masses resulted in disappointment & resentment... something we don't want to carry over to the charging-stations. Recognizing what the mainstream actually needs has become easier. A big part of that is getting away from the one-size-fits-all mentality. Notice how resulting efficiency varies dramatically from owner to owner even with the same vehicle? That's why what happens at the plug is such a big deal. Each person will have a very different experience from the same recharge opportunity.
- 2-01-2014** **Looks.** This particular quote caught my attention: "*Bought my Prius for what it can do, not what it looks like.*" How can you resist that. I couldn't: It very refreshing to hear that. Think of all the SUV owners who did exactly the opposite... the heavy-duty suspension and high ground-clearance combined with all that power, wasted. Prius got mocked relentlessly for many years due to its practical look. The hatchback screamed convenience that no sedan could possibly compete with. To make matters worse, it was the only midsize hatchback available in this market. They were all compact & sub-compact back then. Add to that the 50 MPG owners were reporting, there was simply no way to avoid all the negative attention the supporters of other automakers could dish out. Mainstream vehicles have a familiar look anyway. That's what makes them common and so easy to consider. With millions of Prius on the road now, other priorities are what compel consumers to take a closer look to see what else it has to offer. Enjoy your Prius. Take advantage of it like I do. Load up the interior with cargo, toss some bikes on back or kayaks on top, then hit the road.
- 2-01-2014** **Winter Driving.** It's always nice to read a new thread posted by a new owner. Today, it was a report of Winter driving. The results were quite pleasing. The excitement was easy to see. In fact, a photo was even included. I welcomed the new forum member with: Slow down from Winter's snow & ice certainly does have its benefits when your driving a Prius. It's quite refreshing seeing MPG go up, rather than down, when there's congestion on the road. Think about how the effect those same conditions have on others. They grow increasingly frustrated. Some of that is the direct result of gas being wasted. We don't have that with the hybrid system. In fact, I bet you may have had a silly grin appear on your face at some point... watching the impact of the drive have a positive effect on efficiency. Enjoy Winter, but also remind yourself what happens with the arrival of Spring.

- 2-01-2014** **Looking Back.** That chaos a week ago was nuts. Volt enthusiasts got so angry. Some were absolutely furious. They lashed out at the only scapegoats they could find. I was quite amused by the senseless reaction. What did that accomplish? Getting accused of being a troll, even though my content posted was totally on-topic, confirmed their responses. There are so many opportunities to do off-topic other times, but I resist. Today provided an excellent example. There was a review of Cadillac ELR. It overwhelmingly confirmed GM's stance on niche vehicles. It was pointed out how Toyota's battery production (enough to deliver 1,000,000 hybrids in 9 months, which they recently did) grossly outweighs GM's effort to achieve cost reduction. The economy-of-scale benefit should be obvious; yet, some argue anyway. Some are dead-set against smaller battery-packs. It's more evidence of how focus on engineering alone has harmed mainstream penetration. Being business realistic isn't exciting. They always wanted a vehicle that was exciting. Failure to recognize that would inevitably lead to the outcome we now all see didn't matter. They kept contributing to their own demise, hoping it wouldn't happen. Looking back, I was drawn by the opportunity to witness such self-deprecation... again. Looking forward, I wonder how that failure to recognize will change. Third time's a charm?
- 2-01-2014** **Favorite Example.** Looking way back over the years of chaos, the reoccurring theme Prius antagonists posted (yes, Volt enthusiasts) was that technology had become "*obsolete*". There was a deep denial to acknowledge it was actually "*mature*". That was a dead giveaway they weren't concerned about mainstream offerings. When pressed about the needs of middle-market, they'd reply with how electric purity will win people over. They sincerely believed ordinary consumers were find a way of justifying the extra expense. That level of differentiation is why there's been luxury brands for decades. The majority of people are unwilling or unable to pay more, regardless of how desirable the drive is. That's the way the real-world works. Not wanting to accept that has resulted in serious disappointment... on their part, anyway. I'm simply pleased that's over and can now reflect back upon their refusal to face facts. What a waste. We shouldn't have had to go through that nonsense. Sadly, the warning signs we got from the Two-Mode failure to sell well should have been enough. It too failed to address the needs of the masses. I'm always amazed by hard the loss of perspective can cause such a mess. Oh well. At least some of us know better.
- 2-02-2014** **Better Understanding.** We're moving away from struggles of the past caused by misconceptions. Some of that comes from no longer having to deal with greenwashing, the intentional misleading certain groups of people spread. Back then, people were innocent victims, unaware they weren't being provided with correct information. Now, it's more a matter of providing clarification. There's enough real-world data at this point to make the greenwashing efforts suspicious. Phew! What a relief. This was the response to one such situation today: "*That's good to know, thanks! Pretty darn clever.*" It came as a results of several Prius PHV owners providing detail about how the battery-pack capacity is managed when the engine starts. Mine was: If you get an aftermarket gauge, you'll be see that RPM is held to 1500 during warm-up. That's done to help reduce emissions. It's achieved by drawing from the battery-pack at a higher rate than in HV mode, hence EV range being burned during that time. We call that EV-BOOST, since you aren't really in HV mode yet. It automatically switches over once warm-up is complete, then works to restore the electricity it consumed during that time.

2-03-2014 **Plug-In Sales.** The month-end results for the auto industry were revealed today. January is always a rough one. Cold weather certainly doesn't promote sales. It's uncomfortable looking in dealer lots and no one wants to have to deal with snow & ice right away. So naturally, the weather was the number one reason for blame of low sales. Most everything was down. The few vehicles doing well were flat. In other words, those results were quite predictable. It's been a challenging Winter so far. Looking at the plug-in market, the three big players stirred online chatter. Leaf managed along just fine. I'd personally say that's extra impressive due to impact the heater makes on range, reducing rather significantly. 1,252 wasn't too bad. Of course, the 2,529 sales from last month (stimulated heavily by end-of-year tax-credit incentives) was obviously better. Volt dipped to 918, making it a larger percentage & numeric drop from last month's 2,392 than Leaf. Both marketing & inventory were to blame for that. I'd say there was more at play, but supporters disagree. Prius PHV, which is still only available in the 15 initial rollout states, dropped from 919 last month to 803 in January. That lack of major change was interesting. I'm not sure what the reason for that was. Perhaps buyers really do understand how well the plug-in Prius copes with the cold. They may know that since the engine has to run anyway, it's much more efficient then when the one in Volt runs. I honestly don't know. But it sure is nice seeing MPG averaging above 50 even in the dead of Winter. Hopefully, February will start steady growth. Expansion into other states sure would be nice too.

2-04-2014 **Growing Pressure.** It looks like the sting of price (more importantly, cost) is becoming apparent. More and more posts are focusing on that now with the topic of plug-in sales. This is what I chimed in about today: *"GM will face more price pressure from more plug-in offerings as well. Hyundai-Kia will be bringing plug-in versions of the Sonata-Optima in 2015. The hybrids are \$25,900. I could see the plug-ins below the magical \$30k number."* Volt supporters are well aware of how that *"nicely under \$30,000"* goal fell short. My way of stating that fact now is: All automakers knew the importance of price and how big of a gamble it was waiting for battery cost to come down, while hoping gas prices would remain relatively low in the meantime. They also knew the true competition was traditional vehicles, not other plug-in vehicles. That's why the PHV model of Prius was designed with cost being a very high priority... so it could be in sold in high-volume for a profit. Toyota worked really hard to squeeze as much as it could out of a battery-pack that would still deliver ample cargo space, hybrid efficiency following depletion efficiency, and hit that magic price-point. The fact that sales for it have remained relatively flat (rather than dropping) and the fact that rollout beyond the initial states hasn't happened yet means there's potential for this generation, no waiting. Pressure will continue to grow. Look at how strong of a hold traditional markets still have on the market. They will keep pushing. It's not other plug-in offerings you should be worried about.

2-05-2014 **Lease Replacements.** Seeing some former foes turn in their Volt after the lease expires and purchasing something else to replace it comes as quite a vindication. Some were down right cruel. Now, they have abandoned the very thing they had so passionately defended. A few have even sighted the same reasons I stated others would find unappealing. Price and legroom in back have overwhelming been the most common. They didn't want to admit mainstream need was such a big deal. They truly believe the performance aspect would justify the shortcomings. Being well-balanced, like Prius, was uninspired & boring... or so they thought. It was a group-think trap they fell into... and surprisingly admitted to the mistake afterward. That's why we can now so solidly declare a new chapter having started. hey now understand the tradeoffs required to appeal to the masses. Being extreme earns trophies. Being seemingly ordinary results in lots of sales and sustained profit. Lease deals designed for short-term gain have consequences... which are quite obvious to see now.

2-06-2014

Success. The inevitable summary came today... It boils down to how success is defined. We saw the problem right from the very beginning with "*vaporware*" arguments. Most of the enthusiasts claimed that simply meant proving the technology, demonstrating it was a viable option. But when pressed for detail, there was an obvious effort to avoid providing any. They didn't see how it mattered and declared the requests for clarification attempts to undermine. That gave GM free reign to do whatever would draw attention. Warnings of the past were not heeded. Lessons from the failure of Two-Mode to appeal to the masses were outright dismissed. The motto of "*no plug, no sale*" emerged, making a bad situation worse. Heavy emphasis was placed on the purity of electric-only driving and series-hybrid operation following depletion. The thought of anything but electricity providing thrust to the wheels was deemed an attack on Volt. Bringing up the issue of needing heat in the winter for both cabin & battery resulted in hostile replies. MPG would be outstanding. Price would be easily justified. They didn't see how there could be any resistance. The thought of actually defining success measured by sales was laughed at. That brought about the "*vastly superior*" claims. It was an indication of history repeating. Enthusiasts just plain didn't care; instead, they mocked & belittled other automaker offerings. They truly believed the technology alone would be enough to stimulate purchases in high-volume. Why would anyone doubt strong demand? Pointing out concerns was assumed to be support for another automaker. Remember how GM told us development would include "*transparency*" of unprecedented level? Yet, whenever there were certain questions from enthusiasts, like CS-mode efficiency, the answer was vague at best. Why didn't those responses raise any red flags? How come no one wanted to state who the target buyers were? What should have been done when well-known contributors became disenchanted? When was it clear that executives leaving the project indicated trouble matching market need? Now, over 3 years after rollout, there are a few still making excuses and defending the failure to understand the business of selling vehicles. We routinely see examples of innovative technology failing in other industries. That's why manufacturers don't bet the farm on a single product and strive to offer diverse choices. GM decided to risk it all on an inflexible design, one requiring a large & affordable battery-pack. That has proven unwise. Sales, even with a generous tax-credit, have been well under expectations and nowhere near mainstream levels. Achieving success isn't as easy as earning engineering trophies. Enthusiasts learned that lesson the hard way. A few still refuse to accept that reality. The business of appealing to ordinary consumers not interested in anything but transportation with a good price is a substantial challenge... like it or not.

- 2-07-2014** **Ugly Mess.** This was my follow-up post on what's left of that daily blog, which features many topics outside of Volt now: Unfortunately, looking back, we see that constructive criticism about GM wasn't welcome either. The topic of non-traditional vehicles had already become a polarized topic by the time Volt was revealed. GM's reputation for "*over promise, under deliver*" had already been freshly reinforced by the struggles with Two-Mode. It fell short on several goals. Volt was the ultimate diversion from that. Tesla's competition made it all better. Having been burned so bad by Toyota, none of that rhetoric was any surprise. Lutz had embarked on a major anti-hybrid campaign and lost. Then he set out to trump hybrids with a superior design and lost again. Third time had to be the charm. So right from the very beginning, we got lots of cheerleading. Pointing out the past wasn't allowed. Questioning claims wasn't allowed. You had to support the effort. Period. Red flags kept popping up. Those warnings were disregarded. Touting the "*vastly superior*" design of Volt served to quiet comparisons to Tesla and served as entertainment for mocking Toyota. Cheerleading turned into hype. The situation degraded as details were learned. Many who had labeled those asking questions as "*trolls*" vanished from discussions. They figured out the promises wouldn't be delivered. Rollout confirmed that. It turned into an ugly mess. 3 years later, we find ourselves wondering what comes next for GM. Tesla has done surprisingly well and other automakers are quietly attempting to emulate Toyota. What does GM hope to achieve?
- 2-09-2014** **Audience Search.** Not being able to agree who the target market is for a vehicle dooms it to fail. The meaning of "*success*" is not shared among all involved. Conflict with a group of enthusiasts should be a red flag, a warning of mixed messages. Sadly, that's been easily overlooked or dismissed. Instead, focus is still being diverted. This quote from yesterday provided a great example: "*There are 3 reasons I see for people buying Prius. 1) Ignorance. 2) Brand Loyalty. 3) Snobbery. There is no possible way that someone who does genuine research of the Hybrid Market in 2014 could come to the Prius.*" That's hardly a ringing endorsement for Volt on a Volt forum on a thread deciding between the choice of a Prius C or Volt. The very fact that the smaller model of Prius could even be compared directly should highlight the internal struggle taking place. We left the previous chapter with a "*niche*" status. This new chapter is off to an interesting start. It's quickly becoming a search for an audience.

2-09-2014 **Short vs. Long.** Far too often, we get narrow perspectives. Today, it was: "*But more competition from higher mileage cars really is eating into prius liftback market.*" Encountering comments like that is quite typical. Hopefully, the reaction to my response will be too. With expectations for Volt having fallen apart, there isn't much arguing anymore. Taking the next step is quite a bit easier now that there's a good sense of direction & speed. The chaos before sure didn't provide that. I'm thinking this new chapter will be much different: Short term, that's a reasonable assessment. Long term, more competition is a win for Prius. Counter intuitively, waiting for the next generation is too. Other automakers pushing the shift away from traditional vehicles is how penetration deeper into the market will happen. It's necessary for expansion. This opportunity for catching up helps all involved. We obviously find the slow pace annoying. That's how the mainstream market works though. The high-end niche can move rapidly. But with the majority in the middle, speed of change is glacial. Paradigm shifts means someone will lose. That means fighting for survival, even though the inevitable cannot be avoided... only delayed. That's why Toyota's effort to offer an affordable plug-in option is so important. They are well aware of how long it takes to refine a design and not incur increase cost as a consequence. Being able to share improvements with the regular model makes competing with the wide variety of competitors, including their own traditional vehicles, is a major benefit. Notice how much of a non-issue the switch to lithium has been so far. Both the 7-seat Prius wagon and the PHV work well with it. Although still expensive compared to NiMH, the new battery type has proven resilient in addition to being more efficient. Increased competition will help drive down the battery cost. Toyota is positioning to take advantage of that.

2-09-2014 **Product Gap.** This topic of Tesla production intentions certainly has stirred up some rhetoric of the past. Remember a decade ago when Lutz launched his "*stop gap*" campaign? It was a clear anti-hybrid effort to promote fuel-cell vehicles, a declaration to end the consumption of gas. That fell apart. He got burned bad by Prius. When Tesla came along, it was a golden opportunity for vindication. That ugly chapter from the past would be forgotten by the way of crushing a bold, new, player with strong potential. Volt would be superior, offering the best of both worlds. Unfortunately, the realities of business crushed those ambitions. Volt created a product-gap instead. Price was too far out of reach for GM's own customer base. It would be competing directly with GM's other offerings. Despite countless warnings that would happen, hype clouded judgment. When sales began, so did the denial. Purchases well under expectations spurred the need for delay, making the product-gap worse and leaving GM with an expensive niche. Meanwhile, Tesla continues to press on... leaving us all wondering who the next Volt will actually target. The spin we now get from certain individuals confirms the lack of clarity. The same market question will need to be asked again. It's quite obvious that will be the source of trouble again too. Watch for it. Those vague answers are a dead giveaway. Ironically, that's what enables Tesla to continue to be a "*disruptive*" company. Each time detail is avoided, it strengthens them. Pressure is growing from many directions. GM must offer something, anything, for the masses in the high-efficiency category.

- 2-10-2014** **Power or Energy, not both.** Upon reading the following quote (from the moderator of what's left of that daily blog for Volt), I knew an explosive reaction was about to occur: *"An important consideration that people without a technical background don't understand is that you can either have a high power or a high energy cell chemistry, but not both. Since the battery pack in a plug-in hybrid like the Volt has to generate the same power as a much larger battery pack in a pure electric vehicle, it has to use a low energy cell chemistry."* That came from Elon Musk back in 2009. He's the person responsible for Tesla, well informed and passionately disliked by Volt supporters. Getting such a comment from him was going to be a problem. It backed my stance. So, they wouldn't like hearing from me at all. Who could resist that? I posted the following: Thanks for digging up that quote. Having a source to refer back to about that fundamental difference would have been handy. It's a factor rarely brought up in the non-tech discussions. Ironically, engine running is often posted. But sadly is used as an insult, rather than an objective comparison. GM chose to design a vehicle which depended heavily on the battery-pack, doing everything it could to avoid starting the engine. Toyota did the opposite, allowing the engine to start for the sake of maximum overall efficiency. In other words, one automaker sacrificed electricity for the sake of purity and the other decided sacrifice purity to avoid some losses. The reason for the approach difference should have been obvious. It was to protect the battery-pack. Why allow heavy draw knowing that accelerates deterioration? What is obvious is the obsession with power. It doesn't make sense carrying around a engine if the point of it is only for use after depletion, especially when supporters want a larger capacity battery-pack to prevent ever having to use it. How many times have we seen "blending" labeled as a shortcoming? That points it out as a strength for vehicles which include both a plug and an engine, who's system is designed to squeeze out the efficiencies of each by using them in conjunction.
- 2-10-2014** **MPG not MPH.** The hate really came out today. I innocently made a comment about diminishing returns, how efficiency gain drops significantly after exceeding 75 MPG. The person who attacked clearly didn't read anything I wrote or even looked at the link provided. Each of the line included in the quote responded to stated "MPG" too, all in upper-case letters. He assumed "MPH" and the dozen who quickly voted positive for his post did too. I was amazed at such a blatant attempt to greenwash and the lack of integrity. Of course, that's why I never got banned. Me being detailed & polite is quite a contrast to the Volt enthusiasts intentionally misleading. I later called that post out too, pointing how the response was completely unrelated to the quote. They didn't care. That's why this new chapter is so easy to see. There's a huge divide between those trying to genuinely support the replacement of traditional vehicles and those who simply thrive on pride & conquest.

- 2-12-2014** **Sighting.** Well, that was quite unexpected. While taking a nice walk with my sweetheart, she suddenly got excited and pointed. Having spotted another Prius PHV before me came as a very nice surprise. With them still not available in Minnesota, it isn't something you'd expect. But being that color unique to the plug-in model, it's difficult not for it to not stand out in the eyes of another Prius owner. Hopefully, when the Winter finally melts away, there really will be a chance of more. Right now though, forget it. Between the cold & snow, it's a miracle to be seeing a solid 60 MPG average. That's half of what I saw during my best month last Summer, but remarkable when compared to other vehicles... even hybrids without a plug. It's lonely still. But with the chaos coming from the first chapter, it has been confirmed a wise decision to wait. In the meantime, the few of us who do actually own one are gathering lots of real-world data. Remember the mess caused by rolling out without? Setting realistic expectations is important. How many people really understand how Prius works in the first place? Adding the plug option confuses matters. Thankfully, there are some of us who know the differences well. Too bad I didn't actually get to meet the owner.
- 2-14-2014** **Showing The Love.** I watched the opposite this week, perfect timing for Valentine's Day. There was a "*recall*" issued for the current generation Prius. It's actually just a software update, providing preventative & longevity improvement. But the stigma of updating is a major image problem for the auto industry. That's really unfortunate. Look how widely accepted that practice is for phones & computers. People think nothing of accepting them and they most definitely don't treat that as a recall. On-Going improvements for vehicles is still thought of as a bad thing though. Why must we deal with that rhetoric? The posts on the big GM forum and the big forum dedicated to Volt were outright cruel. What I got a kick out of was the blatant effort to attack supporters. I was called out by name, even though I haven't posted on the one in well over a year and never on the other. Since I had established myself as a lightning-rod, an owner spokesperson due to having so much real-world data easily accessible, they felt the hostility was justified. They felt I could be blamed for Volt's struggle and wanted Prius to suffer. I thought it was quite amusing how they misrepresented both me and Prius. What was more telling though was how both threads abruptly stopped when it got personal. True supporters of Volt understand the benefit of software improvements. They also see what can be gained by having a well-known hybrid success as an ally rather than an enemy.

2-15-2014 **You'll Know When.** Setting proper expectations is a very big deal. We saw how much of a problem that was for Volt, where hope had wandered far from reality. So naturally, the topic of the next generation Prius is a popular one. There's over 1,850 posts on that particular thread already. This recent comment caught my eye: *"I am beginning to believe that Toyota is experiencing problems meeting the expectations, including fuel efficiency, handling, comfort and cost. The G3 was a wonderful achievement in all of those area, and it may be very difficult to eclipse that success. OTOH, no other manufacturer has been able to, although some are getting closer and closer."* That opened up the opportunity for me to set some expectations, especially having been through this several times already over the past 14 years: Putting developing-market expectations on a maturing-market will inevitably bring disappointment. It's not realistic to think each generation will bring major improvements without something actually changing. You can only squeeze so much out of a design. The engine/battery approach will only take clean & efficient so far. There's nothing left to prove either; real-world results ended all misconceptions. The next step is engine/battery/plug... which Toyota already has a huge industry lead on. No other automaker is working so hard to squeeze out so much out of so little. Dropping in a larger battery-pack is easy. Getting a large return from a capacity of just 4.4 kWh is quite a challenge... but that's exactly what's needed to not compromise on efficiency, handling, comfort, and cost. Thinking people will suddenly embrace high-capacity batteries is futile. They won't, period. Look at the computer & device industry. Large solid-state drives are clearly superior to traditional hard-drives, yet they are still far from standard. People don't care how much more robust, faster, and efficient they are. The cost just plain doesn't justify that. So, the best to hope for high-volume market penetration with much smaller capacity solid-state on common tablets for now... however, that is a sign of maturing. Seeing the plug-in Prius emerge as an affordable choice, an option actually competitive with traditional vehicles is what we should hope for. We'll obviously see design gains from the regular Prius. But those will contribute to mainstream expansion and the reduction of guzzlers. The push into new territory comes from adding a plug. Watch as the term *"hybrid"* fades away. That's when you'll know it happened.

2-16-2014 **Only For Green.** The online fighting has come to an end. We are seeing hypocritical posts and childish parroting now. That's a sure sign nothing is left to say. It further reinforces the reality of a chapter having ended. The audience has moved on and even those extremes aren't drawing attention. I find comments like this interesting: "*But, if you look at Ford sales numbers, Energi isn't exactly selling like hotcakes, so Ford hasn't exactly found the answer either....*" They give the impression of being constructive, until you look at the actual numbers. Being vague is the key to keeping discussions alive. But at this point, even that doesn't work, which is why comments like this emerge: "*You're the person that shows up invited to a party and can't take a hint to leave.*" Making opposing viewpoints feel unwelcome is nothing new. The catch is, the moderator shares the same sentiment. Rather than agreeing with those everyday posters who just want cheerleading, more and more evidence of a new chapter beginning is provided. It's an obvious effort to get the discussions to change. I joined in by providing some insight: There were 1,004 purchases of Ford Energi models last month. Comparing that to 959 sales of Volt & ELR puts GM in the same, if not worse, situation. Taking into account the reality that the GM plug-in hybrids offer \$3,493 more tax-credit incentive makes those Ford purchases even more meaningful. Then when you notice 471 of the total 1,418 C-Max sales were the plug-in model, it really provides some perspective. Volt was available for a full 2 years before the first Energi model too. Seeing the latest Volt advertisement focus on range-anxiety and only the cheerleading comments about it acceptable, tells an unwillingness to address the problem of low gas-prices and high battery-prices. Using a double-standard to distract from the "*too little, too slowly*" concern having been proven correct sends the message of genuine trouble. Avoidance of an issue doesn't make things better. This new chapter in the history of Volt, having the current generation officially declared a niche, makes the next offering even more of a challenge to face. Continued advertising to the EV market rather than ordinary mainstream consumers would otherwise purchase a Malibu or Cruze reinforces the "*only for green*" mindset. The step forward is appealing to the masses. Not wanting to tackle that and just quarreling amongst ourselves doesn't accomplish anything. We already know that production cost must be given high priority and practically cannot be sacrificed. The expectation of high-efficiency (better than traditional) following depletion is being sighted as important now too. Goals must be clear and taken seriously. So far, that hasn't happened.

2-17-2014 **BMW Plug-In.** Some information about the expected plug-in hybrid from BMW was provided. No, not that model which messes up the vague & misleading enthusiast definition of EREV. It's their true plug-in hybrid. You know, a vehicle which blends power-sources for the sake of achieving optimal efficiency rather than forcing electric-only power initially, sacrificing opportunity to use the engine. The detail we got came from BMW. It was the result of some photos having been leaked. Rather than allow hype and false expectations to emerge, they took advantage of the attention that had garnered. We learned it will provide roughly 190 horsepower and will likely use a high-performance 1.5 liter 3-cylinder engine. The key is will look similar to the common hatchback/wagon offerings we see now and the battery-pack will be in the 13-mile range. Not intruding on cargo or passenger space is obviously an important aspect of design... the very thing complained often about with Volt. Sometime the middle of next year is when the availability is planned. That timing should make it quite interesting.

2-18-2014 **Meaningful Technology.** It's nice when someone asks a constructive question: "*What *meaningful* technology lead is that?*" With supporters claiming GM is a technology leader, you have to ask what they are actually leading. I couldn't resist. Joining in was a must: That's the magic question. We've seen many, many efforts to undermine Prius as a result of asking. When all attempts to exploit misconceptions failed, they turned to making "*old*" and "*outdated*" and "*obsolete*" references. When that hope to conceal its maturity failed, they tried to spin the situation by using the "*early adopter*" label for Volt. But after 3 years, still calling it that is too much of a stretch. So, the move has been to ignore the regular model of Prius entirely, focusing on the plug-in model instead. That's a complete reversal of original arguments. The reason why should be obvious too. Toyota clearly stated goals for the regular model next generation. The engine will be more thermally efficient. The hybrid system will be smaller & lighter. The production cost will be reduced. The hope is to switch from NiMH batteries to Lithium as well. Taking all that into account and the fact that United States annual sales of the regular model have remained steady at 145,000 for the past 2 years put supporters of Volt in a difficult position. They certainly didn't want to bring up the compact or wagon models. And the hybrid Camry scares the heck out of them, knowing its traction motor is nearly identical in size to the one in Volt. Toyota also offers an AWD hybrid Highlander with a 3,500-pound towing capacity. Attacking the plug-in model has been their only option available. Our encouragement to get GM to also offer a variety of configurations continues to fall on deaf ears. After all this time, including 3 years of weak sales, some Volt supporters still don't want to acknowledge the need to diversify. It's bizarre how they don't want to see the benefit from offering the choice of a smaller battery or a model without a plug, despite the growing pressure to meet CAFE requirements and the requirement to deliver sustainable profit. Toyota has broken out of the "*only for green*" stage, confirming that technology is meaningful. This new commercial portraying Volt as an electric car with a backup engine leaves us wondering who GM is attempting to appeal to. With the necessity of mainstream interest for high-volume sales, it assumes there's ample demand for plug-in vehicles... despite the recent trend and generous tax-credits. It would be great to see the masses flocking to plug-in vehicles, but that isn't realistic yet. It means the lead must come in the form of companion technologies in the meantime. The approach of battery-advancement and engine-refinement through vehicles without plugs was an aspiration GM shared with Ford, Toyota, and Honda. GM's gamble to leapfrog of abandoning that design backfired and supporters now feel burned. So, some are expressing their hurt & frustration by lashing out rather than championing the next chapter. What a waste.

2-20-2014 **Charger Failure.** I got an email from the Prius, stating recharging had failed. That certainly got my attention. With wet & heavy snow coming down, I wondered what could have happened. I know plugging in at work wasn't out of the ordinary. Nothing stood out in my mind. So, I walked over to investigate. Checking the plug, all looked fine. So, I went into the ramp office to point out their first ever charging issue. They said for me to play around and report what I discovered. Upon ending my efforts, I returned the plug to the charger. It kept asking me to do exactly that, even after doing it and rescanning my card. I went in and told them the unit had become confused, likely needing a software reboot to get it back on track. They said it would be called in. Nothing appeared damaged. So hopefully, the fix is that simple.

2-20-2014 **Industry Disruption.** There are many innovations from the past that we can look back upon with great favor, saying they were an obvious next step for an industry. Each takes a collection of other new technologies combined to make an entirely new product which causes a disruption in the industry. The intent is to cause the end of the current product's production. Digital cameras are a prime example. The use of film by consumers ended as a result. People switched to saving images electronically instead. That was a major boom for those producers who could handle the change. Those who couldn't disappeared. The technologies that didn't achieve change disappeared too. In fact, most of the history and players involved vanish, especially the competition. DIVX is the prime example of that. No, not the compression format we recognize nowadays. The optical-disc. It was competition to DVD, introduced after DVD had established itself as an industry agreed upon replacement for VHS video-tapes. The now bankrupt Circuit City sponsored it, enticing movie studios to offer it as an alternative. They paid a total of 300 Million dollars to those interested to join. They pitched it as a copy-protected format. The optical-disc could only be used when activated via phone-connection and would only work for 48 hours. After that time, people would simply throw away the disc. Back then, the late 90's, that meant a major opportunity to tap into the home-rental market. Many saw it as expensive, complicated, and wasteful. Now with digital downloads, the concept seems absurd... which is why barely anyone even remembers it. Yet, it dramatically slowed down DVD production for nearly 2 years. It was a true disruption which ultimately failed. How is Volt any different? It too is heavily subsidized, uses a convoluted system, and isn't actually as efficient as it would seem. In the meantime, it has slowed the progress of other plug-in hybrids. Look at Toyota, Ford, and Honda's efforts. All use battery-packs notably smaller. Supposedly, bigger is better. But evidence to the contrary is becoming easier to find. Just look at Hyundai and BMW. They intend to offer plug-in hybrids with smaller battery-packs too. GM intends to stick with a larger pack, despite sales being far below expectations and tax-credits expiring. Remember what happened to Kodak from not embracing digital photography?

2-22-2014 **41 MPG.** There was lots of running around yesterday. It was annoyingly cold and I didn't get an opportunity to plug in. Not being able to recharge and frequently having to start up a cold engine wasn't the weekend I had looked forward to. But then again, that's what real-world data-collection is all about. Fortunately, the results weren't too bad. Getting 41 MPG was quite nice. Too bad this terribly long Winter continues to drag on. Snow piles at edges of driveways have climbed as high as the lower branches in the trees. That well above average. It obviously a big safety issue. Having to deal with slippery & bumpy roads is bad enough. Spring sure is going to be nice. Thankfully, I can plug-in most days in the meantime... twice, in fact. That boosts MPG into the 60's. Gotta like that improvement. It's way better than any guzzler could deliver.

2-23-2014 **Not Serious.** Proof that things have changed (we started a new chapter) is becoming very easy to find. In the past, there was so much rhetoric against the plug-in Prius, the assumption was that Volt would naturally do far better. The catch was, the belief only worked if you didn't include the regular model. It couldn't be part of the equation. The enthusiasts of Volt kept claiming Toyota's efforts weren't serious. They didn't understand how change really occurs though. Now, there's a "*disgust*" thread growing. The supporters are sounding off about the observations of GM. It started with a commercial for Cruze Diesel. The original advertisement stated "*best mileage of any non-hybrid*" then later got switched to "*best in-class mileage*". Remember the big question of who the market for Volt was? They now see the competition coming from within, not Toyota. The very thing we warned them about is coming true. As a result, comments like this are getting posted: "*I have said before and I will say it again, GM has no interest in selling volts!*" I find that quite ironic, especially since I don't recall ever having read that. Of course, many never wanted to acknowledge the leadership issue either: "*It got me thinking about whether or not GM will let the Volt wither on the vine... Half of the top people that were responsible for the Volt are no longer with GM.*" My posts pointing that out resulted in hostile responses. They'd keep posting information about promises having been made about upcoming expectations, but wouldn't acknowledge those who were responsible for delivering the improvement were no longer there. Without accountability, it's really easy to abandon particular efforts. Plug-In support (both marketing & financial) won't come from a regular hybrid either, since GM doesn't offer one. There's literally nothing to leverage from. In fact, all there is available is a tax-credit which will expire during the sales period of whatever is offered next. Basically, seeing the current loss of interest, GM will have to start from scratch. That reintroduction of what's called "*Volt*" a few years from now will be a major effort. Think of the competition then. Too bad things got so out of hand. Supporters trusted the right decisions would be made rather than helping GM be better informed. They cheered each step instead of providing constructive criticism. Consequences of that blind hope are abundant. GM wasn't serious. Turns out, the enthusiasts weren't either.

2-25-2014 **Focus Electric.** Looking in the mirror, I saw a familiar but unrecognizable car approaching. It was sunset. That made the LED stylelights really stand out. They were unique, yet something about the vehicle kept nagging at me. As it got close to pass, I could identify the Ford badge and noticed it had a door emblem. I quickly dismissed it as saying "*HYBRID*". So, I kept looking, hoping to confirm it said "*ENERGI*". It didn't though. It said "*ELECTRIC*". That took a moment to register. The car was one of the rare Focus Electrics. With so few on the road, you simply never expect to actually see one. That was cool. It did make me wonder. Why are there so few? Nissan sells far more Leafs. Oh well. Not sure way. But that makes it official. I finally saw one.

- 2-26-2014** **Not Anymore.** It's nice reading this from someone who had for awhile pushed in the other direction: "*This is no longer the happy go lucky community of first adopters. It's back to the real world and it's a dog eat dog one.*" Some obviously pushed harder than others. But it always came down to who each person considered the competition. Overwhelming, owners of Volt considered the other plug-in vehicles. Now they are only a tiny fraction, nothing to actually worry about. In fact, the spirit of cooperation I had sought all those years ago is finally becoming realistic. They now acknowledge the massive threat traditional vehicles pose. It's about dang time! I responded accordingly: The warnings about "*too little, too slowly*" were not understood and were often dismissed with an "*early adopter*" excuse. That isn't happening anymore. I like this new chapter. Seeking out cooperation across automakers is becoming realistic. Those seeking out solutions using electricity now recognize the real threat is traditional vehicles, not other plug-in vehicles. It was rough initially. Back when we were in the "*only for green*" phase, it was easy enough to just argue against plugs using talking points without any merit. But now that 3 years have passed, there's real-world data shaking out the unrealistic from the practical. Some feel threatened, since they see the change coming. They fear the inevitable and lash out. We've seen a plug-in owner get arrested for plugging in using an outlet without explicit permission, even though that's a very common occurrence with cell-phones. Now we see someone has intentionally destroyed a charger-cord. Meanwhile, former quarreling parties are now trying to work out how to handle demand at the plug. Those are all examples of a turning point having been reached. The choice of plugging in isn't anywhere near as simple as had been portrayed. Competition will be much more intense. Look no further than the computer market for a parallel. Remember back in the days when a system's worth could be evaluated primarily upon processor-speed? Now, there are far more configurations available and measuring performance varies dramatically upon need. We're seeing similar emerge with plug-in vehicle choices.
- 2-27-2014** **Honda Insight.** The idea of an ASSIST hybrid never made any sense. It lacked the flexibility needed. Not having a power-split device, instead being directly integrated, meant missing out on efficiency opportunities. It also meant only a tiny electric-motor could be used. There was no possibility of ever supporting a plug either. So, it was doomed from the start. The fact that Honda was able to milk the design for over a decade and provide some amount of competition was amazing. But with so few choices, the challenge wasn't great. Things are different now. Honda has since developed its own FULL hybrid system too. That made today's announcement quite predictable. Insight production for the United States will end. It simply wasn't able to compete here. 280,629 were sold worldwide last year, which is quite good. But only 4,802 of those were purchased by us. That's so small of a number, it's just plain not worth the effort anymore. Honda will focus on other offerings instead.

- 2-28-2014** **Starting Over.** It doesn't take much to see that the first-generation issues for Volt are now just a memory. That attitude of being vastly superiority is long gone. It's as if someone pushed a reset button. Promises of the past have been abandoned. They've started over. Posts are so vague, what to expect next is anyone's guess. That makes sense too. All those years ago, the enthusiasts didn't anticipate the EV would be so successful. The very idea of Tesla & Nissan holding on strong enough to show growth potential at this point was a joke. Taking that possibility serious simply wasn't going to happen. They also thought hybrids would be severely weakened at this point. Seeing Toyota deliver 1,000,000 in just 9 months most definitely wasn't in their plans. So, they have to recalibrate... without sounding hypocritical. They don't want to fall into the hype trap again either. Somewhere in the middle there's a happy balance... the very target Toyota has been aiming at all along. I like the fact that such information doesn't rouse intense emotional outbursts anymore. Recognizing need is progress, long overdue. Better late than never... even if it does mean having to start over.
- 2-28-2014** **Tax Reform Act.** Countless warnings that this could happen weren't taken seriously. Finally, someone heard. Of all people, it was the last Volt holdout who voiced some worry. But when the Ways & Means committee for the House of Representatives brings it up, rather than Prius owners, the reason for concern is much stronger. I responded with the news of the possible end of tax-credits for plug-in vehicles coming this way: When the tax-credit for hybrids was offered in 2006, the expectation was that it would quickly stimulate sales. The amount was \$3,150 per vehicle with a quantity of 60,000 per automaker. In 2010, for plug-in vehicles, more than double the amount (up to \$7,500) and more than triple the quantity (200,000) was offered. Expecting to milk that for 5 years was pushing it. Hearing that it could indeed end after 5 years shouldn't surprise anyone, especially knowing the financial situation our government has been struggling with since 2008. The need to proceed quickly was part of the economic recovery advice provided. We all saw the possibility of incentive funding coming to a end. Cost reduction is vital and you cannot wait until after the tax-credit has ended to deliver it. The expectation has been to increase sales right away, to achieve some lower prices through the benefit of high-volume production. What plug-in vehicles are in the position to deal with that just 10 months from now?

2-28-2014 Business Realities. The topic of profit for automakers has been beaten to death, to the point that even the most stubborn finally acknowledge the problems high-cost cause. Some truly believe the "*if you build it, they will buy it*" model... despite countless examples of that not actually working. In fact, there have been some monumental failures of the past they simply refused to address. Thankfully, that's over now. We can now move on to the other pressing matters. Yet another example of "*too little, too slowly*" is the business reality of is the adoption of charging-stations. Those fighting more practical plug-in hybrids, like Prius PHV, didn't realize they were shooting themselves in the foot. Adoption of the plug by everyday consumers needed to be done quickly; otherwise, issues unique to niches emerge. Lately, that has manifested itself with the quarreling of who is "*entitled*" to plug, rather than finding a way to make it work. As a result, some owners are having charging-stations removed. That's quite a dramatically different outcome from the expectation of installing more. They are tired of dealing with those arguments & complaints and don't see the patronage benefit they had anticipated. Things like this are exactly why the "*vastly superior*" attitude frustrated me so much. With over a decade of hybrid ownership, I knew the rollout wasn't targeting the correct market, which the masses needed to embrace plugging quickly.

2-28-2014 Quick Adoption. Fallout from 2013 will hurt some far more than others. Toyota already has a profitable platform to leverage from. The key to greater market penetration is using PHV to raise the bar. When mainstream buyers see the plug from time to time, they'll look upon the regular model as the new normal. After all, we are well into the 21st Century at this point. Think about how much internet, phone, and television have changed over the past few years. Being able to deliver an affordable plug-in model... quickly and without tax-credit dependency... to reach those consumers is realistic. This is why Toyota worked so hard to squeeze out a significant return from just a modest battery-pack. The 4.4 kWh size was quite deliberate. It was small enough to be thought of as an upgrade option, once the cost of lithium reached a profitable level... which thankfully is right around the corner. The fact that the battery-pack is also small enough to be totally concealed under the false floor without taking away from any of the open cargo area is a nice bonus. The prototype models used a 5.0 kWh size, which did indeed reduce the space for cargo. The change was a smart move, especially now knowing how 2014 looks to play out. Being positioned to take advantage of a paradigm shift is important. Quick adoption of hybrids will catch some automakers completely off guard. Think about those that don't have anything but a loss-leader to offer. They'll be stuck trying to compete with only traditional vehicles.

- 3-01-2014** **Record Winter.** It is still horribly cold. We are on track to setting some records for coldest & longest in 35 years. The situation has been nasty. What a pain. To have to deal with so many days below 0 makes it quite unbearable. Rather than a few cold spells, it has been an endless string. The count will likely be 50 days this season. That makes Winter really annoying. At this point, we should be enjoying signs of Spring. Instead, there's only a glimmer of hope at the end of this next week and snow on each side of my driveway piled taller than me. Blah. Thankfully, the Prius managed just fine. Averaging a little over 60 MPG for the past 2 months is nice. I sure miss the efficiency warmer weather brings though. With temperatures so far under the freezing mark certainly makes that a challenge. There's simply no way to avoid having to turn on the heater right away. That prevents you from taking full advantage of the plug-supplied electricity. Fortunately, you still get a boost from it. But there certainly isn't any opportunity to roll down windows yet. That aspect of Spring has been delayed. Winter is still thriving.
- 3-03-2014** **Long Ago.** That antagonist from way back when Prius was first rolled out still trolls the big forum. It's the same old message from the past. He pushes diesel and defends Honda. That never ceases to amaze me how angry he gets with how all that played out. Diesel has barely been able to maintain the status quo and Honda continues to struggle with older designs. Thankfully, Honda has delivered a new design. It's much better, so much so, the old is being discontinued. That admission of defeat has obviously caused some upset. So naturally, he's lashing out at Toyota. It started with: "*Wow..... discontinued their CRZ and Insight. Now their EV. Who on earth is running Honda these days?*" Then ended with a sludge attack, concluding this way: "*Toyota demonstrated their warranties don't mean anything.*" It makes a person wonder if he'll accept change in any way. Other intentional troublemakers fade away over time. He's firmly held on, unwilling to take the next step. Will this move on Honda's part help? Who knows? I responded with: That was a chapter from long ago, a past already overcome back when Prius was rolled out here. How does it apply to anything now? So much has changed since then, it's just a note in history. We could stir others from other automakers too, but that wouldn't accomplish anything. Heck, for that matter, bringing up stuff from prior to the market fallout doesn't necessarily apply anymore either. What's important are the choices being made now, reaction to how the market has changed. We're seeing that happen. Those decisions to compete with designs actually capable of competing directly with traditional vehicles are vital and should be applauded. Posting dismay & distractions isn't constructive. They are finally taking the situation seriously. It's a move long overdue.

3-03-2014 **EV Button.** I thoroughly enjoyed the latest thread about the EV button leading to this inevitable comment: *"I still kind of wonder why the button is there at all though."* It provided me with the chance to post: The answer to that is quite obvious, once you step back and look at the big picture... especially the history. Well over a decade ago, Toyota delivered a FULL hybrid. That meant it had a PSD (power-split-device) which enabled a wide variety of efficiency options, the flexibility to seek out opportunities. One of the many abilities was that of electric-only propulsion. Back then, the threshold for it was 42 MPH. The redesign many, many years later changed that to 46 MPH... giving us a clue that more had actually happened behind the scenes. Toyota had altered the carriers on the PSD to allow a greater range of operation. They had added another carrier, changed the tooth-count, replaced the reduction gear with another PSD, and increased the RPM range of both the generator & traction motors. We now had an EV button. It worked different than the EV we were familiar with though (often referred to as *"Stealth"* mode). It delivered much more power, but the upper speed threshold was only 25 MPH. Research as to why revealed that it was a factor of battery draw. More electricity meant more power, but it was limited to what the battery could deliver. Then came along PHV, the plug-in model of Prius. It used a more powerful battery-pack. And sure enough, both EV power & speed were increased... without any change to the existing design. Sure, owners of the 2010 model (like myself) were able to find a practical use for the EV button in the regular model, but that wasn't the point. It was simply a nice benefit. Notice how often those desperate to discredit Toyota claim PHV was a scramble to compete? They insist the plug-in delivered is just an afterthought. They refuse to acknowledge it was part of the existing design, that the current generation took into account the ability to support a better battery all along. Toyota understands the market and is well aware of what it takes to counteract undermining, both intentional and what comes about through assumption. The button is proof of that.

3-03-2014 **Disappointed.** There's no other way to describe the situation... which is why the word *"disappointed"* was used a lot today. The numbers speak for themselves: Cruze 21,836; Equinox 21,587; Malibu 17,448; Impala 12,008; Sonic 7,586; Camaro 6,211; Spark 2,576; Corvette 2,438; Volt 1,210. GM's premiere high-efficiency vehicle ranks so low on their car sales chart, there simply no way to spin the results in a positive way. Into the 4th year of sales, seeing less than 1 per dealer per month is not what anyone had hoped for. That's well below expectations for a one-size-fits-all gamble. Without any other high-efficiency vehicle being offered, there's nothing to look forward to either. This year is when the competition overwhelms Volt to such an extreme we aren't likely to hear anything. The rhetoric is dead. Enthusiasts were warned that traditional vehicles were the true enemy. They were told over and over and over again that you couldn't isolate the plug-in market. They didn't care. They belittled Prius, even though it had diversified to take on the challenge high-efficiency vehicles faced. They declared superiority, even though ordinary consumers simply weren't interested in an expensive compact requiring a plug. They dismissed need, even though the requirements of business were made quite clear. The outcome of disappointment was inevitable. How many monthly sales reports had to be given before they finally saw what was actually happening? Today, we got the answer.

- 3-03-2014 Tier-3 Emissions.** The new standard was made official today. The final rule impact analysis was 618 pages. The summary and analysis of comments was 982 pages. The preamble of regulations was 1069 pages. Needless to say, there was quite a bit of detail provided. Long story short, the new level of clean will become a reality in 2017. Those who said what we have now is clean enough are scrambling. Clearly, evidence to the contrary is overwhelming. It sure is nice seeing this happen. Far too often, the purpose of hybrids reducing smog-related emissions is totally disregarded. At best, carbon emissions are mentioned. But they have nothing to do with the quality of the air we breathe. Far too often, carbon is used as a distraction with hope the smog type is overlooked. After all, the days of diesel smoke & soot are gone. The problem now is invisible, easy to forget about. Some of us remember though. In fact, we notice more and more warning days during the Summer, when the elderly & young are told to stay indoors and refrain from activity. Traffic continues to get worse too. The problem won't get better by ignoring it or saying good enough. Vehicles put in service now will continue to pollute for the next decade, making the issue a doomed situation if you wait to react. So, the new Tier-3 Emissions standard is a welcome improvement. It will require cleaner vehicles as well as cleaner fuel.
- 3-04-2014 Change.** It's tournament time now. That meant the possibility of encountering vehicles not normally in the area. Sure enough. Just as I was about to leave the highway, there was Focus-Electric. It was brand new, still with a temporary license in the window. Cool! A few blocks down the road, I parked. Along with the Leaf that I share the chargers with daily, there was a Volt. Cool again! However, it actually parked right next to the Leaf, taking the only cord available on that side... since the other is now officially broken, awaiting a replacement part. That was the first time I ever saw the sharing situation... 2 spots with only 1 charger available. Here in Minnesota, the market is still quite limited. So, my curiosity was peaked. It seemed odd though that the driver simply didn't park on the other side instead, since there are 4 chargers available there. Fortunately, it didn't matter. They were able to share just fine. The Volt finished before the Leaf actually needed to plug in. Cool.
- 3-05-2014 Groupthink.** This turned out to be a nice wrap-up of recent posts, in favor of the status quo, fighting those of us pushing for change: The constant effort to discredit has been reasoned as a "*groupthink*" problem. How ironic. Usually, consensus is the desired outcome. It's futile to believe the needs of the many don't actually have something in common. Look at the ELR commercial. The controversy comes from intended audience. Who? Isn't that the same question asked about Volt for years? Sadly, we did know, but certain individuals didn't like the answer. So, they attempt to discredit those asking. After all, that's what draws attention and stirs participation. It's too bad constructive dialog hasn't been possible. You say something requiring change or compromise, it quickly gets labels as anti-GM or anti-Volt. Every month, the same thing repeats. They know a vehicle for the masses is needed; yet, they allow the opportunity to slip away. We knew from the beginning the trophy-mentality was a challenge to overcome. It's far too easy to fall into that trap. So when GM decided to offer the next Voltec vehicle with a wide array of luxury features rather than simplifying the current to appeal more to mainstream consumers, the outcome was inevitable. But rather than just acknowledge and strive for a better next step, shoot the messenger. Ugh.

- 3-06-2014 Redesign.** To those few still fighting change: How many times does history have to repeat before finally learning from those mistakes? We saw this coming. Though, each instance parallels were pointed out, the messenger was attacked and everyone else was told to just be patient. Over 3 years later, after elsewhere. Those individuals here pushing inaction are losing their audience too. Remember the Volt goals? Remember the ELR expectations? These are some quotes I came across elsewhere today, all comments on a thread about the redesign for 2016, all sharing the message I've been conveying for years: *"It needs to be in different vehicles, including a larger sedan, a luxury sedan and crossovers."* *"It's a compact car so make the next gen Volt the same size. But have a big brother, too."* *"I will never understand why GM has been so slow on expanding the Voltec powertrain to other models."* *"I can't see why Voltec couldn't be used in larger sedans, small and large SUVs and trucks."* *"Seating for at least 5 - needs to be as close to a family car as possible."* *"GM loses money on Volt."* *"The Volt is outsold by every retail offered, GM car/truck/suv except for the SS."* *"My big worry is that GM is treating VOLTEC as they did Two-Mode: Hype the crap out of it, and it when it didn't sell to expectations, give up and then ultimately kill it."*
- 3-07-2014 Plan "B".** Not having one is the problem Volt has struggled with for many, many years. GM was betting the farm on a single effort, risking it all for the opportunity to trump the other automakers. When that failed and sales lagged well below expectations, supporters lashed out. Prius became the target, since it was the most diverse offering. Already complemented by Camry and Highlander, seeing a larger & smaller Prius emerge made the anticipation of a plug-in model too even worse. Far more dynamic than hoped, it was the technology proven to deal with the unpredictable market and wide array of political & economic pressures. That flexibility of design was becoming well proven. The resulting hate was no surprise, especially when Ford ended up following the same success approach as Toyota. So, the past few days have been included close watching of Volt enthusiasts turn from dismissing sales of other GM cars and those traditional offering are just as efficient as hybrids, to again building up hype. Remember when Two-Mode sales became so undeniably bad focus was shifting to the "next" thing? That's how Volt came about. Well, now that Volt has fallen from grace, rumors of a redesign are emerging. There's no detail whatsoever and the only "facts" are those based upon executives who are no longer with GM. The very same rhetoric is emerging again. They honestly think third time is the charm... but not for just being competitive, it's the belief that the competition will be squashed. They never believed mistakes of the past could be repeated. Yet, we witnessed it happen. Now we are watching the cycle start yet again. They basically didn't learn anything. The trophy-mentality continues to cloud judgment. The mainstream vehicles sell in quantities so large, they don't draw much attention. They are so common, they basically go unnoticed. For enthusiasts, that's considered boring & uninteresting. So, they dismiss & disregard them. Why bother with a Plan "B" when your vehicle is a sure winner? Some actually think that. With new plug-in choices entering the market, tax-credits expiring at some unknown point, and both traditional vehicles & regular hybrid pushing up expectations, the risk is increasing. The gamble is even greater this time. Not having something else as a backup isn't wise. Diversity is a fundamental principle of good business. The question now is will those enthusiasts drown out the true supporters, those not fighting change.

- 3-07-2014** **2.75 kWh.** That's the quantity of electricity I should be using to represent each full recharge. It takes both usable capacity of the battery-pack and the extra electricity required (charging loss) into account. Currently, I use 3.0 kWh. None of my recharges at work, using the level-2 connection, have come even remotely close to that all throughout Winter. Most don't even exceed 2.7 kWh. The level-1 recharger I use at home takes more electricity, since slower isn't as efficient. But even then, the value of 3.0 kWh per recharge is still too much. It's an easy number to work with though. I'd much rather overstate than understate anyway. People finding out Prius PHV is actually more efficient is a nice ownership reward. That's what happens with MPG already. After all, you don't want to set expectations too high. People are far more likely to complain than praise. Unfortunately, that's how the internet works. It's in our nature to throw a fit when things don't match hope but not say anything if they do. So, I don't use the 2.75 kWh value, even though I very reasonably could.
- 3-08-2014** **Unsupported Hope.** It lives on. In disbelief, I pointed out: At a loss for positive news about sagging sales, enthusiasts are taking supposed facts from former executives and spreading them. Rumors are emerging. The hype returns. It never ceases to amaze me how "*over promise, under deliver*" keeps coming back. It's great material for blogging... That ELR commercial is an ideal contribution from GM to assist with the distraction effort. The pattern of trying to sell us what they want to produce rather than what they need to should be obvious. Yet, some choose not to see it. If there was any sort of balance, it would be somewhat acceptable. But when they push an expensive compact then follow-up with a luxury compact, what the heck are you suppose to actually purchase? There's nothing practical & affordable offered, nothing resembling their traditional choices. Enthusiasts want you to forget how much anticipation there was about ELR. They strongly believed it would usher in version 1.5 for Voltec, a major system upgrade. Since it was an entirely new vehicle with a higher price anyway, hype easily bolstered that belief. Instead, all they got was comfort & handling improvements you'd get from other Cadillac vehicles. One year later, the situation is a mess. So, the cycle of unsupported hope begins again. Ugh.

- 3-08-2014** **If They Build It.** There's quite a bit of speculation about the next Volt. With both Toyota's and Ford's plans so easy to see, wondering about GM is becoming quite a popular discussion topic. On the big Prius forum, I posted: ELR is a bit of a head scratcher. It's not really certain who GM is actually targeting with the price so close to Tesla. But with the trophy-mentally so prevalent still, intentionally delivering a niche is understandable for the Cadillac model. For Volt, that's entirely different. It was supposed to appeal to mainstream consumers. There was a sincere belief by enthusiasts that the "*if they build it, ordinary people will buy it*" motto would actually work. They figured the electric drive would be so appealing, the higher price countered by lower fuel expenses, would easily justify the purchase. To them, it was an easy sell. The compact rear seating and the low range in Winter were non-issues as far as they were concerned. The low MPG following depletion was too. They were wrong. Even Volt owners complain about that now. Yet, we had to deal with countless claims that wouldn't be a problem. So, we are left asking the same question again, who will the next be marketed to? I suspect the design will be altered so profoundly to finally address the needs of middle-market, it won't resemble the original in many ways. The early promotion of Volt during the design phase significantly limited options going forward. GM backed itself into a corner... over promising. Even though some enthusiasts haven't learned from that mistake, at least the automaker itself seems to have... for the next generation.
- 3-09-2014** **Generation End.** When the new one approaches, what happens? Having witnessed it firsthand, several times, I provided some background and insight: The aging cycle is an interesting one. Some people actually wait for this stage before purchasing. They want to make sure all possible problems have been worked out already. The "low" gas prices are a very real problem though. We've been watching the "*boil a frog*" scenario play out right before our eyes. I still remember when gas first shot up to \$2.25 per gallon. It was a very big deal, since gas was still less than \$1 when I first bought a Prius. It had more than doubled since then. Later on, \$2.99 ended up scaring the heck out of people. Stations kept the price at that as long as possible, eating into profit to prevent having to advertise \$3. Then all of a sudden, we had to deal with \$4. Afterward, back down to around \$3.25 made everyone breath a sign of relief. Now at \$3.59, some people have upgraded to a more efficient vehicle. Automakers have convinced them that 40 MPG highway is plenty good. The fact that combined MPG is mid-30's and city is low-30's isn't considered a problem is reason to worry. They've been led to believe that's good enough. After all, they had to downsize their vehicle quite a bit to achieve that. Traditional vehicles still very much dominate the market... leaving hybrids in a struggle-for-survival role. That obviously puts Prius in a delicate position. Increased choices from other automakers as well as Toyota itself makes it easy for a sale to be lost. But establishing diversity now is priceless in the long run. The debunking of misconceptions and the squashing of greenwashing efforts has contributed to the loss of attention. They are becoming more and more common. Nothing stands out anymore. Flatten purchase-rates aren't the end of the world. In fact, stability can get a good thing. There is hope. We know interest will rise with the release of the next generation. Gas prices will continue to steadily rise too. The water can only get so hot before the frog eventually dies.

3-09-2014 **\$699 Now.** I remember back when level-2 rechargers for your home were priced nearly double that, they started at \$1,199. Seeing them drop so much already is great. Sadly, I still don't have one though. Knowing I will be moving, it didn't make sense running a 220-volt line out to the garage for a first-gen design. That won't even be a selling point. Why not wait for the new location instead, then indulge with a web-enabled recharger? I'll likely need 2 lines in the future too. Having them both wired at the same time would be worthwhile. After all, I couldn't imagine owning a vehicle without a plug anymore.

3-10-2014 **Selective Amnesia.** Each month, it was the same thing. Eventually, that ended. Unfortunately, it's back again. The new chapter is allowing old problems to re-emerge. Fortunately, those are much easier to deal with this time around. The first example today came from a well known antagonist. He enjoys debating. So, regardless of how clearly you state something, he'll re-ask the same question again later, as if the answer had never been provided. It's like a troll with constructive content. In other words, he doesn't want to acknowledge the previous chapter has concluded. If you must reply to that type of behavior, provide only information relevant to the new chapter. In this case, there were questions about GM not having fulfilled the promises about Volt. Everyone knows the situation. The topic has been beaten to death. So, I simply replied with the obvious goal and improvements enthusiasts have been hyping: *"Again... somehow production COST must be reduced, yet some people still think that will happen while also getting a larger chassis, more refined engine, and longer range while also compensating for the loss of the tax-credit."* The response was just a contradiction to earlier posts. Why even bother wasting my time? So, I abandoned the thread and headed over to that daily blog for Volt. Post after post provided vindication. What I had been saying for years was repeated over and over. It was great! Of course, they'd outright deny the idea hadn't come from them. That's how selective amnesia works. You only remember what you want. Anywho, there were a surprising number of suggestions all stating the same thing. GM should offer a choice for Volt, a second model. To think that it took enthusiasts 3 years of struggling sales to finally recognize that shortcoming some of us saw long before rollout. The resulting fallout could have been avoided. Oh well. Their loss. I see the hypocritical nature of their posts. That history is well documented, in extreme detail. Those quotes of the past won't haunt them though, since they choose not to remember. As for the rest of us, we can breath a sigh of relief. That rhetoric is over. They're asking for the same things now that we did many years ago.

- 3-10-2014** **Sales.** With the former chapter having ended long enough ago for others to now notice, old threads are being brought up again. Looking back at them with the new perspective brings interesting comments... and opportunity for me to keep contributing summaries of what happened. After all, knowing how we got to this position helps. I'm happy to oblige too. The mess we had to endure shouldn't be repeated: When people evade goals, you know there's a problem. When they take a goal and change it to an expectation, you can expect failure. I was amazed to see that with Two-Mode. Seeing the same thing play out again with Volt was shocking. Recognizing the pattern emerge for a third time is leaving beside myself. Don't people pay attention? Are they really that naïve? Or is it that some just like to debate? And once speculation is disproved, bringing it up again doesn't accomplish anything. Ugh. Whatever the case, we can see that second generation Volt targets set by the former CEO are now being spun to mean a promise. Certain shortcomings of the design are being flat out denied too. It's barely even worth documenting anymore, especially since there isn't any accountability. We all know sales are the ultimate measure of success anyway. There's a big difference between a trophy and a purchase... which a few still don't understand. The need for sustainable profit will trump efforts to divert attention. No amount of blame or excuses will overcome that essential requirement miss. Consequences of short-term efforts (like cheap leases, large price cuts, and clever markets) will make themselves apparent too. There's simply no way to avoid the reality of not having delivered what was actually needed. This thread turned out to be a good example of how heated & unproductive things get. Many arguments were pointless. Those same mistakes are being made again, but it doesn't matter. It always comes down to the same thing in the end... sales.
- 3-11-2014** **Seamless EV.** Neither one of us was paying attention. We just jumped into the Prius and drove away. Leaving the city, you obviously want to take advantage of electricity (lots of stoplights). So, I did. Upon jumping out on the highway, the engine started... automatically. I hadn't pressed the EV/HV button. That meant the Prius was in EV-BOOST mode, still drawing plug-supplied electricity. So when engine warm-up completed, it shut off and returned back to EV mode... automatically. Only being on a 55 mph highway, one with lots of bumps and cracks and hills, that transition went totally unnoticed. It wasn't until I saw the display change that I realized the last of the electricity had been used up. Oops! That was a waste, considering how efficient highway driving is anyway. Oh well. It was a great firsthand demonstration of how seamless the design is.

- 3-12-2014** **Comments Elsewhere.** It's interesting to read comments posted by those on generic automotive blogs. When a random hybrid or plug-in topic emerges, you never know who will post or what they will say. Today, this caught my attention: *"Plug-in hybrids are simply too expensive. I think hybrids will have a future for sure. But plug-in hybrids won't come into play until gas reaches \$6."* I was intrigued how people would respond to the detail that lacked. So, I provided it: The plug-in Prius uses a 4.4 kWh battery-pack. That size keeps cost within reach of being affordable for the masses. It's quite a bit smaller than the other choices available. So, blanket statements like that (dumping all offerings into a single category) can be misleading. \$6 gas isn't necessary either. 73 MPG is the average from mine (which just turned 2 years old yesterday). That's a big improvement over the 50 MPG average over almost 3 years from the 2010 it replaced. The real-world result, driven in Minnesota (where winter really hits efficiency hard), shows gas prices don't need to go up much for the benefit to be obvious. Toyota's effort to squeeze out so much from a battery-pack concealed under the false floor, which doesn't take away any of the open cargo area from the regular model, is a good approach for growing sales. They could the plug as an option, just like other upgrade packages. There's an obvious gain from short trips and you still get 50 MPG following depletion. It's a best-of-both-worlds design. Being able to recharge entirely in less than 2.5 hours using an ordinary 110-volt household outlet is another size-related perk often overlooked. Larger battery-packs take longer to recharge entirely, unless you invest in a level-2 charging station. That extra expense & uncertainty scares away potential buyers. They kept it simple. Unfortunately, that simplicity makes improvements difficult to notice unless you actually drive one fully charged a few times. As people begin to figure out how it differs from the regular model and realize some of their assumptions may have been incorrect, it should add to sales.
- 3-13-2014** **Spring!** It has finally arrived; well, just a taste of it anyway. The temperature shot up from the 20's to the 50's. It was amazing to feel the warmth of the sun when things are melting rather than frozen solid. Cold weather is far from gone though. But at least the time today was an opportunity for some relief. EV driving was effortless. That hint of what Spring has to bring was fantastic. This Winter was horribly loooooong and cold and snowy. It was just plain nasty. Of course, here in Minnesota, we got more cold than snow. So, in a way, we had it somewhat better than those elsewhere in the country. I always look forward to the transition. That annual cycle so refreshing. Watching MPG climb is exciting too.
- 3-13-2014** **It Never Happened.** That old attitude seems to have vanished. Some would pretend it never happened if there were no posts to that effect on the forum where the discussion was taking place. We're making progress. Things posted elsewhere are finally getting acknowledged. Outright dismissal is rather fruitless at this point anyway, though a few still try: *"I would say its best to avoid fanboi sites if you really want to avoid the hype. Most of us never bought into..."* That particular effort backfired. My reply set the record straight, pointing out what's really important and the consequences: Just because we can see through the hype, that is no reason to turn a blind eye. It will continue to be a major source of misinformation unless someone speaks up. And yes, they resented having to face real-world data and debunking of unsupported claims on a regular basis. Many, many people were sucked into their rhetoric. Mass disenchantment resulted. That hurt both consumers and the market itself. Why allow it to repeat?

- 3-14-2014** **Misrepresentation.** I find it a ringing endorsement for Prius PHV when certain individuals online go way out of their way to misrepresent it. Those blatant greenwashing effort speaks volumes. Rather than actually compete honestly with the comparison of real-world data, we get the same old rhetoric. The best example today was a salesperson from a GM dealer, one who posts frequently about Volt he has in stock. He's still trying to convince people the battery-capacity is only 6 miles. It's a true act of desperation at this point, with so much detail & videos proving the EPA mention is just a testing example. But we know how exploiting a single instance is a golden opportunity for some. Everyone else calls the intentional disregard for other data cherry-picking. He just plain doesn't care. It's more vindication as far as I'm concerned. Some people would rather go down with a fight. Unfortunate for them, I'm not interested. Why bother? Wasting time responding directly is no where near as effective as continuing to capture video of just driving it. More of that will eventually expose his attempts to misrepresent. It helps draw interest for PHV too.
- 3-14-2014** **Change.** Some are joining the team, rather than fighting the very people working hard for change. Remember the goal of delivering something for middle-market? I liked reading this: *"I'm predicting five seater and battery capacity options."* Only being that Volt owner's fourth post on the big Prius forum, it's difficult to know what the response will be. But the effort to reach out was appreciated. Hopefully, my post will be too: That's the same thing some of us have been suggesting for many, many years. Looooong before rollout, the *"too little, too slowly"* advice was repeated over and over. Only now, that idea of offering choice is finally being embraced. Do searches on those other websites for *"second model"*. Even just the mention of one-size-fits-all absolutely enraged enthusiasts. They felt any attempt to alter design to widen appeal should be considered a threat to the purity of Volt, since that would make it too much like a Prius. But now, with the blatant need to lower cost and increase sales, the idea of diversifying is welcomed. They learned that lesson the hard way. Rather than send a message to GM back when it could have really made a difference, they gambled and waited for the sales struggle instead. The very thing warned about... Calling the situation *"better late, than never"* is fine. Leveling the playing field after having to deal with the *"vastly superior"* nonsense is a nice outcome. After all, those enthusiasts were told countless times the goal is to replace traditional vehicles. Achieving that isn't possible if they don't want to recognize what makes those traditional vehicles so appealing. More legroom and a fifth seat in back will most definitely draw interest. A smaller battery-pack to reduce cost is an obvious next step. After all, traditional vehicles have offered the choice of engine size for decades. Why shouldn't a plug-in have some type of power variation option too?

- 3-15-2014** **Misleading Continues.** The effort to greenwash is far from dead. Thankfully, dealing with it takes less effort. It never ceases to amaze me how certain people use deception. But they are well aware that others will innocently fall victim, believing what was posted and unknowingly spread the incorrect information. So, posts like this are needed from time to time: The 6-mile mark in the EPA testing cycle has been a source of misleading for years. It does indeed trigger the engine to start at that point, but that is by no means an indication of the plug-supplied electricity already being used up. That's just when the hard-acceleration test is performed. The engine shuts off shortly afterward. There's still 5 miles worth of electricity remaining. Yet, no matter how much real-world data and driving videos are shared, the claim of 6 miles being the total available continues. I posted this back in September: *"Using Volt's own specification for comparison: 16.5 kWh = 38 miles. That works out to 2.3 miles per kWh of electricity, which means 4.4 kWh = 10.1 miles. Then when you take into consideration Prius PHV weight is 621 pounds less than Volt, it's easy to see where the 11-mile EPA rating came from. The capacity is clearly there."* The math is simple. It takes into account usable capacity from full and compares systems using the same approach too. There is no reason for any more misleading to continue.
- 3-16-2014** **Final Fight.** I keep waiting for a finale. Maybe this was it: *"The distinction you miss is when gas starts being used. What good is my car if it has 100kWh of battery, but it starts using gas after 2 miles?"* We've seen the hypocritical stance being taken routinely. You argue with someone disingenuous long enough, they will eventually contradict themselves. The fact that I got labeled as a *"broken record"* in the past for repeating the same message over and over served as confirmation that I was paying close attention (noticing the tree directly in front) and so were they. So when I read that quote today, it provided reason for excitement. The absolute approach was a clear effort to avoid contradiction. Working so hard to avoid slipping down that path (forgetting to also observe the forest) exposed a weakness. That's what I'm always looking out for... and was rewarded nicely this time. It was a blatant misrepresentation of the plug-in model. He got caught portraying it as Prius delivering either EV (electric drive) or HV (gas drive). Either he didn't want others to know there was more or he simply didn't understand the design himself didn't matter. All that was necessary as a response was to point out there was indeed more. Excluding vital information is greenwashing... and everyone is well aware of that. The implications of a very active poster intentionally doing that was huge. It was checkmate. Whether forfeit or denial, it was irrelevant. I won the fight. That worked out great! I closed the chapter with: After all this time, you still don't know how the system in Prius PHV actually works? Well, that explains a lot. Even when the engine is running, it's still heavily drawing from the battery-pack. That plug-supplied electricity is still being taken advantage of. Take the time to watch the videos and read detailed information. Notice how engine RPM stays extremely low (usually 992) and the resulting MPG is well over 100. Owners call that EV-BOOST.

3-17-2014 **We Knew All Along.** No longer interested in the nonsense being spread on what remains of that daily blog for Volt (which only rarely features Volt anymore), I spend more time following the big Prius forum. Who knew that there were be pot-stirring there too. It was a blatant effort to start up some discussions... provokes to engage in fierce debates. Certain individuals thrive on that. So, they drop bait to entice. If you were an outsider, that would be called trolling. Unfortunately, there's standout term for long-time members who do the same thing. Anywho, it was a claim that Volt was an entirely new design and was in no way related to Two-Mode. Excuses used to justify delay are acts of desperation at this point. Even some Volt owners have changed their tuned, finally supporting what the rest of us knew all along: *"Volt's 4ET50 transmission is a complicated device. It contains a planetary gear set, three clutches and a final gear reduction set. The advantage of the 4ET50 transmission is that it allows the Volt to operate in two modes during extended range mode: pure series and power link. The advantage of power link is that it increases mpg in extended-range mode by mechanically connecting the internal combustion engine (ICE) to the wheels."* I posted that in response to a trolling attempt, followed by this: That's a quote from a strong supporter of Volt, one who cared about being straight forward with what the next-generation design should feature. He wasn't afraid to go into great detail explaining how Volt is indeed a successor to Two-Mode. He also pointed out how Volt doesn't fit the EREV definition coined for it. He didn't waste time feeding rhetoric. That's a stark contrast to the posts here.

3-18-2014 **Double-Lens LED.** When it comes to being "*vastly superior*", there is no argument about which headlight type illuminates the best. Unfortunately, that is one of the many reasons for Prius hate. The advanced-technology models feature double-lenses LED-bulb headlights. That's what I have on mine. It's the ideal combination of light-source and light-projection. Road illumination is clearly the top offering, so much so, it scares me when I notice how poorly some other lights work. Some people literally cannot see the road at all. There's nothing but a bright glow a single car-length in front of the vehicle. Mine is dramatically better... which is why we are starting to see LED headlight with single-lens popping up now. It's hard to believe it took so long. I put a set on with 55-watt halogen single-lens lights on my 1984 Dodge Omni, way back in 1990. Those were called "*projector beams*" back then and were a great aftermarket add-on. The clean height cutoff and even broadcast made them an uncontested leader. Who knew it would take 23 more years for them to catch on. Prius has had single-lens with halogen, even on the base model, since the third-generation rollout in 2009. They are standard on the new Toyota Corolla, with LED. They will be available on the upcoming Ford F-150 too. This market acceptance has stirred Volt discussion, since it comes with lens, but uses halogen bulbs. Stepping up to LED should be a given, considering the market it now appeals to and growing competition. I welcome the change. All the lights in my home were switched to LED back in 2010. They use less electricity. They have proven robust & reliable too. LED bulbs have been used as brake lights in Prius since way back in 2003.

- 3-19-2014** **Gone.** All that rhetoric. All that misleading. All that chest-pounding. It's all gone. The situation now is as it should have been right from the start, Volt is a plug-in hybrid contributing to the effort to help wean us off our oil dependency and reduce emissions. No more "*vastly superior*" nonsense is such a relief. It didn't actually accomplish anything. In fact, there are many who would say it caused a market setback. Whatever the case, the change now is obvious. The blogging & posts have died. Activity has almost completely vanished. Most supporters left long ago. Now, even the enthusiasts are moving on. It's a welcome transition... further proof we are in a new chapter. Unfortunately, talk dominating the big GM forum is all about their 3 new small engines just unveiled. In other words, traditional vehicles will pose an even greater challenge to overcome... a reality most in the past didn't take seriously, hence being identified as "*enthusiasts*" rather than supporters.
- 3-20-2014** **Plug-In Gathering.** There were 40 of us this evening. About 20 of the vehicles in parking lot used plug-supplied electricity in some fashion. Tesla. Leaf. Focus EV. i-MiEV. Volt. C-Max Energi. Prius PHV. That was a great experience. Unfortunately, most of the event took place indoors, away from the cars. It's still Winter here. So, everything was still cold & dirty and the sun was quickly setting. The upcoming gathering in May will be dramatically different. I'm really looking forward to that. The attitude of Volt owners there are dramatically different from encounters online. In person, they are a joy to spend time with. They are true supporters, interested in taking the steps needed to achieve acceptance by from the masses. They desire mainstream penetration and don't share that nasty attitude of enthusiasts. I really enjoyed getting to chat with them. The others were fun too. Seeing several Leaf & Tesla parked them among the others was sweet. It's what I've been looking for to for a very loooooong time. Their understanding of Prius PHV being an affordable option for high-volume middle-market sales was clear. They agreed. There were no arguments or debates. None of the nonsense I had to deal with online ever emerged. We were all on the same team, working together to make recharging at home a simple & ordinary experience. The evening was quite inspiring.
- 3-21-2014** **Failed Because.** We are faced with thought-provoking situations now. Some people are looking back, referring to what happened with a hindsight perspective. The resulting distortion is a very common problem when depicting history afterward. Past decisions are unintentionally misrepresented, seemingly obvious long after the fact. But when in the depth of it, while events are unfolding, those same circumstances appear very different. That's why the Volt enthusiasts disliked Prius supporters with a passion. They worried that some of their observations while previous chapters in history played out would resemble current dealings. I was outright hated by a few, since I had documented that past in great detail. It makes them worry about the potential of repeating the same mistakes again, especially after having been warned about them the first time. Misrepresentation is where it starts. That's where the "*failed because*" problem emerges. More and more, I hear people claim Volt failed was because GM had expected the price of batteries to fall much faster. It's stated as if that was the sole reason. All the others are being forgotten already. That overly simplistic view contributes to assumptions, leading to future trouble.

- 3-22-2014** **Feeding Hype.** It doesn't take much. It feeds off of itself too. A great example from yesterday was a comment posted in response to this information: "*One of the units, most likely the 1.0-liter three-cylinder version, is expected to be utilized for the redesigned 2016 Chevrolet Volt.*" It was a statement in an article that highlighted the upcoming new engines just revealed by GM. It was only speculation, a reasonable guess. Clearly, the commenter didn't understand or didn't want to know that: "*So, it looks the 'downsizing' of the engine in the Volt is real and confirmed.*" Someone else will naturally take that as supporting evidence... totally unaware of its origin. Stuff like that happens all the time. The nature of the original information won't be entirely known or it's taken out of context. One thing leads to another and you end up with a mess. Claims without merit or any type of support take on a life of their own. Those posting clarification get attacked, labeled as trolls, then ultimately banned. We've seen it before. That ended up in disaster. Yet, hype starts again. It's easy to see why too. Hope blinds logic. People wanting it to be true won't question the claim. As a result, they become enablers. They serve as silent approvers. That makes a bad situation worse, contributing to the growth of hype. The cycle continues. Ugh.
- 3-22-2014** **Almost Out.** Within the next 3 weeks, the HOV sticker supply will run out. They allow single-occupant vehicles to drive in the carpool lane on select California highways. Only plug-in vehicles were eligible and that was a compelling reason for many dealing with the dense commute traffic there to purchase one. Their absence soon means uncertainty is coming. No one has any idea how it will affect sales. Years ago, when that was an incentive for Prius, sales continued relatively unchanged after the supply was gone. But back then, there was little competition. Fewer choices is easier to deal with. What will happen this time? If nothing else, the stickers (75,000 total) provide a high resale value, which will stir the used market. Waiting to expand rollout until then makes even more sense now. This unknown is a big deal. Each automaker reacting in a different way could introduce yet another chaotic element to deal with. It's confusing enough with state incentives varying so much. Just imagine what added dealer incentives could do. Remember the inventory pile-up last Summer and the abrupt price reductions?
- 3-24-2014** **Changing Perspective.** Forcing it is called greenwashing. Looking from elsewhere is called spin. In other words, you can't win. So sometimes, you just have to go with it. I found this particular claim amusing: "*If I did my math correctly the Volt is the best deal.*" It came from a well known antagonist attempting to undermine Prius PHV. My approach was to point out the perspective of the rest of us by implicitly asking if our tax making is being spent the "*best*" way it could. I suspect the response will be anger. But shouldn't that question be addressed? Why should only a select few benefit? Just think if there was a specific amount allocated to the automotive market instead. It would encourage competition. The more you rollout, the more you benefit. Right now, there's no speed incentive. Each automaker is independent and they can milk the "*halo*" effect in the meantime. So, I replied with: Isn't the point to encourage & spread plug-in vehicle acceptance? We'd get more bang for our buck if 600,000 people got \$2,500 credits than 200,000 getting \$7,500. The same amount of money would have triple the market impact.

- 3-24-2014** **Plug-In Hybrid, part 1.** I wasn't too thrilled to read this post today on the big Prius forum: *"Another prime reason why I say the PiP is a patched together EV is..."* Curiosity did compel me though, especially when it ended with this: *"When/if you eventually get up to 60 mph or so, it is spinning MG1 at close to its redline RPM and using power to spin it backwards just to keep the stinker from spinning. With the Volt both MG's are working to move the car forward!"* Most pushing the rhetoric were too afraid to actually join the discussions there. But here was a Volt owner doing exactly that. It provided a minor glimmer of hope. Unlike me, he wasn't serving as a lightning-rod, a well known owner facing opposition head-on to keep the fighting off-site. That worked remarkably well for years. But times are different now. It's a new chapter. So, I asked: Why do Volt owners continue to force PiP, a vehicle clearly presented as a PLUG-IN HYBRID, into the category of EV? Notice how no one else does. Notice how they focus on results instead? As PiP owners, we see the efficiencies from blending electricity & gas for power. We see the MPG above 100 while cruising faster than 62 mph.
- 3-24-2014** **Plug-In Hybrid, part 2.** I got a few likes and he got a few posts countering his position. The choice was post operational detail, complete with a video showing battery, engine, and motor information: In the past, which could be coined the "purity" chapter, there was much propaganda coming from Volt enthusiasts. Their efforts to belittle Prius PHV marks a ugly point in plug-in history. Thankfully, most of that is just a memory now. Attitudes are changing. Priorities are being reassessed. I'm thinking this particular comment is about being poorly informed, simply passing along greenwash material without verifying whether or not it is actually true. Watching that video of my commute, first at 70 mph, slowing to 55 mph, and then onto suburb roads, it's easy to see the redline statement is quite incorrect. MG1 is rated for a RPM of 10,000. During that drive, the highest RPM we see is under 6,700. It's not even close to reaching maximum. So what if a little power is used for carrier balance. That's the point of a hybrid. It seeks out efficiency opportunities by taking advantage of the resources it has available. It was designed to operate that way, and does even with the models that don't include a plug. The misrepresentation of Prius PHV needs to be stopped. It would be great having Volt owners as an ally in the effort to replace traditional vehicles. That support would be mutually beneficial. Sadly, gaining it continues to be a challenge. The *"leap"* comment clearly confirms we are not there yet. See the end result of that 16.8 mile commute. Isn't that 128 MPG the point of being able to plug in? That's significantly higher than a Prius without a plug could deliver, especially when the temperature is below freezing like that.

- 3-25-2014** **Plug-In Hybrid, part 3.** He became very angry at the replies. You could tell he was at a lost about what to do at that point. There was quite a bit of evidence confirming his claims were incorrect & misleading. So, what do you think he did? I found this the next day, on the forum dedicated to Volt: *"Well while we're ragging on the PiP, I think of it as a patched hybrid to kind of act like an EV, a 3 season EV, no EV heat. Then when/if you eventually get up to 60 mph or so, it is spinning MG1 at close to its redline RPM and using power to spin it backwards just to keep the stinker from spinning. With the Volt both MG's are working to move the car forward!"* It was a blatant effort to greenwash. The quote was nearly identical to the original on the big Prius forum, but with the EV wording altered. I found that change amusing, since Volt owners often take advantage of engine heat to spare the battery drain. And of course, below 15°F, the engine in Volt must start anyway. He excluded that, as well as the information that the engine shuts off in Prius PHV and continues to provide warmth from the heated coolant while driving in EV. As for his purpose, it was clear. The intent to undermine was obvious. Prius PHV is a plug-in hybrid. Misrepresenting as an EV is bad enough. To be willing to outright lie... It speaks volumes.
- 3-26-2014** **Struck While Parked.** I wasn't too happy, but was in the state of mind to forgive. She drove into her parking spot and kept going. She struck my Prius while it was parked. Since I was on the sidewalk at the time, crossing over to get to the cars only took a moment, too quick for her to figure out what had happened or what to do. When she got out of her car, I stepped to the side, stated *"You hit my car."*, then got into hers saying *"I'm putting your emergency brake on so your car doesn't lurch when I move mine."* Having seen how far a pushed parked cars can bounce in that situation, it was a sensible choice. After all, there was no need to allow further damage or for anyone to get hurt. Thankfully, when I pulled forward, there were only scuff marks. Somehow, the plastic was spared the typical bolt impressions from contact like that. She made up some excuse about a truck rushing her, something I certainly didn't see, then said there didn't appear to be any damage. There was no direct apology. How anyone could hit a hatchback with such an easy to see back end while pulling into a perpendicular parking spot on a beautiful Spring day, is beyond me.
- 3-27-2014** **Plug-In Hybrid, part 4.** Despite warnings from Prius owners about being off-topic & belittling and Volt owners apologizing for his behavior, the trolling continued. It was surprising to witness. He changed his wording again too: *"As said earlier, the PiP is a hybrid that plugs in and can do some EV tricks. Not bad for 90's tech, but tech marches on!!"* Certain people cannot resist a jab. They always try to sneak in a mild insult, then deny it happened, even though it is just a page or two back in the thread. I found this the ultimate response to that: *"Reminder to self: do not read anymore "Volters" negative comments in the inappropriate thread."* He didn't return to that particular discussion either. It seemed enough to get the point across. It's too bad things like that still happen, especially when the topic was for sharing one-year driving statistics. The trophy mentality and perceived engineering advancement is still more important than actual results. That's sad.

- 3-27-2014** **Former Foes.** They have the choice of facing the facts or disappearing entirely. The desire to be part of a winning team compels some to admit the approach failed and move on. That's great. We need diversity in the team of players working to replace traditional vehicles. Giving up bragging rights is tough though. Some still don't understand what the message that "*smug*" episode was meant to convey. Fortunately, some do. I'm thankful for that. It's progress, like this: "*Tomorrow, I am turning in my Volt at the end of lease. I tried to buy it but even the lease company said the loan would be undersecured because the car had lost too much value, go figure. I have instead purchased a Ford C-max Energi.*" I happily posted: Thanks for the update. You are certainly not alone in that situation. I met with about 20 other plug-in owners last week. It was fascinating to see such vehicle variety all in the same lot. None of the rhetoric of the past carried forward. There was no more debate anymore about production cost needing to be the top priority. It was really unfortunate that GM chose the short-term approach, gambling on market embrace strong enough to retain loyalty after leases expired. Even though they contributed to some of the mess we are having to deal with now, at least there are satisfaction reports like your own to help with this new chapter. This week started with 3 of us parking at the work chargers, my Prius PHV, a Leaf, and a Volt. It was a nice sight. Each plug-in serving a different purpose, yet all on the same team. That's what we had hoped for years ago. It's too bad the hype got so out of hand. I sure am glad that's finally over. Enjoy your Energi.
- 3-27-2014** **Website Cards.** It has been a very long time, several years in fact. I use to handout "business" cards all the time. Someone would ask about the Prius and I would provide that in response. A nice photo with some summary information on front and some detail on back worked out really nice. They'd have a little something to follow-up with. It was an effective way to spread the word about Prius and my website. In the past, I did that simply by printing a graphic & text template on card-stock. But nowadays, that actually costs more to do it that way. Online services make it easy & convenient to order your own custom content. So, I gave it a try... and wasn't disappointed. There's a glossy photo on front and statistics on back, featuring my Prius PHV with 2 full years of real-world data. This page shows what I created... [prius website cards 16](#)
- 3-28-2014** **Plug-In Hybrid, part 5.** Concern is growing. We're seeing more and more draw to PHV discussions from outsiders, specifically Volt owners. Now that the former daily blog for Volt is featuring discussion topics about Tesla, the automotive battery industry, and general market interest, they have nothing compelling to participate in anymore. The fact that some recently parted with their Volt adds to it. In other words, the big Prius forum is a welcoming venue. That's quite a extreme from the hostile environment I participated in, where there were screams for banning based upon on-topic information they simply didn't want to fact. That soured the appeal for the long-time posters. They wanted no part of such close-mindedness. The catch is, they aren't ready to deal with the big picture yet. They evade certain topics still. PHV being a plug-in hybrid is difficult enough to accept... especially when realities like diminishing returns are given attention. I simply chimed in with the following this time: Notice how the topic of overall MPG is carefully avoided? That's what attracts to this particular thread. As more PiP owners celebrate anniversaries, it becomes more and more difficult to spread generic hype. Real-World data trumps those claims. It's easy to see the better overall choice for mainstream consumers.

- 3-29-2014 Engineering Advancement.** The belief that advancement is measured in terms of electric range & power is difficult for some to overcome. Even those trying to be constructive fall into that trap. Yesterday, it was this coming from a Volt owner: "*Toyota chose a more conservative path.*" I'm thrilled that we have active dialog on the big Prius forum. But questions like that still fall on deaf ears. He ignored my question asking what that actually meant. I pointed out how delivering a plug-in without liquid cooling took quite a bit of effort and how delivering it on a mainstream platform was risky. I also reminded him how squeezing out more from less is much harder. GM delivered a halo vehicle, later even validating it was only a niche. They could garner kudos for having offered consumers a choice without actually addressing the direct need of traditional competition for an extra 5 years. It was the ultimate compromise, making enthusiasts happy, quieting technology naysayers, and giving the impression all was going well for ordinary consumers. Shutting up the well informed continues to be a problem though. We keep asking questions and not getting answers. We see the challenge still faced for moving advancing niche. It's not measured in terms of range & power.
- 3-29-2014 Not Toyota.** The typical response to constructive feedback from owners of vehicles not a Toyota is that you're just defending Toyota. That instant assumption contributes to a world of trouble. Then when it comes to efficiency technology, comments from a Prius owners are interpreted as Prius related, even if the discussion has nothing to do with Prius. That makes it even worse. The situation is maddening sometimes. The self-inflicted nature of their problems is easy to understand though. Toyota was attacked relentlessly a few years ago. Reputation was everything and some worked relentlessly to tarnish it. Now, the tables have turned. GM is really hurting. 4.2 Million vehicles have been recalled this month and bankruptcy recovery didn't result in a promising outcome. Having only achieved status quo isn't encouraging... especially when you bring other automakers into the mix. Ford frustrates them (deniers) more than any. Watching former Volt owners embrace the C-Max plug-in is a victory lost. They use to celebrate conquest sales. But now when they are out of favor, it hurts. Of course, turning to Chrysler makes it even worse. The 2015 model of the Chrysler 200 will feature a 9-speed automatic transmission. That offers a 5 MPG gain over the current model. 36 MPG highway takes away bragging opportunity. I find the 28 MPG combined disturbing, especially with such a complex & costly system. Give me the simplicity of a hybrid with a power-split device any day. In fact, that's actually the very reason I discovered Prius back in 1999. I was frustrated with 20th Century design... which sadly, continues in 2014. Adding more gears isn't a solution. Taking advantage of motors & batteries is. Toyota draws many sales for their effort, hence the aversion.

- 3-30-2014** **Not Much Anymore.** The difference between ordinary mainstream consumer and enthusiasts should have been obvious. But hype blinded the hopeful. That meant some victims emerged along the way. Afterward, those who were misled or misunderstood said things like this: *"I want to drive as close as possible to 100% electric without range anxiety. And I'm tired of paying attention to the list of conditions that turn the PiP's ICE on, including exceeding 62 mph."* Sadly, that particular quote was from today. I pointed out what supporters are now quite familiar with: Notice how rare comments like that have become? In fact, the only remaining source is from those who purchased a plug-in hybrid but really wanted an EV. It made sense. Years ago, with so little information available, people made lots of assumptions. That spread misconceptions and contributed to greenwashing. Now, people are seeing the variety of offerings available and are researching the differences. That's why asking for goals is so important. There are tradeoffs. Not understanding the differences anymore, well into 2014, is the purchasers loss. The design & approach of each automaker is clear at this point. Change will come. Selling at a loss and depending upon tax-credits can only be short-term and at low-volume. In the meantime, gas prices continue to drop and pressure from traditional vehicles grows. Most people won't care when the engine starts. They'll just want something affordable, practical, reliable, efficient, and clean.
- 3-31-2014** **Standing Ground.** It's not easy. There's a lot of pressure to give in. That's what happens when hype grows. Thankfully, we get some wisdom like this from time to time: *"I am glad Toyota stood their ground and did what they should (reducing emission by increasing efficiency with a balanced design) rather than what they could (add bigger battery to exploit tax credit and greenwash with meaningless big MPG numbers)."* Reminders like that are important. I added: We knew GM was appealing to an enthusiast audience. That's why the *"Who is the market for Volt?"* question kept getting asked over and over again. The response of great EV acceleration was a dead giveaway that the design wasn't balanced. Tradeoffs were being made to retain that electric purity, but they weren't being acknowledged. So, we asked about heat in the Winter. Response to that made it overwhelming clear that it the sacrifice was a problem being avoided. The first generation had been demoted to a proof-of-concept and enthusiasts were celebrating the victory. GM choose to call it a niche. Whatever the case, an appealing vehicle had indeed been delivered. It supported the bragging rights owners had hoped for and delivered a nice driving experience. It was what both wanted, not what was actually needed. Ordinary consumers kept purchasing Malibu, Impala, and Cruze instead. Looking toward the second generation, we see some enthusiasts having become supporters. They now openly address the changes required for Volt to reach a mainstream audience. Rather than being addressed as shortcomings or missed goals, they are instead referred to as upgrades and improvements. That's ok. It's progress. But the delay is really unfortunate. The backlash against Toyota for not having waived from priorities of the masses is disappointing. I'm hoping those who have owned both will help us deal with the issues. GM must align priorities to match what the bulk of their customers will actually purchase. The need for profit from selling lots of low-margin vehicles, without any government assistance, is a bitter pill to swallow. Enthusiasts don't like the idea of being common, but it's exactly what's needed. That means having to give up bragging rights and shift focus. It's their choice. Change or be left behind.

- 4-01-2014** **March Sales.** There wasn't much to say this month. Prius PHV sales were within 26 of Volt, so the rhetoric was moot. Only being available in less than one-third the number of states makes it difficult to argue demand. The big story was the same too. Traditional vehicles are far out-selling Volt. They didn't take the "*too little, too slowly*" warning serious. They dismissed all other options, risking everything on a signal choice. It didn't work. Now, some are actively seeking out an alternative. Yeah! It's unfortunate the fallout had to get so bad. Ford was able to avoid problems just fine. They understood the importance of keeping cost in check and not sacrificing other priorities too much. Tradeoffs are normal, but consumers lose interest quickly. GM has found out the hard way out. The scramble to catch up is underway. Toyota already has a platform delivering great hybrid efficiency and able to grow it as costs allow. In the meantime, we're seeing adequate Prius & Camry hybrid sales. More would be nice. But considering the current price of gas and the sluggish economic recovery, it's reasonable since both are profitable and selling without markdowns. The situation needs to pick up, especially as competition grows for both hybrids with and without plugs. Honda is the automaker to watch at the moment. The hybrid version of Accord has been selling well and supply is low. April should be interesting.
- 4-02-2014** **Arguing Semantics.** A dead giveaway that things aren't going well for the opposition is when they begin arguing semantics. Today, we got a new thread titled: "*Does the Prius have a transmission?*" It was started by a Volt owner on the big Prius forum frustrated by seeing the topic of transmission being brought up so often when debating against Volt. The simple nature of that in Prius is what allows it to be efficient, reliable, and affordable. That edge obviously frustrates. Knowing there's no way to win that argument perspective, the posts inevitable switch over to definitions. As long-time supporters, we know that's a red herring. Whatever label it ends up with makes no difference. But Prius newbies are compelled and Volt enthusiasts crave some kind of victory... hence the thread. I couldn't let it go on without saying anything. So, I responded by posting: The question misses the point of why "*transmission*" comments have been made. Of course there is transmitting of power, but it works more like a differential rather than something actually shifting gears. A quick look at the complexity of other systems is why. It's the simplicity.

4-03-2014 **In A Vacuum.** Month after month. Year after year. It was always the same story. No matter what happened with Volt, it was ok, since it was supposedly the best plug-in available. All they cared about was bragging rights. Everything else came secondary. It was a recipe for disaster. They didn't care though. Operating as if they were in a vacuum, the enthusiasts simply didn't care. In fact, they made fun of the "*too little, too slowly*" concern. They'd twist it around and mock Prius PHV. In their mind, the smaller battery-pack made it a loser. Whether or not it actually failed didn't matter. GM offered more of an EV experience than Toyota, so nothing else made any difference. They were wrong, very wrong... and now they're finding out just how bad neglecting the big picture hurts. Much harm was done by believing an abundance of time was available, that the second generation would be delivered in a few years with major improvements and a much lower price. Somehow, resources to achieve that would magically be available. Other priorities of the automaker were unrelated & unimportant. Reality is crashing down. That isn't how the market actually works. The technological challenges are big in themselves. Pressure from the traditional market is diverting attention & priority. Competition from other sources is growing. The opportunity Volt had is shrinking, rapidly. The theme of "*too late*" is becoming overwhelmingly apparent. Choosing to disregard what else is happening has consequences. Survival in a vacuum isn't possible.

4-03-2014 **Recall Crisis.** All we can say at this point is: "Wow!" The situation with GM is a spectacular disaster. The scope of problem concealment is enormous. The liability is remarkable. Rather the spreading of fear like what happened with Toyota, there are actual deaths and a clear effort to avoid taking responsibility by hiding evidence. I remember executives leaving the Volt program before they could be held accountable for their promises. It was an easy way to dismiss goals not achieved. That seems so small in comparison. With these recall issues, like the ignition switch, excuses or dodging isn't possible. It's a public-relation nightmare on a crisis scale no one has ever seen. Supporters burnt bridges in the past too, making this difficult situation even harder to deal with. What a mess. Barely having emerged from bankruptcy in the form of a massive bailout (money never paid back to the government), the recall count of over 5 million is an unimaginable amount of damage to repair... something money & forgiveness cannot fix. How will GM recover from this? Where will limited resources be invested going forward? What will be their stance on mainstream cars, making pickups guzzle less, and somehow transforming Volt into something profitable?

- 4-04-2014** **Split Personality.** No surprise. Quite predictable. The media from Detroit published an article to inspire & distract. It speculated about the next Volt, using extremely ambiguous information to imply it will split into 2 distinct models... one offering increased capacity and the other less. Needless to say, hypocritical posts quickly emerged. All that talk about the need for a second model and the product gap was totally forgotten. Many acted as though those same suggestions made in past were entirely new now. Ugh. At least there is growing recognition of need. The childish avoidance was such a waste. They kept arguing about superiority, even though sales weren't growing... despite market recovery and a \$5,000 price-drop. That desperation & denial was maddening. I couldn't believe how bad it got. But then again, the behavior on their part was exactly what we needed to conclude that chapter. It's over obvious. Sales were well below need and there wasn't a Plan-B available. The entire farm was bet on a single massive risk. It failed miserably. A proper step will be taken next. The split attention confirms priorities being addressed, providing some hope. Sadly, it will come 5 years later than promised. Better late than never?
- 4-05-2014** **Greenwashing Victims.** Reading comments like this irritate: *"It is a standard Prius in almost every respect, with a small additional all-electric range. The engine turns on for heat, acceleration boost, and speeds over 62 mph. I wish I had understood that it wasn't an EV before I bought it."* Enthusiasts of Volt campaigned intensely, working hard to misrepresent Prius PHV. Over and over and over again they would make direct EV comparisons. No matter how many times we pointed out it was a "Plug-In Hybrid" as stated by the emblem on the car itself, they kept insisting it was a terrible attempt to deliver an EV instead. Some people had no idea that was happening and just assumed the only difference was a smaller battery-pack. Just like the old days with hybrids, we were fighting the efforts to greenwash with *"not the same"* clarification. Sadly, no matter how much we pointed out differences, like what EV-BOOST provides, it got drowned out by rhetoric. Thankfully, there are some Volt owners tired of that nonsense, no longer willing to allow it to continue. Rather than the enabling silence, they are speaking out to against enthusiasts. They are true supporters, those not afraid to face facts, are helping to undo the greenwash damage. I really appreciate that.

4-06-2014 Remembering Propaganda. Since the very beginning, there have been efforts to generalize. Sadly, many were with ill intent. The hope is that dumping vehicles into a simple category, they will be easy to dismiss. Fortunately, uniqueness from Prius has made that a challenge for well over a decade. It never ends though. Here's an example from last year: *"You basically have three choices of electric vehicles today, Hybrid, Plug in Electric only, and Extended Range Electric."* That was the introduction on a webpage setup by, you guessed it, a Volt owner. She was clearly attempting to undermine. Why isn't there any mention of plug-in hybrids? Both Toyota & Ford were selling them. Such a blatant omission is wrong. Whatever. Reading the descriptions to follow said it well: *"Hybrid Electric Vehicles (like the Prius): These are basically gas vehicles using an electric motor to improve the miles per gallons. Although a move in the right direction, you can get clean diesel vehicles (like the Volkswagens) that are more fun to drive and that have as good or better miles per gallon than the best hybrids, so for me today it is only a partial solution."* We know that the better claim isn't true. Yet, the broad dismissal was made anyway. Then came this: *"Extended Range Electric Vehicles (like the Chevrolet Volt): These are 100% electric vehicles, meaning that the wheels are only powered by an electric motor, but you have a small gas engine that can be used as an electric generator to provide electricity to the electric motor when the battery is depleted. The advantage of this solution, is that you (almost) get the best of both worlds."* The misleading was obvious at that point. Not only were Toyota's PHV and Ford Energi choices excluded entirely, the information wasn't even true. At times, the engine does indeed provide power to the wheels. It is not just a source for the generator. All that brings up the question of naivety. Could she be so poorly informed that she didn't know she was spreading greenwash material? That's called propaganda.

4-06-2014 Continuing Propaganda. It is quite redeeming to see Volt owners on a Volt forum argue with each other to stop the spread of misinformation. You can't help but to feel fulfilled that little bits of the truth have snuck through, that there is a desire to be honest & constructive. Things like the videos have really paid off. With so much detail available, people can watch & decide for themselves. It's unfortunate that things like cherry-picking continue to be a problem. But at least progress is being made. Those old problems, such as focus solely on the short-term gain, are becoming less and less of an issue. Some barriers really are going away. Sadly, we do still have some propaganda to deal with. The key is, some Volt owners really do want that next generation to be competitive. They are sick & tired of lies being spread and bragging taking precedence. That sure is a relief. I bet some of the underlying cause is watching 3-year leases expire and those drivers becoming owners of plug-in vehicles from other automakers. Conquest sales in the other direction certainly can be humbling. Hype won't repair that damage. There is hope for a genuine progress. After all, you can only deny that the true competition is traditional vehicles for so long.

- 4-06-2014** **Good Business.** The approach with Prius was to deliver a vehicle for the masses. That irritated enthusiasts to no end. An ordinary mainstream vehicle should not draw attention like that. So over the years, we've seen sports-car enthusiasts publications half-heartedly embrace the idea. It generated lots of traffic to their websites. So, it wasn't all bad. But then came along the Volt enthusiasts. They didn't care about high-volume sales. Their interest was bragging rights. That's why supporters of Volt have distanced themselves, not wanting to be part of a group not interested in the long-term well being. That's how we end up with comments like this: "*Toyota still refuses to sell the PiP nationwide.*" It gives the impression of missed opportunity, but doesn't take into account anything other than initial sales. I tried to inject a dose of reality: With so much effort being taken to undermine the plug-in model by misrepresenting & misleading about it, that continues to confirm itself as a wise choice. The resulting confusion & assumptions is something we are constantly having to deal with. The market isn't ready anyway. Even without the anti-plug rhetoric, there are still challenges to overcome. Look at the struggles with charging-stations. Their variety of issues make them a mess. Cost is obviously another big problem. Batteries are still too expensive to be competitive. We'd like wider availability. But focus on increasing demand in established areas makes more sense. There shouldn't be any argument that figuring out how to grow sales there, rather than just spreading inventory, is the better move. The need is to actually penetrate deeper into the market, to overcome initial interest. Look at what GM did with Volt. Drawing in sales from consumers other than early adopters has proven to be much harder than expected. Now, they are stuck without a next step available. What incentive is there for a dealer to offer more and for a salesperson to show more? The market is already saturated. Like it or not, Toyota's response is a good business decision.
- 4-07-2014** **Nothing New.** Staying out of the spotlight is not a strength of GM. This particular moment in time is a turning-point too, so it's been especially difficult. Over the past few months, we've watch a chapter end with Volt. That has left the industry wondering what comes next, especially with Ford having done so well with the introduction of their next-generation pickup. Focus on mainstream cars isn't exactly the excitement GM thrives on. But that's all they've had until recently. The flood of over 5 million recalls, which includes a cover-up concealing the deaths of 13 people and crashes of 32 vehicles. That has left them quite desperate for some other type of attention. So, in the usual GM fashion, they announced an upcoming announcement. It will happen tomorrow. We'll finally find out what's next. In the meantime, there's nothing new. But a look on the internet blogs & forums sure don't give that impression. We're seeing the same hype pattern emerge again. Heck, some of the posts are nearly word-for-word repeats. Hope without merit is feeding what very well could turn into another frenzy. It's like nothing was learned by some. Remember what happened before?

- 4-08-2014** **Waste Of Time.** All automakers invest in their future. GM is the only one to make a big deal out of it though. Notice how none of the other automakers make announcements like they do? Anywho, the information we got today simply stated tooling, equipment, and plant upgrades would be taking place in preparation for the next generation Volt and other vehicle electrification efforts. Naturally, the worst of the antagonist posted this in celebration: *"What's truly dead is hybrids like the Prius. That technology is at the end of its life. Toyota has so indicated by creating the PIP."* And followed with: *"The biggest thing holding back electrics is range and charging time."* Don't you love how conclusions can be drawn with nothing but a vague announcement? It's quite amusing, especially since there is obviously a place in the market for hybrids without plugs. But what I got a kick out of the most was the blatant disregard for the topic of cost, which is clearly the biggest holdback. That's what Toyota has been saying for many, many years now. If the vehicle isn't affordable, it won't be adopted by the masses. Heck, that is the very reason why the tax-credit amount is tied directly to battery capacity. Needless to say, I wasn't about to take his bait. It would only be a waste of time rehashing the same old arguments again.
- 4-09-2014** **Not A Peep.** I've refrained from posting anything, even though quotes like this make it tempting: *"Much to my surprise almost all responses were positive to the idea."* Learning to deal with deception is one thing, but actually getting agreement is another. Of course, most readers have no clue the idea is old. They basically assume it's a new twist which just emerged, a next step that just naturally happened. In other words, the long overdue necessity of a Volt for the masses is finally being addressed. Remember all those *"second model"* arguments? I couldn't believe how they feared that idea. They truly thought that would result in the end of Volt, that the effort was to kill it off entirely. No matter many times the *"one size fits all"* reference was made, they just plain didn't want to acknowledge the possibility of two. Even the *"lite"* term was coined to make it easy to dismiss. Enthusiasts wanted no part of a Volt with reduced battery-capacity. Even though that would deliver better depleted efficiency, increased interior room, and a lower cost, it was far too much of a compromise for them... until now. Many are embracing the idea. Pointing out that it's what some of us have been fighting to get for a very long time is pointless. So, there hasn't been a peep from me. Achieving the objective is all that counts... even though the *"too little, too slowly"* has played out right before our eyes.
- 4-09-2014** **DVD Discovery.** It really surprised me. I thought playing video was only possible from the navigation system's drive, which is a separate slot on some. On mine, there isn't one. The data is stored on a hard-drive instead. So, I never even considered the possibility. Accidently inserting a DVD from a 2-disc package rather than a CD quickly set me straight. Audio was playing, but there was a blue window on the audio screen. And sure enough, when I stopped and pressed the emergency brake... ta-da! There was video playing on the screen, complete with menu features to select. It's an interesting feature if you ever hopelessly get stuck somewhere or end up waiting for someone. I now keep a few episodes of M*A*S*H in my car, just in case. You never know when that could come in handy. Listening to the audio track of some movies is while I drive is quite realistic too. You'd be surprised how the video part isn't necessary. Many musicals and animated features have stories easy to follow without seeing anything.

- 4-10-2014** **Sometimes.** Patience is important, but ask what sacrifices are made in the meantime. We really don't want to keep putting countless traditional vehicles on the road. They'll remain in service for the next decade. So, we have to consider comments like this carefully: "*Sometime it just takes much longer than we want it to!*" That's very reason we need to keep carefully focused. Anywho, this was my post in response: Sometimes? With the automotive industry, when hasn't it? Seriously. They always rollout in slow motion. Each new advance is loooong awaited by the time we actually get it. You complain about slow expansion with the plug-in Prius, yet don't mention the very same thing happening twice in the past. We didn't get the Gen-0 model (Dec. 1997) at all. Instead, we got the upgrade 2.5 years later and called it Gen-1 (Aug. 2000). Then that rollout was internet-order-only for 2.5 years (until May 2002). When Volt enthusiasts were making bold claims about mainstream sales by the end of year-2, some of us were shaking our heads in dismay. What made it especially interesting was the outright dismal of anything related to Two-Mode, which was GM's own recent attempt to capitalize on their much stronger market... trucks. We all knew the car market would heat up. Pressure from traditional vehicles has been growing as the price of gas climbs and the efficient requirements rise. That meant anything attempting to appeal to those same consumers absolutely must match their purchase priorities. Toyota has remained true to that with Prius and has remained competitive. GM decided to risk offering something at a higher cost while sacrificing interior space and is paying the consequences as a result. So, we look ahead to what will be delivered for 2016. Reading the blogs & forums for Volt, I find it ironic how many of the "*second model*" comments are exactly what many of us labeled as "*trolls*" were saying years ago. They are now endorsing those very suggestions they had once despised. The fear that our attempts to help progress along was really an effort to kill Volt. Turns out, we had studied the market and understood it better. It had nothing to do with the engineering. It came down to basic economics. Automakers are a business. They cannot just build what they want, no matter how much hype that desire stirs. It's all about high-volume profitable sales.
- 4-10-2014** **Dishonesty.** GM's frequent mention of the next-generation Volt encourages speculation. That's perfectly fine. There's nothing wrong with exploring options. Hope without merit isn't constructive though. When it leads to hype, the situation creates reason for concern. When it results in dishonesty, problems arise. We're seeing it already. This new chapter ushered it back in. Ugh. There's one person flat out denying past discussions ever happened, even though the exact phrases recited were from many posts with him, over and over again. For the same topic to be addressed repeatedly and now conveniently forgotten, you have to carefully choose how to respond. My choice is abandonment. The effort simply isn't worth it... especially since it would only serve to confirm his hypocritical stance. His claim is dishonest, but that can be accepted. That change was the goal anyway. With another, the problem isn't so easy to deal with. He continues to outright lie about how Prius operates. Now, he's claiming the videos he watched validates the misinformation. Upon reading that, I was stunned. How could anyone be so desperate to undermine still? Making statements so easily proven false is a good sign though. It serves as indication that Prius is seen as a true threat... so much for finding an ally to help replace traditional vehicles. I'm choosing to ignore him too. With so much real-world data now available, we'll just focus on that instead.

- 4-10-2014** **Encouragement.** Those working against the effort to reach the mainstream with hybrids & plugs are disappearing. The ones left are quite amusing. One website still working hard misleads for the sake of promoting diesel. This month's attempt was to misrepresent by posting the total sales for hybrids and for diesel. It seemed innocent enough... until you realized the hybrids were exclusively passenger vehicles and the diesel included commercial trucks. How is that even the slightest bit honest? Whatever. We're just looking for signs of encouragement asking how things have changed. The most intriguing is the shift of former Prius owners replacing their aged vehicles with hybrids from other automakers. That appears like a loss. But stepping back to look at the big picture, it's really an industry plus. Those owners are now pushing their expectations elsewhere... encouraging market growth overall. Yeah! It's one of those situations like negative publicity, where it ultimately has a positive effect. The circumstances are counter-intuitive. Conflict at the plug can be that way too. Owners are figuring out what works best on their own, rather than being forced to conform to a standard established by group unfamiliar with we actually encounter. There is a spirit of cooperation growing in the forums. Defeat tends to encourage finding a compromise. New hope is growing.
- 4-11-2014** **Non-Hybrid Use.** Some of the engine technology only used in the Toyota hybrids will be carried over to the Toyota traditional vehicles. It's part of that on-going process often referred to as the "*moving target*" we are always concerned about. There's a constant cycle of improvement which is an endless source of market pressure. It can be good, but you need to take a reality check from time to time. Expanding production & distribution reduces cost. That's a win-win situation, especially since it means continued investment. The most obvious change is switching from the Otto piston pumping to Atkinson. The longer strokes provide more output for each act of combustion, resulting in higher efficiency. While driving at a steady speed, that's great. However, the tradeoff is reduced power. Of course, not much power is needed while cruising anyway. There are also refinement approaches, learned such as exhaust-gas recirculation, variable-valve timing, and air-intake ports, which can all be used in non-hybrids. They increase the engine's thermal efficiency, resulting in higher MPG output. It's an interesting situation. Makes you wonder if the typical consumer has any clue what actually happens under the hood as they drive.
- 4-12-2014** **Smart-Entry / Smart-Start.** That's how it was first named, abbreviated as SE/SS. The reason for that was the more popular name now used wasn't specific enough. Smart-Key-System (SKS) implies you can both unlock & start the vehicle with a wireless transmitter... which wasn't the case originally. Some only allowed entry, but you still had to use a physical key afterward. Anywho, I made a surprise discovery that it was smarter than I had thought. My girlfriend had one of the transmitters in her purse, still inside the Prius. When we walked away from it, I pressed the lock button on my transmitter. The Prius doors locked. Later when we returned, I discovered the doors weren't unlocking by just passing my hand through the handle like usual. After several attempts and worry something was actually wrong, I pushed the button on the transmitter. It unlocked. All was well. It took a minute for me to put together what had just occurred. The system had automatically disabled the proximity feature, since it detected a transmitter was locked inside... forcing me to physically touch my own outside for entry. Had it not done that, anyone could have got in the vehicle and driven away. Sweet!

- 4-13-2014** **Lessons Learned.** An article summarizing the situation this way said it well: "*In an effort to boost sales and find a wider appeal, a lower-priced, shorter range version of the Chevy Volt is reportedly planned.*" That pokes at goals, indirectly highlighting how Toyota had it correct with Prius from the very beginning by holding price an extremely high priority. As sensible as it seems to deliver a vehicle that's faster and more powerful, it doesn't actually mean that will result in more sales. Those who support Volt have learned that lesson the hard way... and some, more so than others. Quotes like this highlight the circumstances now: "*I'm glad that I didn't buy my Chevy Volt. Just 3 years lease.*" and "*I'd gladly sell the Volt, only GM has destroyed my resale value...*" Think about the damage that \$5,000 price drop has done. Think about what will happen when the \$7,500 tax-credit expires. Think about what happens in a few weeks when the HOV-sticker supply runs out. What about making a profit? When and how will that be achieved? With so much marketing emphasis still being placed on the having a 40-mile range, the introduction of a reduced model clashes with what we've been told is important. Remember, reduced capacity can also mean reduced speed & power. Whatever the case, it ultimate must reach more consumers... an audience well beyond that of the first attempt.
- 4-13-2014** **Bottom Line.** The academic arguments are annoying. People think they're being constructive, but don't realize excluding real-world is a major oversight. They assume people make logical choices. To make matters worse, they believe the best option is what offers the most of something. So naturally, agreement is elusive. Then there's the blame game, especially when it comes to Volt. That means when we shift focus back to goals, the response is typically one of anger. But that's how this works, resulting in: "*Who cares about "he said, she said". The truth is the bottom line: final sales numbers at the end of the year. Enuf said.*" Who is GM anyway? Hype was allowed to take on a life of it's own. Whenever something was said, it was always intentionally ambiguous. There hasn't been any accountability. Anyone of responsibility left the project. Enthusiasts were enabled. Look at what's happening was the next generation, the same nonsense is repeating. We all know the what's required. That shouldn't need to be said. Success will always be defined by sales. The business requires high-volume profitable sales. Being green cannot be achieved without those sales.

- 4-14-2014** **The Past.** It's nice having an open & constructive dialog now. Things have definitely changed. I pointed today's observations out with: It is unfortunate most people are unaware of the past. To those of you who have openly stated not having followed Volt until later in the process, THANK YOU for stating that. It's far better than back when we pointed out the parallel to Two-Mode development and having been accused of trying to promote Prius rather than getting any type of constructive acknowledgement. That's what the nonsense emerged from. Having witnessed the entire process twice already and seeing the pattern start for a third, it's a very real issue finding an effective way to convey that information. Items get argued down simply due to lack of detail... the very content I documented to the extreme back when those previous events happens, as they were unfolding. Even the act of looking back afterward presents a perspective different from that of not knowing yet. Long story short, I expect quite a bit of criticism from the resulting over-simplification. Not addressing all the reasons why is a problem we've already seen repeat. Then, of course, we have the problem of some people not having the background. Unless you've studied economics, accounting, and engineering, there are aspects of discussions being missed. The biggest problem, though, is not having goals or even an audience clearly identified. Failure is inevitable when particulars are not provided for the measure of success.
- 4-14-2014** **Rumors.** It's nice when we get a reminder how not-so-obvious a situation can be: *"Well, we're coming up on the two year anniversary of this thread. Still, I have no idea how these rumors get started."* That's a very realistic comment to make; yet, few ever actually make it. The online forum isn't a venue for that. There's no way to follow the activity of all threads at the same time other than at that very moment. It's impossible to know what things were like at any particular point in time. You're stuck with a today-only perspective. Fortunately, the blogs do capture thoughts as they are happening. Mine is among the sources readily available for hybrids. So, I responded with: I do. There are countless quotes in my hundred of pages of blogs pointing out the emergence of false beliefs. With Volt in particular, there were some rather intense fights which came about from those of us who questioned sources and pointed out claims without merit. Sadly, there are also greenwashing efforts. My all time favorite is how Toyota clearly stated in a presentation how lithium-based batteries were still too expensive to be used profitably and people would intentionally misled by making the claim that those batteries could never be used. It was a blatant disregard for what was actually said. They didn't care. Then when Volt rolled out, there was a huge effort to undermine PIP by making people believe the plug-supplied electricity wouldn't be used at all once the engine started or you exceed 62 mph. No matter how many times the correction information was provided, the same people would keep posting greenwash material. So, simple things like rumors, are easy to see how they get out of hand. Consider the reality of most people taking what they read at face value, never bothering to confirm facts or follow up. It's really disappointing to learn how common that is.

- 4-14-2014** **Greenwashing Efforts.** There are more and more Volt owners attempting to squash efforts to greenwash, no longer willing to be enablers by not speaking up. They don't like when misinformation is spread, especially when it is about other plug-in vehicles to make Volt appear better. Their desire to honestly gain people's acceptance is triumphing over the superiority approach. Substance over attitude, gotta love it. Anywho, it's stuff like this we are currently seeing: *"You and PiP owners talk about how anytime you want full power you just step down and the engine comes on and gives XX HP. That sounds like a horrible way to wake up an engine first thing, especially when it's -10°.* The Volt never does that to its engine." Volt never does because the engine fires up at temperatures under 15°F. The same is true for the plug-in Prius, but he intentionally left out that vital fact... hoping you'd assume it was different. Also, notice how he was ambiguous by not being specific with temperature? On the Celsius scale, -10°C is actually 14°F. So technically, it's accurate, but could easily mislead. Lastly, the inclusion of adjectives, like *"horrible"*, draw the conclusion for you rather than just providing information. Not being allowed to decide for yourself is yet another way to greenwash. Lastly, watch for words like *"never"*. Sighting absolutes by focusing on extremes, rather than ordinary circumstances, adds to disingenuous portrayal too. It's sad, but true.
- 4-15-2014** **Lunar Eclipse.** It was 2:00 in the morning. We were in Northern Minnesota, looking up into an icy cold clear sky void of any city lights. The moon had just turned red. The lunar eclipse was in progress. We were already freezing. Another 45 minutes was too much. I suggested taking advantage of the Prius. We jumped in and drove down to a location where we could park in the road without any possible traffic interference. Our breath raised a new problem. It instantly froze to the glass. Oops! Without the Prius running, we were comfortable... but the windows wouldn't remain clear for long. Sitting back did the trick. That was nice. Neither one of us cared for the idea of having the engine heat coolant for our warmth for that long. Why waste gas and have to deal with the engine & blower noise when we were already comfortably dressed? So, we sat there and watched, in as natural of a setting as possible. I enjoyed every moment of that experience. It was quite humorous afterward too. Our breathing frosted over all but the two side-windows we were viewing out of. There was a hysterical amount on the front windshield. The drive back to our place was only a 1/4 mile. Starting the engine would have been counter-productive. So, I scrapped... no realizing my breathing would frost it back up 10 seconds later. The angle of the glass, rather than being vertical like the sides, made keeping it clear nearly impossible. But out there in such a rural area at 3:00 AM with powerfully bright LED lights, made crawling along at a snails pace using only electricity and scraping the entire time was no big deal. In fact, that added to the memory. We had a very unique time, just the two of us watching a rare astronomical event... with a plug-in hybrid.

- 4-16-2014** **Traditional Competition.** Downsizing to a small SUV has been the solution for many of those who had been driving monster-size guzzlers. That's obviously an improvement. But still, the resulting efficiency is well under anything actually competitive with a hybrid like Prius... which ironically, offerings larger seating & cargo capacity in some cases. Later this year, that most definitely will be true. GM is introducing their subcompact SUV known as Trax to our market. It has been available in Canada & Mexico since 2012. It will continue to be produced in South Korea & Mexico. Sales potential seem pretty good, considering the 26 City and 34 Highway ratings. After all, most consumers have been greenwashed to believe that is efficient MPG. The idea of traditional vehicles delivering efficiency in the 40's has long since been abandoned. That's why Prius hasn't seen much growth. We've lowered our standards. That's sad. But just like the automakers perversely predicted, vehicle size would get smaller. It's an absurd reality, since some had become so large they no longer fit in garages and were quite difficult to squeeze into parking spots. Needless to say, it will be quite interesting to see what happens later with sales when gas prices rise again.
- 4-17-2014** **Outdated.** The discrediting continues. Fortunately, each attempt appears more and more desperate. I sounded off to one today with: Ironically, the antagonist position is to claim Prius was cobbled together in haste, a direct response from Toyota as a result of Volt. In reality, it was the opposite. Toyota already offered a refined hybrid system and was able to augment it with a plug by basically just swapping out the battery-pack and adding a charger & plug. The platform already supported that next step forward into the mainstream. GM was scrambling to keep from being left behind, so they squeezed in as much battery as possible, connecting it to an upgrade of the Two-Mode system. That's why the topic of "*transmission*" is brought up so often. We all know GM didn't start from scratch. That wouldn't make sense. Trouble was, the expertise they had acquired was from an expensive system which didn't deliver as high efficiency as needed. But in the short term, adding enough battery-capacity to compensate for that could hold them over in the meantime. Problem was, it trapped them into a non-competitive design. Every time the idea of a reduced-capacity model came up, there were highly emotional (and sometimes hostile) responses... since depleted efficiency and reduced power were such obvious shortcomings. To make matters worse, there was little doubt Toyota's plug-in design was profitable. Though priced a little out of reach for the target market, the cost-reduction was achievable within the current generation. For GM, there was no chance of reaching profit until the next... which is how the "*old*" claims came about. The effort to portray Toyota's design as "*outdated*" rather than acknowledge it had matured for the masses was rather desperate, but quite common. The idea of getting any type of recognition that Prius offers a nice balance of priorities is still too much to bare. Watch the type of reply we get to this. Avoiding the topic of business need for the sake of winning an argument is pretty much inevitable... here anyway. Elsewhere, we do see some GM supporters in favor of a competitive model turning on some current Volt owners.

- 4-18-2014** **Progress.** Now that there's a message of support for a model of Volt actually affordable & profitable, the divide is growing. We're seeing a group embracing the idea, thrilled something from GM not serving just a niche. Nothing available for the mainstream after all this time was making them feel let down. They're a stark contrast from the other group, those who continue to make "*still no competition*" proclamations and are quite insulting when pointing that out. It's the typical enthusiast stereotypical response we've come to expect. I don't see them as much of a concern. Attitude like that doesn't earn any respect. The other is what stirs interest. They're saying exactly what some of us who were labeled as "*trolls*" said years ago. It's quite hypocritical, but that's progress nonetheless. The realities of highway-travel and winter-warming have overcome the blindness those chanting for EV purity have caused. Toyota delivered the design needed, through blending of power. Admitting that won't happen, but supporting the efficiency outcome doesn't require a sacrifice of pride. That was the reason for stating goals all along. Too bad so much chest-pounding prevented the progress we are only now seeing. Oh well. It sure feels good having supported what was truly needed. The assumption that switching from electricity to mechanical was better than balancing the too sounds so absurd now. Yet, there were a few who passionately believed it.
- 4-19-2014** **Enjoying Outdoor Recreation.** We tried. Unfortunately, our timing was off. Heading up north with the bikes seemed a sensible escape. After all, all the snow was gone. Sadly, the only nice day for temperature was really windy. Then, it snowed. On the way back, there was a fierce headwind, temp was in the 40's, the Prius was packed inside, and we had 2 bikes on back. I knew that 175-mile trip with lots of highway travel at 65 & 70 mph wasn't going to be ideal. 38 MPG was a pretty good outcome in those circumstances. How many other cars could accomplish the same thing? That's the only way to look at it. The efficiency penalty for enjoying outdoor recreation is well worth it. Sometimes, you do get lucky. I've taken my kayaks that distance too. Surprisingly, they don't impact MPG much more than carrying the bikes. Still, upper 30's is quite a bit below the usual commute MPG from a fully recharged battery-pack. Oh well. With the warm season so short and nice days when you have time free, it's best to try to take advantage when you can. Being able to use the Prius to do that is nice, really nice.
- 4-20-2014** **Spring!** We hit the 70's for the first time in what seems like forever. Temperatures that warm seemed like a distant memory for those of us up here in Minnesota. Thankfully, they returned today. It made for a fantastic Easter Sunday. You could tell, the highways were filled with everyone else taking the opportunity to drive somewhere too. Next week it will be colder and the replenishing rains will arrive. That's a welcome situation. It will help open up the lakes, melting away the final layer of ice. I'm getting anxious to kayak again. The rack for the roof of the Prius is ready to go. It will be just a matter of waiting for the water to warm up. Perhaps I need to finally get a wetsuit. In the meantime, I'm watching the green grass emerge. That usually means photo opportunities. Hopefully, I'll find a new location to take advantage of the improving weather.

- 4-21-2014** **More Progress.** Evidence of this new chapter is becoming easier and easier to find: *"The amount of disinformation and FUD I constantly see here regarding the Prius is incredible. Why is there such an inferiority complex and a constant need to bash the Toyota by a tiny but vocal minority of Volt owners?"* That particular quote came from a forum dedicated to Volt, one in which I do not participate. Being just a lurker there has provided a great opportunity to observe without influence, watching how enthusiasts & supporters interact with each other. Lately, it hasn't been pretty. Spreading of FUD (that's Fear, Uncertainty, and Doubt) combined with some outright lies has become a liability. The reputation of their forum is threatened by loss of credibility from such activity. The very same thing happened on the big GM forum. Eventually, the moderators had to take action. Allowing it to continue wasn't worth it, even when that meant having to ban some of their own most popular long-time posters. They're the real troublemakers, thriving on any chance to exclaim superiority. That idea of partnering for a common cause is unacceptable and the thought of a "*Volt lite*" is bringing out the worst. They wouldn't go to such extremes if the idea didn't have substance. It's a good sign though, a sign of progress.
- 4-22-2014** **Rerated MPG.** Remember the public outcry and legal action late last Summer about Ford? Those not distracted by the chaos caused by Volt do. The hybrid model of C-Max has really been struggling, and that's what ended up being the big news for Earth Day today. That's not the kind of attention desired. Unless of course, you're GM. There is a sense of relief for Toyota too. The advertisements praising C-Max efficiency over Prius V was quite intense. We saw countless television commercials. It really got annoying, since things didn't seem to add up. Eventually, that claim of 47 MPG was revealed to be false. The efficiency numbers were rerated, reducing the 47/47/47 rating officially to 40 City, 45 Highway, and 43 Combined. That stirred emotion from owners and scared off many potential buyers. In fact, if it wasn't for the Energi (plug-in) model of C-Max, it would have been looked upon as a market failure like Insight. The reputation was tarnished and continues to be. That's a real problem without any good solution available. How do you recover from that... especially with a next-generation Prius on the way?

4-23-2014 **Discouraged.** The reality of traditional vehicles being the actual competition is finally becoming apparent. To think that it would take this many years to get recognition of the true problem... it's mind boggling. What it took was a change of perspective and the information coming from a different source. Volt enthusiasts don't want to hear that from a Prius owner. In fact, some will go to extremes to avoid acknowledgement. Sadly, that meant having to deal with misleading and dishonest posts online. Fortunately, we are finally getting past some of that rhetoric... but not in the best way. This statement from Consumer Reports is what contributed to the change of attitude: "*In our own tests, we found the Prius Plug-in offered a scant mileage advantage over the standard Prius at a huge additional cost.*" Taken at face value, that could be used as material against Prius PHV. But when you give it some thought, the statement doesn't actually tell you much. What does "*scant*" indicate? What about the meaning of "*huge*"? They are both vague, void of any detail. For that matter, who is the "*additional cost*" referring to? The price some consumers pay is nearly identical right now when you take federal & state credits into account. Toyota's cost is more, but they don't make that clear. And since when is comparing to another model appropriate without including a baseline? After all, the point is to look at the big picture. Why no mention in comparison to other Toyota vehicles? Of course, there's no way to summarize in a single sentence anyway. Prius PHV offers a major advantage over the regular model for short trips, hardly a "*scant*" aspect about that. The warm-up process is greatly improved for longer trips too. We have lots of real-world data clearly showing that. The reality is, plug-in supply is limited and profit for the dealer very small. It's far more lucrative to sell traditional vehicles, so that's what they do. Articles about discouraging practices at dealers should be no surprise.

4-24-2014 **Dealing With Change.** It's hard to believe a former Prius owner who leased a Volt, then replaced both with Teslas would claim the "*vastly superior*" period of history never happened. I have hundreds of pages of blogs documenting the belittling of Leaf and Prius PHV coming from the voices of Volt. Those die-hard enthusiasts caused all kinds of trouble. Pretending that wasn't the case contributes to the barriers we are still trying to overcome. So, I had quite a bit to say when it was denied: I'm enjoying the change which has taken place since the end of last year. A spirit of cooperation has emerged now that everyone is in agreement about who the competition actually is. It's about dang time. My participation on the Volt blogs came about shortly after the initial reveal. There was an intense campaign to mislead about Prius, and posts to provide correct information were looked with suspicion. They believed that was really an effort to undermine Volt. It got really bad. My own blogs are loaded with their quotes, documenting the rhetoric we had to deal with. Then, it got worse. When Prius owners started asking constructive questions about range reduction from heater use, depleted efficiency from series operation, cost from battery-capacity & system-complexity, the response was routinely hostile. They were brutal. Then, reality hit. Many of those individuals abandoned the blogs, knowing they'd have to confront their own posts from the past... showing them to be dismissive, hypocritical, and just plain wrong. That's made moving on much easier. Phew! Now, it gets interesting. Recent posts from Volt owners are revealing frustration with a handful of Volt owners. Rather than FUD, those few are outright lying about Prius PHV. That desire to restore integrity is quite encouraging. They are taking it upon themselves to ensure reputation isn't tarnished by the intentional spreading of incorrect information. Gotta like that. For me, it's rewarding to interact with other plug-in owners. I park with a Leaf everyday at work. This weekend, I'll be at an Earth Day event showing off the PHV with others. There's a plug-in owners group here in Minnesota now. All the automakers are represented. It's fascinating to interact so directly with Volt owners there. What a difference. Seeing the Tesla, Energi, Leaf, iMiEV, and Prius all mixed together sure is exciting... with each owner doing their part to support choices for the masses. It's unfortunate there are a few bad fish in the pond. I really hope people will eventually read my blogs in dismay, not believing it ever could have been that bad. Right now though, we have a strange mix of support... especially owners of Volt who purchase something else when their lease expires. There is obviously the desire for greater capacity from a Toyota offering. But those who move on from Prius take along with them other purchase priorities, more than just efficiency. That's a win-win. They understand the pressure traditional vehicles pose. They continue to help even as former Prius owners. So, whether you own one still or not, the advancement forward helps. As long as they don't revert back to a guzzler or spread FUD, it's good.

- 4-27-2014 Bonding.** Attacks coming from the desperate are contributing to that bond we've been striving to achieve for a very, very long time. Volt & Prius supporters are working together to squash their greenwashing. The biggest effort is to end their lie being spread about PHV only delivering 6 miles of plug-in capacity. It goes way beyond misleading at this point, and that's stirring anger. Intentional deception is just plain wrong. So, the shared endeavor to end that is much appreciated. The other bonding aspect comes from the acknowledgement of the need for business-sustaining profit and the consequences of being dependent on government subsidies. Concern for overall well-being is redeeming. It's long overdue and very welcome in any form we can get it. The fact that it's coming as a result of a small number of Volt enthusiasts determined to portray other plug-in offerings as inferior is rather ironic. They had accused the effort to seek out cooperation an act of undermining. I found it funny that no matter what you said, all they'd hear is "*Prius*" even if Prius was never mentioned. That's what happens when you get desperate. Who knew it would contribute to bonding too?
- 4-27-2014 Real Issues.** It's nice to finally see some constructive dialog. The new discussion started was about younger buyers, discussing the pattern we've observed. I contributed with: The thing I run into with some older buyers is how their assumptions cloud judgment. They believe they have all the information needed to make a decision. Being unaware of what's actually available is a very big challenge to overcome still. Today at the barber shop was a great example. The barber's mom-in-law was there chatting with the people waiting to get their hair cut. The topic started with flat tires (it's pothole season, after all), then became a discussion about cargo you could carry inside, since spares aren't always included anymore. I mentioned mine didn't; instead, there was a battery-pack. The woman immediately chimed in about "*not being comfortable in one of those cars*". That got my attention. I asked for clarification. She said she had looked at "*one of those*" and didn't want any part of them. Baffled by her lack of clarity, I asked about seating space. She made some obscure reference about being small... which made no sense, since I knew her vehicle was a PT Cruiser... not a large vehicle which she had inferred owning. Then, the topic was abruptly changed. She had made up her mind, believing her stance was based on complete up-to-date facts. She was wrong, but not having an effective way to point that out without embarrassment or disrespect is a very real problem. Younger buyers don't have an extensive past to leverage upon and have grown up in an age where improvement was continuous & often. So, most automatically seek out information. That's a big difference with older buyers. Assumption issues are a barrier to accepting high-efficiency vehicle choices. How do we deal with that?
- 4-27-2014 Broken Charger.** On a cold, rainy day, what do you do? Go to the mall. Joining in that chaos wasn't the ideal choice. Everyone else had the same thought. But having a plug-in vehicle, at least parking would be too bad. Of course, getting to the spot itself was a challenge. It took awhile for us to reach the chargers. Thankfully, there was room available. That was a relief, considering how few spots are actually there. Believe it or not, only 4 are offered at the Mall Of America. That's a massive shopping destination. With 2 huge parking ramps, that's beyond disappointing... especially since the recent efficiency upgrade. All the lighting was switched over to LED. Anywho, it got worse. The charger I pulled up to was broken. The L2 cable wouldn't release. Only the L1 was operational. That was a let down. Hopefully, it will be fixed soon. The broken charger at work took over a month to get repaired. Oh well.

- 4-27-2014** **Impressive Charger.** Today's other charger encounter, the best charging-station I have ever seen, offered a nice balance. It's at a remarkably beautiful nature preserve, which just happens to be within EV distance of my home. The station offers 2 high-speed cords, both on those fancy retractable mounts. No messing around with still or tangled cords. The readout is an actual screen too, not a simple digital readout like all the others I've ever seen. There's no charge to recharge either. It's a great setup! The location is absolutely ideal for a gathering as well. There's lots of parking and room to hang out. Sadly, it is rather out of the way for non-locals. But that's life. The best zoo in the state is nearby and people don't have any problem getting to it. So, I've got a great opportunity to now exploit. That impressive charger will help draw in a variety of efficiency supporters. I can't wait for the weather to finally get nice!
- 4-28-2014** **New Discussions.** It's nice seeing new discussions emerge. This one especially perked my interest. *"Why isn't there any discussion here about the PiP vs. the Ford Fusion Energi Plug-In?"* I jumped in with: That's a reasonable question with a stirring answer. In the past, there was a tremendous amount of chest-pounding. Enthusiasts of Volt declared it *"vastly superior"* and celebrated GM having *"leap frogged"* the competition. Then reality set in. Although Volt was an appealing vehicle and did indeed achieve some notable engineering milestones, it did not meet business or consumer need. That's what caused so much attention to be drawn to it, pushing out pretty much all other mentions... except Prius. Since then, GM itself has officially declared this generation and moved on. They acknowledged goals not having been met. That chapter ended. Many people aren't aware of the detail of that history. And as much as some still want to discuss it, I have no interest. I too would like to hear more about the other offerings, especially both Ford choices. C-Max is what we've seen a number of former Volt drivers switch to when their lease expired. Fusion isn't as practical, but it offers ample seating room. Battery-Capacity is the obvious Energi advantage over Prius PHV. That increased kWh provides higher kW draw opportunity, translating to more electric-only power. Depleted efficiency isn't as good though, especially with C-Max. Of course, comparisons are limited to the current situation. We know that Toyota would like to increase capacity as cost drops, keeping it competitive with the real competition: traditional vehicles. Knowing the engine in Prius will become even more efficient, it will continue to retain its hybrid advantage too. Ford's direction isn't as obvious. Capacity is already at a "maxed" threshold, with respect to both cost and physical space. We haven't heard anything about engine efficiency either. In fact, the MPG down-rating has really soured C-Max expectations. Fusion, as a hybrid, is rather competitive already. It rates notably higher than Camry, and matches Accord for combined. Fusion, as a plug-in, has a tiny trunk. Being that limited for cargo space will deter buyers. Being practical has been a strong selling-point for Prius, including the plug-in model. Like it or not, we're still in the early stages. Things will get interesting as tax-credit expiration nears. In the meantime, charging-stations are evolving. There are more locations and the equipment itself is improving considerably.

- 4-29-2014** **Heavy Rain.** This weekend, we had a mini gathering. It was supposed to be an Earth Day event, but the heavy rain left us quite lonely... 6 plug-in vehicles... a Tesla, a Leaf, 3 Volt, and my Prius PHV. Instead, it was a washout. So, we hung out and talked for awhile. The topic of "*sales pitch*" eventually came up. We all recognize that you've got 20 seconds at most to say your piece. After that, you typically lose the person to misconceptions & assumptions. That makes subjects like "blending" nearly impossible to address. There isn't an awareness of tradeoffs. In this case, the belief is more electricity is better. How do you illustrate to them that higher overall efficiency is possible from allowing the engine to run when the mindset is to use no gas until you run out of electricity? To make matters worse, they think when the engine runs the battery is no longer used. Then, there's the reality that much of our electricity is derived from dirty sources. Conveying so much information in just a brief few sentences is basically pointless. We were in agreement that the best way to convince the poorly informed is to encourage firsthand research. After all, it was the test-drive experience that won over countless doubters years ago. Why not with plug-in vehicles now?
- 4-30-2014** **Blending, stigma.** It's been given a stigma. The purity of electric-only drive continues to get praise, regardless of the sacrifices required to achieve it. There's a very active thread on the big Prius forum addressing it. I added more to it today with: Today's travel... mostly highway, in really wet snow, blah ...was 96 miles total. I recharged early in the morning, mid-afternoon, and squeezed in a partial (60%) late in the evening. The result was 62 MPG. Blending is the new "*caught off guard*" situation. People look back and give Toyota credit for being way ahead of the rest of the industry for hybrids, implying the other automakers are now rapidly catching up. They believe the race is over, that a lead no longer exists. Big mistake. People assume the next big step forward is just increasing battery-capacity for further EV driving. That's an easy trap to fall into. It makes sense... unless you really take the time to consider all the factors involved. Sadly, few ever do. Most are greenwashed into thinking more is always better. Engineers know differently. They see how complicated it is to achieve a balance, how challenging it is to deliver an optimal solution. They are well aware of tradeoffs. They understand higher capacity and more power may not actually be an improvement. It will take years for the typical consumer to figure that out. Then, they'll look back and wonder why the others didn't just follow the same path Toyota took. It will seem so obvious to them, at that point. But right now, there's lots of disbelief that blending is better.

- 4-30-2014** **Blending, tradeoffs.** The benefit is far from obvious. Most people aren't even aware of the fact that more of something often means less of something else. When it comes to propulsion, that especially a problem. The assumption is simply increasing the size of the engine, motor, or battery will improve the vehicle's overall performance. That most definitely isn't the case. Ford's plug-in hybrid approach has provided a great example of that. First thing we see with Prius PHV is the warm-up process. It takes full advantage of blending. That 1500 RPM hold limit not only allows the engine to warm-up gracefully, that also contributes heavily to the warm-up speed of the catalytic-converter. Most people forget about the emission system. Rapid warm-up of it is just as important as the engine. It requires 400°F for thorough cleansing. What does Ford do? We know that low RPM following warm-up is a key to Toyota's success. That requires a gear-ratio optimization... which means a tradeoff of a slower maximum electric-only speed. Ford's desire for higher speed in EV mode meant trading engine efficiency. That gear-ratio isn't as well suited for blending as a result, taking advantage of boost from the battery-pack at any speed. That's why neither the highway nor city MPG is as high as Prius PHV. In fact, even that trading can be seen with the other Prius models. To deliver greater power for Prius V, since it is larger & heavier, the final drive uses a lower gear-ratio. That reduces MPG compared to the regular Prius, which shares the same engine, motor, and battery. This is why blending is such a big deal. Focusing on electric-only purity requires sacrifices.
- 4-30-2014** **Getting Old.** Attacks on the plug-in Prius continue. This particular person simply doesn't care either. Quite a number of people on the big Prius forum have called him how, frustrated with his blatant trolling. Every chance he gets, he takes the opportunity to belittle and downplay. As a Volt owner, other Volt owners are not happy about his behavior. Misconceptions debunked long ago are repeating brought back up. Today, it was: *"Still, 'the PiP can accelerate and merge into hywy traffic'? And around here 62 MPH would be a traffic obstacle. My point is when doing this with a stone cold engine, that is not the best thing for engine life."* I'm taken aback by his tenacity. Being proven over and over again to be spreading FUD doesn't deter. He just keeps it up anyway. To make my point, not wanting to have to post rebuttals to the same nonsense again and again, I took a creative approach. I made the post really stick out. But rather than the ALL-CAPS shouting type response, I chose to make each sentence a different color... taking the response of being *"colorful"* in literal form, rather than the usual metaphor. Hopefully, it will really stand out: Since that point has already been debunked on several threads, it is time for a colorful response... Prius PHV is a PLUG-IN HYBRID, which means it takes advantage of having both an electric-motor and a gas-engine. When power beyond the electric-only threshold requested, the engine will start but is not allowed to exceed 1500 RPM. That RPM limitation enables the engine to warm up gracefully, preventing wear a cold engine would otherwise experience. Full draw from the battery-pack continues during the warm-up, which is how engine RPM can be limited yet still deliver power to merge onto a highway. Remember this colorful response, so we don't have to answer the same question anymore. Seeing it repeat is really getting old.

- 5-01-2014** **Bailout Cost.** The final tally was released today. This sentence says it all: "*The U.S. Treasury's bailout fund lost \$11.2 billion on the rescue of General Motors Co. (GM) with the government's exit of the largest U.S. automaker.*" We knew the realities of business would stifle innovation with respect to achieving sustainable profit. That's why the auto task-force issued this concern as part of the bankruptcy-recovery plan: "*too little, too slowly*". That meant efforts to compete would require actions above & beyond. Fulfillment could not come from being reactionary, which is exactly what ended up happening. The result was heavy investment in traditional cars & trucks. Volt was doomed to be a niche. Enthusiasts absolutely refused to acknowledge that reality. Supporters did, abandoning the hope of mainstream until well after the introduction of the next-generation design. No care was given to the product-gap, leaving GM without anything in the high-efficiency category. Neither Two-Mode nor the second-generation of BAS (known as eAssist) could deliver. Both died in response to terribly low sales. Volt is fading. ELR was dead on arrival. Both require a plug. What a mess. The bailout did soften the impact. But to those who absolutely insisted the government assistance would be repaid back entirely, they were very, very wrong. We are left without an expectation for the future too. How will the product-line change? The remaining federal help, the tax-credits for all plug-in vehicles, will expire. Then what? Pressure from upcoming CAFE regulations (minimum MPG requirements) and the inevitable gas-price increases mean status quo isn't enough. The other automakers are striving to provide better offerings too. Progress marches on... with or without GM. Perhaps the recent flood of recalls will encourage faster change.
- 5-02-2014** **Perspective.** Results from April presented a major wake-up call... so much so, there isn't much to do beyond just present the numbers for perspective... which is exactly what I did. To add some perspective, Chevy April sales here of cars: 21,752 Cruze; 19,944 Malibu; 13,915 Impala; 9,043 Camaro; 7,655 Sonic; 3,873 Spark; 3,514 Corvette. Then there's Equinox at 20,315 and Silverado at 42,755. Volt's 1,548 barely even gets noticed among those top-sellers. When you take into account the month total here of 254,076 for GM, there should be genuine concern... especially since those other GM vehicles aren't aided by a \$7,500 tax-credit. They don't qualify for HOV stickers either. Reality is, the market presents great challenges still. GM's own product-line is the competition.

5-03-2014 **Given Up.** It's an interesting situation. Volt enthusiasts have lowered their expectations so much, debates are pointless. Their vehicle of praise was to take the market by storm, to put Prius to shame and make electric-only vehicles look silly. That didn't happen. In fact, things have went so poorly, they have allied with the electric-only vehicles. The theme in today's April sales discussions has been that we need to be patient. Progress been so slow, it's pointless to even bother to argue. They've given up. Embracing the much longer adoption path is now the plan. Those who had exclaimed superiority and celebrated conquests are dismissed as rhetoric of the past, never having had any credibility or influence. In other words, that effort to point out reality worked well. They believed without supporting evidence and hoped for victory. As technical detail was revealed, shortcomings with associated to goals were abandoned. It's been a disaster... repeating the very same mistakes we saw with Two-Mode. That's remarkable to have witnessed. *"Those who do not learn from the past are doomed to repeat it."* was a warning not heeded. Advice was simply disregarded. Assumptions were made. Preventable mistakes happened. What a mess. Fortunately, the attitude now makes taking the next step easier. Unfortunately, the *"too little, too slowly"* concern has been overwhelmingly confirmed. Volt was supposed to be a major player at this point, dominating the efficiency market and competing directly with traditional vehicles. That didn't happen... not in any respect.

5-05-2014 **Making vs. Selling.** Twists like this are always fun to reply to: *"Yep, making the best products is good news for stockholders."* It was more spin from that really smug Volt owner who thinks all vehicles using gas, including Prius, are guzzlers. The 50 MPG following depletion really irritates the heck out of him. So, the attitude is really an annoyance to deal with. Oh well. Reality seems to be rather effective at times: Nope, selling the best products is good news for stockholders... 21,752 Cruze; 19,944 Malibu; 13,915 Impala. Those are the money-makers for GM, returning dividends to stockholders. Selling small quantities of a vehicle dependent upon a tax-credit wasn't the expectation. Remember how enthusiasts here shunned any reference to Two-Mode? Pointing out parallels to it with Volt made some furious and resulted in ardent responses. Now looking back, we get excuses & dismissals, even though it did indeed play out as predicted. Having a costly vehicle which couldn't stir many sales was an outcome no one wanted to address. So, goals were pushed back, delaying those expectations to the next generation instead. The result sounds reasonable, but it requires agreeing with those who said that would happen all along. We see how the *"range anxiety"* campaigning fell apart, that the effort to disparage electric-only vehicles turned into a partnership to recover from an incorrect market belief. It's quite hypocritical. But what makes it worse it to pretend that hasn't happened by attempting to conceal it with rhetoric about the plug-in hybrid which remained true to consumer need right from the very start. Keep saying what you want each time month-end results are published. That won't change them. Stockholders see the outcome. They don't care who supposedly won a debate online. Sales speak for themselves.

5-05-2014 **Big Picture.** More twisting. Anything that can be done to distract from the reality of Volt sales is to be expected following month-end results. Today, it was: "*What is Toyota's response to the abysmal sales of the PiP? Do I need to post the #'s for all the Tacomas, Corollas, Camrys that are sold, and have that debate again?*" The desperation to protect reputation is quite astounding sometimes. But without any alternative available for sale, what else can be done? I replied with: It's quite amusing how cherry-picking is used to derive forgiveness for GM. We all know that Prius PHV isn't the only high-efficiency offering from Toyota... quite unlike GM. The plug-in model Prius shares the same platform (including engine, power-split-device, and both motors) with the regular model, which is profitable and selling at twice the mainstream minimum rate here. In Japan, has been in the top-5 national selling list for many years now. In fact, selling even better there than the regular model is the smaller model. There, the larger model features a lithium battery too. We know the next generation will provide an engine with higher thermal efficiency. The will boost blended MPG even higher, without adding anything to the cost of the plug-in model. There will be refinements to the electrical system as well. It's what you'd expect from a next-generation offering reaching out to capture a larger audience. Volt requires more than just refinements. Complaints about legroom and the desire for more seating in back are abundant. Cost needs to be reduced considerably more too. With a tax-credit being triple that of Prius PHV, that's nothing to take lightly. As for calling sales "*abysmal*" even though it isn't available nationwide and numbers are similar to Volt which is, that's rather sad... especially considering the much higher government incentive for Volt. Say what you want about the competitors. The rest of us will continue to watch the bigger picture.

5-06-2014 **Adaptation.** Being well prepared means also having to deal with: "*So you admit that Toyota misread the market for plug in hybrids with the PPI? That they are just in a holding pattern until the next generation becomes available.*" It never ceases to amaze me how the spin will emerge. Sadly though, not only won't people be able to recognize any of this nonsense even happened, they'll actually argue that encounters like this weren't even possible. They'll look back and say the preparation was obvious, since the actions taken matched need so well. That's unfortunate, but no surprise. Being able to adapt is vital. Those who cannot are simply forgotten. This was my response: That's an absolutely fantastic example of not seeing the whole picture. Thanks! The either/or mindset is a common problem, especially when it comes to plug-in vehicles. People assume if it wasn't this, it must have been that. They don't consider other choices or outcomes, mainly because they aren't even aware of them... hence not having all the information. In this case, Toyota had addressed a variety of different outcomes and planned a strategy for each. This is a very, very common practice in the software industry. You just plain don't know how customers will respond. That means having to accommodate by building in flexibility. So, no matter what the outcome ends, you were already prepared for it. The rhetoric emerges from those who spin that proactive approach as reactive. Those of us who studied the plan are well aware of the flexibility long ahead of time. Those who didn't join in until later, typically when some type of undermining effort catches their attention, lack detail to correct assess what's happening. In other words, since Toyota planned for several different scenarios. Focus on just one provides a distorted interpretation of what actually happened. Put another way, knew all of their bets wouldn't win and allowed for adaption along the way.

5-06-2014 **More Information.** Sometimes, you have to wonder if arguments come about due to lack of information. Not having all the facts causes people to draw incorrect conclusions. So, it should go without saying that their decisions along the way will be misled too. When you bring that point up, some people take notice, others dismiss. I'm curious if this will stir any type of constructive reaction: Neither Toyota nor Ford bet the farm on plugging in. The portrayal of "*not getting it right*" is getting old. They both offer a viable hybrid platform with much opportunity. Nissan took the chance on a single offering, but made great strides for it to be affordable. GM risked it all, gambling that an expensive choice would somehow be competitive. That didn't work, which is why we have had to deal with such a massive amount of rhetoric. We all knew how incredibly difficult the market would be to penetrate. But since Toyota successfully diversified Prius, expanding into smaller & larger models, it became a target. We see how little there is to gain from expanding PHV rollout. We also see the benefit of figuring out how to penetrate deeper into existing markets, rather than spreading limited inventory thinner. Remember how effective it was limiting inventory with the Classic model? Most people don't. In fact, they believe demand was low... since those hoping to undermine never mention the limited supply. It's easy to foresee the same thing playing out again with the next generation PHV... especially with so many damage-control efforts at play with a certain plug-in which took the one-size-fits-all approach. Having participated in the hybrid market for over 14 years, it's easy to see the big picture. For those who don't realize far more is at play than just the information provided in current threads, I don't have a good suggestion, other than just asking them to share what they see. There's no way to know what part of the picture they are missing. The past has taught me that their misunderstanding will clear up as they stumble across more information.

5-06-2014 **Suggestions.** It turned out to be worthwhile. The discussion did take a turn in the right direction. I wonder how long it will last though. Patience is far from a virtue with this crowd. Understanding the value of waiting is not in their interest. Things are still thought of as now or never, one extreme or the other with nothing in between. I find that ironic. Since so much of the Volt rhetoric comes from us being told to be patient, the same comment for Prius falls on deaf ears. Some call that hypocritical. I take it as not having the proper background to interpret the market. So, my post went as follows: I'll certainly agree with that. They most definitely would benefit. But yet again, this isn't an either/or issue. It's not a matter of if, it is when. Waiting will provide a much higher payoff. Look at how limited-market research has provided a massive payoff in the past. Most people have no clue that there were 20 of the 1999 Prius (Gen-0, commonly referred to as the "*Original*" model) provided to ordinary consumers an entire year before the rollout of the upgrade we got in the United States. The feedback they provided was priceless. Some of their suggestions were implemented right away... in what we now call the "*Classic*" model. Prior to the rollout of PHV, the same thing happened. There were a total of 300 circulated around the world for consumer feedback. Toyota took those suggestions and implemented them right away too. We got the upgrade, not the first. Seeing how crazy the plug-in market is, especially having witnessed so much fallout with Volt, the decision to stay within the initial 15 states is proving to be a wise one. What's your next question? I'm really enjoying this discussion.

5-06-2014 **Rush Gamble.** The immediate payoff failed miserably with Volt. You'd think that experience would be observed & applied elsewhere. Not with this crowd. Instead, we still get some of this: "*People can't buy what ain't available.*" Even with good intent, the knowledge of good business is elusive. So much focus on engineering in past has left many without that perspective. In other words, they think it's ok to take the next step without having to plan any further ahead. They assume it will just naturally work out if the vehicle design was well thought out. Disregard for the market (not understanding their audience) comes with great penalty. Yet, that isn't even addressed. The need to have several plans in play to lay down ground work (a solid foundation for whatever may happen) isn't important to them. They see no need to establish many options to build upon. It so disappointing. Upset is inevitable. Yet, some don't even see the risk being taken when not having anything else available to respond with. Oh well. It's not like they weren't warned: Toyota offers other choices. They diversified, allowing the ability to react to the market. Consumers still have something to buy. With the next generation, Toyota will simply just pick up where they left off. Consumers who were aware of the previous will see the improvements. Consumers who will see a plug-in Prius for the first time will be impressed with how well it matches their purchase priorities. GM did not take that same approach. They bet the farm on a single offering, hence such bad fallout with and so much backpedaling. There is nothing for consumers to purchase in the meantime and Volt will undergo a number of modifications, both design & operational. Effort to re-educate will be required having a model so different from the previous. It's a messy situation Toyota was able to avoid. Think about the business. On-Going profit is needed. Having alternatives is a very big deal. There's only so much risk an automaker can take. Is the rush gamble worth it?

5-07-2014 **Rumors.** I find it remarkable how some people simply dismiss. They'll see something, label it as a rumor, then move on. No importance is given to the supposed facts being spread. They don't consider them to have any influence. They couldn't be more wrong. Whether something is correct or not doesn't mean it won't have an impact. People react to misinformation all the time in other venues. Why is it so easy to ignore that reality online? Whatever the case, I watch the situation play out routinely. You can point out the problem and the consequences without anyone caring. They let it happen anyway. That's baffling. But denial like that shouldn't be surprising, since it is so abundant. Oh well. All you can do is point that out: It's GM playing the game. They work the internet, taking advantage of the hype which emerges from their ambiguous releases. It allows them their flexibility. Whether the information is accurate or not doesn't matter, the idea becomes real when there is an endorsement for it. That all feeds upon it self, having a direct impact on other automakers. In other words, asking me to stop is just shooting the messenger. You can avoid participation elsewhere and just dismiss content lacking credibility, but that won't prevent the activity itself from continuing. Rumors have a very strong influence, especially when it comes to spreading greenwash material. Do we really want to just sit back and let it happen... or worse, not even bother to address it?

- 5-08-2014** **Lithium.** The absurd arguments certain enthusiasts continue to make about the cost of Volt's battery pack makes you wonder why it is even worth the bother to respond... until you see their influence elsewhere. The claim has been that the entire purchase price is now down to \$2,700. That conclusion was drawn by looking up parts information from a supplier. The diagram shows the entire assembly for the pack, so they've been assuming battery cells are included. There's nothing whatever to confirm that. In fact, it's pretty easy to see that's it just the outer case... hence this being absurd. Yet, they are absolutely convinced. Pointing out the price of lithium batteries per kilowatt (currently \$650) and the 16.5 kilowatt capacity should be enough to show their conclusion is quite incorrect. Yet, they don't budge. It's bizarre how they choose to only see what they want. The cost of the lithium component alone is somewhere around \$10,000. Add to that the assembly components, you've got the price we've been discussing since rollout. Drastic reductions have not happened, no matter how hard they hope for it. This is why Toyota's design isn't anywhere near as dependence on batteries. They figured out how to squeeze out higher efficiency with a much smaller pack... knowing cost would remain a major issue for years to come. A bit angry by having to deal with such nonsense, my post was: \$650/kWh speaks for itself. Toyota worked extremely hard to deliver something cost-competitive. By sharing their already profitable platform, they are well prepared to take advantage of lithium prices dropping.
- 5-09-2014** **Greenwashing.** It still happens. Some of it is quite intentional. Some of it comes from people unknowingly spreading misinformation. All you can do is address it directly when it emerges, like today: Let's not overlook the greenwashing campaign which PiP is having to deal with. A small group of individuals are working hard to make people not see the differences between the plug-in and regular model. They're doing it by misleading about how "*blending*" actually works. For the regular Prius, it means combining gas & electricity in an optimized way. The end result is higher MPG, even without ever plugging in. For the plug-in Prius, it also means combining gas & electricity in an optimized way. It result is also higher MPG. The catch is, plug-supplied electricity is taken advantage of. Those attempting to greenwash hope you won't seek out any detail, wanting you to assume it works exactly like the regular model. It doesn't. What actually happens is the battery provides much more electricity. Since people assume that means greater distance in EV, it's easy to get them to think there's no benefit when not in EV-mode. In other words, the hope is people will believe the plug-in only delivers 49 MPG on the highway. It doesn't. That "*more electricity*" is really a greater draw-rate. In other words, the electric-motor works more and the engine works less in the plug-in model while on the highway. That's easy to confirm too. At 65 mph, which requires the engine to run, you'll see the system maintaining 100 MPG... a value clearly much higher than what the regular model delivers. So what if that "*blending*" means less electric-only driving. It still means more MPG, by reducing the impact of engine warm-up and increasing efficiency at high-speeds.

- 5-10-2014** **More Greenwashing.** It continues. No surprise. All we can do is confront it when it happens: The other active greenwashing effort is to mislead about electric power by downplaying it. That same small group of individuals are hoping their random belittle comments will be accepted as genuine. After all, most people don't have a means of verifying those statements. As a result, people get the impression the plug-in Prius is an after-thought for Toyota, something cobbled together in response to GM. Some of us are aware that isn't true, that the traction-motor is underutilized, limited by the amount of power available. The bigger battery provide that extra power. The hope is an assumption that this model of Prius works the same way as the one without a plug, that the bigger battery simply allows it to operate that way for a longer duration. It doesn't. As owners, we know that acceleration from a stop in the suburbs and hill climbing in EV-mode isn't a big deal. Greenwashers want you to believe that isn't possible. Ironically, that desire to undermine serves as an endorsement. There wouldn't be any reason to post false information if the system wasn't able to compete.
- 5-10-2014** **Even More.** The posting goes on: In addition to posting false information, there's also an on-going undermine effort. The desired outcome is to mislead about the size of the battery-pack by getting others to express a need for it to be larger. That way, it appears as though the current offering isn't enough. It give the impression of a shortcoming, a feeling of not enough. It's a technique which plays upon "more" marketing. Given a choice, people will basically always desire more. Ask them about MPG. Who wouldn't have a preference for a higher number? That's human nature. It's a weakness we routinely succumb to. The key is leaving out important detail, like the sacrifice of interior space and being affordable. They don't address that. Avoidance is a dead giveaway the "discussion" isn't constructive. That type of manipulation happens on a regular basis. It's quite annoying, but not unexpected. Any technology providing a true advance forward (change of the status quo) will come with resistance. Think about current Prius owners. Their purchase was based upon the practical nature of the vehicle and it being reasonably priced. Why would their next be any different? Having the engine stay off longer and getting more electric power is what they'd like, but they aren't going to consider that a high priority. That means the plug-in battery-pack should be on the smaller side. More isn't necessarily better.
- 5-10-2014** **Batteries.** Finally, the decision changed to batteries, with: *"There is no way you could get the variety of types of EVs on the market if they all had to use the same batteries. Why not tell all car companies they have to use the same size engine?"* I wasn't expecting someone fairly well informed to make such a comment. You'd think he was well aware of how modules & cells make up a battery-pack. There's a lot of flexibility within not be addressed. I wasn't sure what he was thinking. So, I said: That's a bit overly simplistic. There's no reason battery cells cannot be standardized. Having a small variety of them available, as we do now for other batteries, would still allow for the flexibility each automaker desires. Internal arrangement and charging approach would still be at the discretion of the automaker. After all, that's what an automaker will want anyway. That's how cost will be kept down and risk reduced. They'll spread those cells in different configurations across their fleet. Battery suppliers will want some type of "same" as well. The manufacturing process thrives on producing high-volumes of similar product.

5-11-2014 **Mother's Day.** It was an awkward situation. On the street outside my sister's home was a Camry-Hybrid with people inside and standing outside it. They were checking out Mom's brand new car. Seeing us standing by my Prius, her mother wandered over. Telling us about her daughter's purchase, it became obvious she knew little about how hybrids actually worked. I answered questions she asked about mine, but refrained from mentioning the plug. My own mother, not aware of that lack of background like me, just blurted out a comment about plugging in. That got an interesting reaction. The woman who had excitedly come over to tell us about the hybrid she knew of suddenly found herself shockingly uninformed. It was the deer-in-the-headlights stare, abruptly silent and clueless. Changing the subject quickly remedied that. Some people on the big Prius forum make comments about how hybrids have become mainstream, now that Prius has been sustaining sales at twice the minimum for so long. Reality is, that type of acceptance is just the beginning. Far more needs to be achieved still for that to become the top consideration when researching the purchase of a new vehicle. Sadly, we are far from that. Many people still outright dismiss hybrids, making some comment based upon an incorrect assumption. That makes the idea of a plug well out of reach. It's the very reason the 73.5 MPG average stated on my website card gets such a reaction each time I share it. That's also why I put so much pressure on the Volt enthusiasts. They didn't understand the importance of the "Who?" question. They didn't know their audience. The encounter certainly made an interesting Mother's Day memory.

5-12-2014 **Elaborate.** I knew he was just stirring the pot. He does that quite a bit, just for the sake of keeping discussions going. Some people simply like to debate. They seek out activity on the forum and contribute with informative comments. The catch is, they aren't constructive. Since the goal is to prevent conclusions from being drawn to keep the posts coming, some comments are intentionally vague. This was such a case: *"...I hope toyota will take what it has learned and put out a much improved prius phv. IMHO they have plenty of engineering talent to do it."* And sure enough, he didn't provide any detail after I asked: Care to elaborate? What does *"much improved"* signify? Look at how a few Volt owners turned the *"6 mile"* nonsense into a brainless game of misleading, just because they viewed EV purity as vastly superior. Their success depends upon people not actually taking the time to consider detail or goals. The *"0.2 gal/100 mi"* listed on the window-sticker means the 11 miles of blended driving would consume 0.022 gallons of gas. That's a drastic reduction of gas usage compared to a vehicle averaging 35 MPG, which would consume 0.314 gallons for the same 11 miles. Isn't reduction the point? If not, how does electricity usage apply? It has to come from some type of fuel. In most cases, it's no renewable or even clean. Neither coal nor natural gas offer the purity they portray. Also, let's not overlook how much effort Toyota made to keep cost in check. They adhered to that important \$30,000 price-point, rather than sacrificing affordability for the sake of delivering more range & power. In other words, we're back to asking the question of what mainstream consumers will actually purchase. That's a big difference to what they say they want at auto shows.

- 5-14-2014 Federal Gas Tax.** We've been hearing a lot about the upcoming shortage. Not enough money from gas tax is being collected to support the federal funding our roads need. Projects like bridge replacement are in serious jeopardy. There's simply no way to pay for them. Naturally, plug-in cars and hybrids are considered the primary source of the problem. But in reality, it's the fact that people have switched from guzzlers to more efficient traditional vehicles. That has a much greater impact on gas consumption, which means less tax being paid. Unfortunately, the tax itself hasn't been adjusted for inflation. It hasn't been increased for higher expenses either. In other words, our funding system is a mess and the politicians responsible for fixing that are afraid to raise taxes. So, the problem has been progressively growing worse and worse. The deadline is rapidly approaching. The time when not being able to pay bills becomes a genuine problem is August. Then what? With gas prices so low right now (\$3.55 per gallon here), it's the perfect time to increase them... especially with the big effort being made to keep them from rising. How many years can the bucket be kicked down the road? Someone must finally do what needs to be done.
- 5-15-2014 We Had A Blast.** Try to envision roughly 50 plug-in vehicles parked in the lot. It was the Spring gathering of the local plug-in organization. We had the opportunity to play with each other's vehicles on a closed track. I was curious how the Fusion Energi drove. Naturally, I jumped in a Volt too. The biggest surprise was having a BYD there. That's a brand from a Chinese automaker. They try to deliver lower cost vehicles. You could tell. That EV was nowhere near as refined. It was rough & noisy, a rather dramatic difference from the Prius. It was quite a reality check. There was a Smart EV there too. Driving around such a small EV certainly was interesting. The Tesla was obviously impressive as heck, especially being the top-of-the-line model too. What really caught my attention was the RAV4 EV. Being supplied with parts from Tesla, it performed surprisingly well. Unfortunately, there wasn't a Leaf available for driving. That certainly would have been nice. Oh well. Unexpectedly, there was a VW hybrid. It seemed to lack the "fun to drive" aspect commonly attributed to the brand. I wonder why. Hmm? After the outdoor activity ended, we all wandered inside for a presentation and sharing stories. My stance was one which had others curious. What could a plug-in hybrid owner have in common with those who depend exclusively upon electricity? The answer was simple and all got their attention: Lithium. When I mentioned my effort was to provide an endorsement for that type of battery use by the masses, they were quite pleased. Prius has been successfully paving the way for mainstream acceptance for a long time now. Why not help out with EV progress too? Having an engine, that aspect is easy to overlook. But that battery is the key. Without proof it works on the grand scale (high-volume presence), the odds of purchasing a vehicle without an engine are quite low. The general market poses a major challenge. Being able to coax that along is great.

5-16-2014 **Interesting Perspectives.** This post obviously caught my attention: *"I test drove a Chevrolet Volt while my 2012 Prius was in the shop for 25,000 mile maintenance. I'm tempted to trade my Prius for the Volt. BUT I love my Prius - it's been 100% reliable. The Volt would allow me to electric commute, 25 miles one-way, and re-charge at work. The Volt feels like a quality car, with lots of torque, and very quiet. I'd appreciate your input. I need a reality check."* Having just spent last night with a bunch of Volt owners, it was quite refreshing to read that. The nonsense online basically doesn't exist in person. When you get to interact, seeing the problems engineering faces in the world of business, perspectives get interesting. We see a sense of bonding, all in favor of finally ending the reign of traditional vehicles. The rhetoric coming from brand & reputation is very easy to overcome face-to-face... an aspect lacking greatly on forums. Anywho, I posted this and got several likes from it as a result: Yesterday, I was on a closed track.... chasing a Tesla P85+ with a Volt. It was quite amusing. There's no contest that Volt delivers more EV power and better handling, an upgrade to Prius without debate, but it doesn't hold a candle to the Tesla. Audience has always been the primary issue. Toyota aimed squarely at middle-market, those buyers who were looking for something reliable, affordable, practical, and comfortable. GM didn't; instead, their target was enthusiasts. There would be nothing at all wrong with that if there was also a choice offered for their everyday customers. So, we ended up with an unbalanced choice which fits some people really well. Just not something for the masses. The tax-credit makes Volt a bargain right now. If the tradeoff is a nice fit for you, go for it. Remember, some purchase decisions carry emotional weight. So, choosing doesn't have to totally be a factor of looking good on paper. There are of course considerations like resale value to keep in mind, since the market for plug-in vehicles is rapidly evolving. Some regret may come in a year or so when the next generation is revealed. These are definitely interesting times.

5-18-2014 **Final Fling.** Feeling pressure from both Prius & Volt supporters fed up with the misrepresentation, his greenwashing effort moved to comments posted on random hybrid & plug-in articles. Today, I found this: "*The PIP has an all electric range of 6 miles. Look closely at the EPA sticker. The 11 mile rating involves using gas unless you keep it under regular highway speeds and off hills....*" It was the same nonsense from the same person. He was seeking out a new audience. So, I took advantage of the opportunity by refining my response: Only pointing out the parts of the EPA sticker you want people to notice is called cherry-picking. Looking at the rest of the EPA sticker information, we see that the gas consumption rate is 0.2 gal/100 miles. That means over those 11 miles of travel, only 0.022 gallons of gas will actually be consumed. A car delivering 35 MPG would consume 0.260 gallons over the same distance. In other words, PIP is using less than 1/10th the amount of gas when combined with electricity. That's a dramatic reduction, which is the point of a plug-in hybrid. The other bit of information on the EPA sticker is the electricity consumption rate of 29 kWh/100 miles. That means 3.19 kWh is required to travel 11 miles. Knowing that PIP utilizes 67% of the capacity available from its 4.4 kWh battery-pack, we can easily account for 10 miles. Then when you acknowledge that gas engine always directs 28% of its energy to the generator for combined (blending) optimization, we see more electricity being available... even without considering energy recovered from brake regeneration. As for the "*highway speeds*" and "*hills*" references, we know those were intentionally vague. No matter how many times detail has been provided, you avoid it anyway. Well guess what, I'm pointing that out and mentioning that hill climbing at 55 mph in EV mode is quite realistic. I routinely do it with my PIP on the commute home from work. Again, since PIP is a plug-in hybrid, avoiding use of the engine under all conditions doesn't make sense. The system still draws plug-supplied electricity even when the engine runs. The result is MPG well above what any non-plug hybrid can deliver, which is the reason for increasing capacity and adding a plug.

5-20-2014 **Semi-Conductor Improvements.** Efficiency improvement is more often focused on the battery's density. The more energy you can fit into the pack without physically increasing its size, the further you can travel using electricity... which is an obvious benefit for plug-in hybrids. There are some refinements to the traction-motor itself, but that is minor in comparison to what things like improved battery-chemistry has to offer. An aspect pretty much overlooked entirely is the circuitry. There are losses caused by the transmission & utilization of the electricity itself. With computers, we see efficiency improvement in the way of smaller & faster processors. Toyota is working toward that with future versions of their hybrids too. But even more of a problem, primarily due to the larger quantity of electricity, is loss in the form of heat. That comes from the design of the power semiconductors. Today, we got a mini-presentation showing their pursuit of silicon carbide, which could dramatically reduce component size to reduce energy loss. It's something to look forward too. But like with all new technologies, even once proven viable, it still takes many years to actually implement. In other words, don't expect it with the next generation of Prius. Even so, it still provides hope in an avenue pretty much entirely unknown. Pursuing that type of improvement opportunity is great.

- 5-21-2014** **Change.** The rhetoric has virtually vanished. Volt is what stirred the pot, boasting it would be a "*game changer*". When that hope fell apart to an extreme, we had to deal with the fallout. Many of the troublemakers leased, rather than purchasing. As those leases expire, they are finding no affordable option other than to just move on to something else. Expecting to consider Volt again, later on when the next generation becomes available, it's easy enough to silently disappear. So, they are. GM over-promised and under-delivered. They didn't believe it could happen. Toyota did. That's why they approached the market that way. Those of use who participated online and owned Prius many years ago recognized the pattern too. This effort was repeating the Two-Mode was a disaster. More and more are seeing that now. There's no need to place blame or feel sorry either. It is what it is. True, much of that could have been prevented. But there's nothing to do about that past now. It (thankfully) is over. Change has come. What a relief. Phew!
- 5-22-2014** **70-100 Category.** With every plug-in argument imaginable coming from Volt enthusiasts having been beaten to death countless times already, it's no surprise that something entirely new emerged. After all, so many have chosen to ignore the rhetoric, it was pointless rehashing any of it... though they certainly tried to stir up no interest on those disproven topics. Anywho, we got the claim that the "*70 to 100 mile*" category is what Volt was designed to compete with, that all along buyers of that range EV were the target. Spin of that nature certainly wasn't expected. But then again, that was way the "*Who?*" question was asked so frequently. Of course, it came from someone who hadn't participated in anything related to Volt until after rollout began. So, anytime history is brought up, it's his interpretation of the past looking back rather than an account of having actually witnessed it. That's prone to distortion. In this case, it was the belief that such a category existed all along. He can have credit for coming up with something original, but that certainly isn't what actually happened. Awareness of heater impact didn't take hold until well after sales began. Awareness of cost certainly wasn't a factor of capacity until shortly before sales began. There wasn't anything delivering 200 miles either, until Tesla came along well afterward. To claim that such a grouping of EV range existed way back in 2007 achieves what? Why are there even any attempts to change history at this point? Needless to say, I'm not going for that bait. What does it matter anyway? Sales are what measures success in the end, not categories.
- 5-22-2014** **eAssist Abandoned.** This second-generation design of BAS didn't work out either. It was supposed to be a low-cost mild hybrid. The catch was, the cost ended up too high and the benefit only minor. All that hype ended up being a complete waste. GM has decided to just deliver start-stop now instead... the very technology automakers boasted about being superior to Prius 13 years ago. It's nothing but an system that turns the engine off, then back on, when you're stuck in stop & slow traffic. So if you're driving along at a steady pace, there's no efficiency improvement. No mention has been made about the impact to emissions. It's quite unlikely that the system spins the engine up to idle speeds, then waits until oil-pressure is established prior to introducing fuel & spark. Neither the starter-motor nor the battery could be big enough for that. There isn't a traction-motor to provide propulsion power in the meantime either. But it's still better to abandon eAssist, rather than further deploy a technology with no potential for improvement. At least start-stop is cheap, easy to deploy across the fleet, and will save some fuel for those in lines at drive-thrus and waiting on highway ramps.

5-23-2014 **Summing It Up.** The only audience left for Volt at this point seems to be the big Prius forum. The news has dried up. We really are moving on. Hooray! The catch is, a few still don't get it. They still believe heavy dependency on EV without concern for the electricity consumption itself or cost of the battery-pack is perfectly fine. The rest of us see it this way: *"Volt transaxle is a step backward. It reduces both gas and electricity efficiency in attempt to increase EV ratio. The big non-sense MPG displayed in-car got people greenwashed, creating an illusion that it is more efficient due to higher MPG and using less gas."* The intent never has been to do anything other than point out priorities. But you know how it is when there are a few who would rather go down fighting than admit having to reconsider choices. Oh well. To that, I say: The selling points for Volt have been *"EV at all speeds"* and MPG that's *"vastly superior"*. So, it's rather ironic that those are actually both gas & electric efficiency sacrifices. The mindset of faster & higher being better is a marketing problem we'll likely have to deal with for many years to come. People don't recognize the benefits of blending. They see MPGe values and simply dismiss them due to lack of understanding what they actually represent. Greenwashing has been a very effective tool in the past. People pass along and contribute to the misleading without even realizing what they took part in. The effort feeds upon itself, leading us down a path we assume is better without taking the time to verify whether it actually is. That step backward will eventually reveal itself as a shortcoming. The cost aspect of it is already starting to become apparent. In the meantime, we have to find a way of dealing with the illusion.

5-26-2014 **Backward.** However the market should be considered or what people have to say, time marches on. The hostile attacks are long gone. The seemingly endless debates over. Sales have revealed the true nature of emission & efficiency efforts. Traditional vehicles continue to mount a massive offensive. What's done is done. Those who are comfortable embracing the past far outnumber those hoping for progress forward. It's a sad reality. Fortunately, the technology employing batteries & motors continues to improve. So whether or not there's wide acceptance yet, at least the solution itself becomes more and more competitive. Those days of Volt propaganda draw lots of attention from ordinary consumers. That backfired though, since not much became of it. They saw the price and the compact size, then dismissed it the same way enthusiasts had dismissed Prius. It's a cruel irony. The outcome is a step backward too. Now traditional vehicles have an even stronger foothold. It's that *"too little, too slowly"* which never goes away... returning us to the backward design. Sacrifices were made with the hope of rapid advancement. That didn't happen. Not wanting to get sucked into that mess becomes increasingly clear each time the same old talking points are repeated. So, what's next?

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5-30-2014 Soapbox. The fall of Volt has provided lots of opportunity on the soapbox. It's quite remarkable how the audience changes with hype turns into reality shock. Most of those who didn't heed the warnings vanish, leaving the few stubborn ones left rather desperate. I posted this on that thread where the trolling has been quite active lately: Some people take failing to meet goals harder than others. Watching the movement of goal-posts for Volt over the past few years has been quite intriguing. The shortcomings we pointed out back then have since been confirmed. Ending the reign of traditional vehicles took much more than they wanted to recognize. We all know Toyota stayed true to that need to deliver a clean high-efficiency vehicle for the masses. That has always meant it must be reliable, practical, and affordable. GM did a fairly decent job of addressing that first requirement but neglected the two in the process. So, we've had to deal with the fallout and delay until the next generation. In the meantime, Toyota continues to refine Prius, which continues to sell at mainstream volume. We know the next generation will get an engine with improved thermal efficiency, retaining its advantage over their non-hybrid offerings. We also know a great deal of effort is being expended to deliver better batteries. The hybrid system itself will get upgrades as well. So what if they are also pursuing fuel-cell technology at the same time or not investing heavily in EV-only vehicles. The point is to keep delivering choices people will actually purchase in large quantity today, since that's what really changes the market... not something that will eventually become competitive. Think about the millions upon millions of cells being produced for battery-packs from those hybrids. That's what really makes a difference. The plug-in model won't need to wait until a next generation either. When demand for plugging increases, they already a well-established vehicle to leverage advantage from. It's basically just a package upgrade with easy to understand benefits. Those of us already driving them are providing reliability data too. I'm thankful most of the rhetoric, but will be glad when all of it is just a memory. Some people take longer. At least there's plenty of evidence showing what needs are not being met. Watch the reaction to sales results of the month concluding today. The harsh reality of goals not being met will be quite clear.

6-01-2014 When To Charge? I'm really enjoying the PHV discussion lately. I joined in with: Allowing the battery to rest (known as a "*cold soak*") prior to recharging is helpful. Since evening electricity rates are lower anyway, that's a win-win situation. The timer makes that quite convenient too. Just hit the button and plug in before you leave the car for the evening. As for running it down to "*empty*", the system prevents the battery-pack from hitting the common lows you see in portable devices. The assumption that 0% is fully depleted is quite common. What actually happens is the engine fires up, switching from EV to HV mode automatically, when the charge-level drops to 23.5%. That helps with longevity. Another approach to slow the aging process is never fully recharging. The system automatically stops at 85%. Staying well away from 100% capacity is known to be quite beneficial, something we don't take a second thought about with other rechargeable devices. Not allowing that with Prius is how the design avoids ever needing battery replacement. With respect to system "*switching back & forth*", that type of HV energy activity is just shallow touching of the battery-pack. Being just a tiny fraction of the electricity transfer during plug-in recharging and sustained EV draw, you can still have a big influence. You can choose when to recharge and push the EV/HV button. Thanks for starting this thread. It's nice to see some back-to-the-basic questions being asked.

- 6-01-2014** **Full Charge.** What a change. The fallout of "*more EV*" is getting interesting. When the belief was that Volt had more to offer, attention to detail about Prius was difficult to maintain. The enthusiasts simply drown out man of the discussions. But as they quiet, we finally get an opportunity. Today, there was a new thread about the "*full*" indicator for PHV. Some new owners totally overlook the difference between full EV and full HV. They assume there's only just one representation for battery-capacity. I was happy to provide samples of each. It's nice having a collection of photos readily available to share online. This is what I included as a description for them: Even though the bottom one appears to displaying a high charge-level, it really isn't. In fact, there's less electricity available. Notice the horizontal lines and the lack of an EV mile estimate? If Toyota hadn't done that, the battery gauge would be worthless during HV driving, since it would appear totally empty. The original plug-in model did exactly that. It was overwhelmingly suggested to provide a multi-appearance design like this instead. That way, you know when both EV and HV modes are high & low for their respective capacities.
- 6-02-2014** **Carbon Emissions.** It's about time. We got federal weigh in on the long fought against need to reduce carbon emissions. Like with rhetoric in the past, fear continues to be spread that jobs will be lost as a result of need standards & regulations. In reality, new jobs will be created. But past examples of that being true are simply ignored. I personally found the timing amusing. Yesterday was the 5-year anniversary of GM having officially declared bankruptcy. Executives claimed it would not be a bailout, that no money would be lost as a result of the restructure. Not only was that far from what actually happened, it also ended up revealing a troubling past which carried over to the new GM. They again are facing uncertainty with the future. But now, many industries are impacted, not just automotive. Our dependency on non-renewable fuel that's polluting our air with both breathing-related and climate-altering problems for our children to deal with isn't comforting. Think about how long of a delay there will be between intent and actual implementation. We'll be generating electricity with dirty coal and producing traditional guzzlers for many years to come. It's quite disturbing, especially when people resist change simply from the fear of it. Thank goodness we have a large fleet of Prius helping to prove change isn't that big of a deal.

6-03-2014 **May Sales.** It has been a waste of time pointing out that Volt sales have been flat for a very long time. Even the \$5,000 price drop didn't make any difference. There was an initial spike for the intended inventory reduction, then it went right back to the 1,600 to 1,700 per month level it had been selling at prior to that. No growth is real the problem... a point which last month's sales made especially clear. Everyone assumed PHV would plummet due to the HOV stickers no longer being available; instead, they skyrocketed. 2,692 for the plug-in model Prius was so many more than Volt's 1,684 that it wasn't worth the effort to discuss. The thought is that Toyota offered generous incentives, which make sense when trying to proactively avoid model-year inventory surplus. That begs the question of what will happen with ELR. Only 52 were purchased and production continued as scheduled anyway. The supply estimate now puts it at 903 days. Falling well short of the anticipated 200 per month hurts. But to make matters even worse, roughly 80% of the purchases came from Volt owners. The situation is nuts. Thankfully, the regular model Prius is maintaining a rate of triple that of the mainstream minimum. 15,944 is a solid number. The smaller C model is creeping up. Sales were 4,590. Achieving the 5,000 per-month mark is becoming quite realistic. V is climbing too, but lower at 3,567 for the month. It was nice to see Camry-Hybrid at 5,199 and Fusion-Hybrid at 4,641. Considering the strong growth in the overall market, that's important. Traditional cars continue to mount quite an offensive... something the Volt enthusiasts shrugged off as a non-issue, an effort to undermine. Clearly, they were wrong... very wrong. Providing hope though was Leaf sales, at an impressive at 3,117. Realistically though, the market isn't ready for plugging. Far too many misconceptions combined with cost barriers keep impair progress. That's why the one-size-fits-all GM strategy was always such a concern. The gamble was a risk that failed to deliver. Now the consequences are evident. Next year certainly will be interesting. In the meantime, I'm looking forward to answering questions and collecting data for those curious about PHV. The endorsement it provides for mainstream acceptance of lithium batteries and plug simplicity is great.

6-03-2014 **Cargo Capacity.** It was quite amusing to exploit the large interior of the Prius today. We ordered an 11-foot offset umbrella for the backyard. It came in a box, 75 pounds and just a little over 9 feet long. I was prepared to do my first ever drive with the hatch open. That would have been interesting, especially on such a pleasant evening. I haven't done that since the early 90's, back when I owned a '84 Dodge Omni. That old car taught me the value of having a hatch. It was very handy, especially in college. But that design then was rather a pain. It didn't having a flat floor. You had to lower & lift cargo in over a ledge. That limited what you could carry, since the interior wasn't flush with the seats. Coincidentally, that's the way Volt is configured. Talking about an outdated approach. Anywho, the flat in Prius made loading the large box a breeze. It just slid right in... so deep, I could almost shut the hatch. Hmm? Curious, I lifted the box's edge onto the front dashboard. Sure enough, the Prius swallowed it up entirely. Cool. I was thrilled how convenient it turned out to be. Both long & heavy isn't a combination many cars could actually handle. For that matter, I wonder what the heck you'd do to transport it a bigger vehicle. Lowering the front seat like I did in the Prius, to match up with the cargo area isn't possible. That wouldn't work with a SUV either. Interesting, eh?

6-04-2014 Battery Temperature Data. The warm weather has stirred interest in battery temperature data. Not having it has left an opening for undermining attacks. A rather blatant troll has been claiming during both recharging and driving, Prius will suffer... since it only using air for cooling, rather than liquid like his Volt. To us, that clearly isn't a problem or even an exposure. Toyota took that need to keep battery temperature in check all throughout the design process. Nothing was ever sacrificed. But since Leaf has been dealing with extreme examples (Arizona heat) and it only uses air to cool, supposedly the situation is the same. It clearly isn't. Prius obviously has an engine available to supplement & protect. But those few remaining Volt enthusiasts are quite desperate to impede success. This particular attack shouldn't last long. I'm well equipped for sharing this type of data. All I really need is some cooperative weather. As I play, my "what to look for" information will be refined. But the initial collection has already been quite helpful. This is what I posted today, along with the raw data I captured using the app on my phone and a bluetooth OBDII adaptor: I'll have a chance at some point to generate some graphs from the data. It should go a long way toward ending the FUD being spread due to lack of real-world data and such a wide variety of chemistry types available. In the meantime, I'll keep gathering. The other day on the drive home, it was 76°F out. I did hill climbing and a bit of 55 mph along the way, staying in EV for the entire capacity. The battery-pack temperature stayed just below the 100°F mark. I believe that is the normal operating expectation for continuous discharge of the type in Prius. We'll see what happens when it gets hotter out. But since most people simply use their A/C and the engine is there to protect the battery-pack, it's hardly a concern the rhetoric would lead us to believe.

6-04-2014 Real-World Data. Having it readily available is power. There's no way to stop the nonsense. The greenwashers will do everything they can to keep you from drawing conclusions. And without that real-world data, there isn't really much you can do. They'll just keep spinning whatever you post, twisting to the point of confusion. That's why I'm taking advantage of the weather finally turning nice to collect. Here's the latest contribution to the on-going effort: It's quickly becoming obvious that the claims of liquid-cooling is necessary for battery longevity were acts of desperation to undermine. Today it was 79°F on the drive home. The 12 consecutive miles of EV driving I did never pushed battery temperature above 100°F, without anything but open windows to provide cooling. The electric A/C is available and will be used when it gets hotter out while driving. That will make the air available for cooling even cooler. So, there's nothing they can argue. The A/C could even run as part of the recharging process. Toyota didn't find that necessary though. The chemistry chosen is proving worthy without the need for liquid. By the way, I can turn it on remotely from my phone now using Entune. It does a very nice job of cooling the interior. 10 minutes of running consumes roughly 0.2 kWh of electricity.

- 6-06-2014** **More Data Collected.** Continuing to post observations will go a long way toward keeping the rhetoric we are doing now from getting so out of hand ever again. Others will chime in with their own data, once they have an idea of what to look for... which is surprisingly easy with a Bluetooth adaptor and a Android phone. Too bad we weren't so well armed years ago. Oh well. We did what we could and have built upon it. Being part of such an effort is rewarding too. Newbies find the inner workings fascinating with that type of visual helping to explain the design. Anywho: I plugged in this afternoon at work. The Prius was already warm from having taken it for lunch, with the windows open to enjoy the fresh air. It sat windows shut in the parking lot as the surface-temperature climbed to 90°F while recharging. That was quite a bit warmer than my previous data collecting. I was excited about the opportunity that presented. The air-temperature was 86°F, just at the tolerable limit for driving without A/C use. I lowered all the windows and headed home. The temperature of the battery-pack stayed within the comfort-zone, despite being warmer outside. It peaked for EV at 100.2°F, which was right as the plug-supplied capacity ran out. While warming up in HV, the Prius was required to climb a hill at 55 mph. That pushed it to 101.5°F before dropping back down and staying down. I'd consider that a worthwhile sample for warm-weather driving. Any hotter and most of us would simply turn on the A/C instead, which drops the temperature of the intake-air quite a bit.
- 6-06-2014** **Joining the Debate.** Seeing issues as either/or is a big problem. That's why blending has been such a difficult approach to get some to embrace. Debates of substance are difficult under those conditions. Conclusions get draw quickly without considering all the possibilities. I finally joined in today. Some feel Toyota has abandoned the idea of plugging in, based upon the recent Lexus promotions. Relating television commercials and printed advertisements for selling current inventory to overall corporate strategy is stretch. Yet, that's what some are doing. They also see the situation now as never changing. Either it is this or it is not. Ugh. Oh well. Maybe my contribution to it will shed some light: "*Plug Not Required*" has been the message from Toyota for well over a decade. It sounds like those who claim "*plug-in bashing*" still aren't acknowledging the difference between a hybrid and a battery-only vehicle... which is no surprise, since we've already had to deal with quite a bit of intentional misrepresentation for Prius PHV. They go well out of their way to force EV comparisons on a vehicle designed to take advantage of having more than a single power source available. Ask yourself this... How is this any different than pointing out limitations of engine-only vehicles? The over-reaction has been quite a surprise. Some think Toyota has abandoned the idea of plugging in all together, just because they adjusted their schedule in accordance to the initial market reaction. Taking the time to refine the plug-in model while at the same time continue to push market penetration of hybrids should be recognized as logical step forward; instead, some see it as a failure. I look around and see almost no support for plugging in. The idea gets shot down within seconds, effortlessly dismissed. It's sad and quite disappointing, but at least Toyota has an approach designed to easily take advantage of increased electricity use... without dependency. People can bash that approach. But reality is, that's required to retain profitable high-volume sales. It's a business after all.

- 6-07-2014** **Change.** The recent discussion on the big Prius forum sure has been interesting lately. This what I interjected into it today: The so-called "*hate*" for Volt came about in large part due to misdirection. If you stated anything about the need for diversification or cost-reduction or not meeting their own sales goals, it was interpreted as an endorsement for Prius. Look up the old threads on forums & blogs other than here. The ones devoted to GM products were overwhelmingly anti-Prius. A thread would get created and discussion about Volt would ensue. When civil and constructive, very little interest stirred. Someone would inevitably interject some comment about Prius to ignite it. That increased posts dramatically. Hosts thrived on that kind of attention. It was unfortunate. I'd watch it happen time and time again, staying silent until the fire built up to an intolerable level. Then when I finally chimed in, I'd get blamed as a Prius owner for starting the mess, though it was easy to confirm I hadn't. And even when I didn't actually say anything about Prius, they would imply that's what I meant. Watching the denial was remarkable. Volt was suffering as a result of competition from within, yet enthusiasts would direct focus on Prius instead. They didn't care that GM's own production was squeezing the life out of Volt. The care was on bragging rights... which is why attempting to have a constructive discussion comparing the regular Prius to the plug-in model is so inviting to Volt enthusiasts. Fortunately, we have recently seen some Volt supporters turn on the enthusiasts. They see the business need is not being fulfilled by engineering praise. They want the next generation to actually be competitive. Are they also included in the hate? I've tried to point out the difference and the change with mixed reception. Change is difficult. This thread clearly shows it.
- 6-08-2014** **Shortest Drive.** I drove the Prius out of the garage to provide an area for setting up the bikes. When done, I drove it back in. A single car length is the shortest distance I've ever driven in one day. That's not enough to log. Our journey on the bikes was though. It was a beautiful Sunday afternoon. We rode just shy of 30 miles. Spring is in full swing now. It won't be long before the comfort will turn into cooking sun. Then, it will be kayaking... which require the use of a Prius. I'm looking forward to take. It sure is nice being able to throw kayaks on top or head out to a distant trail with bikes on back. But for today, that didn't happen. Travel was entirely human-powered... which I really enjoyed... though, I cannot recharge with electricity. For me, it requires pizza.
- 6-09-2014** **Senseless Waste.** I had some painting to do outside. It was a beautiful sunny day, there was only a calm breeze and the temperature was 70°F. That made the activity of my neighbor (actually 2 houses down), truly bizarre. Why in the world was she sitting in her idling diesel car talking on the phone? The clatter of the engine was annoying to me, all that distance away. I couldn't imagine what that sounded like over the phone. Already in her driveway, why the heck not shut off the engine? For that matter, why stay in the car on such a spectacular day? I was truly baffled... initially. 25 minutes later, I was well beyond annoyed. What a senseless waste! Who in their right mind would ever do such a thing? Diesel is currently \$3.89 per gallon here. Why consume it when you don't need to? Why intentionally pollute like that? It was very disappointing. That totally explains why her son would let his truck warm-up for 30 minutes (and sometimes longer) during the cold season. What a terrible influence on the younger generation. Now, I feel disgusted recalling the event. When the conversation ended, she hung up the phone, shut off the car, then went inside her house. Why would anyone do that?

6-09-2014 **Launch Spin.** Try as we might, information like this continues to fall on deaf ears: "*PiP was supposed to launch with Gen3...*" What do you do though? Those wanting to undermine will keep making up their own version of history. We keep trying to share what actually happened. Hopefully, some lurkers will be compelled to find out more: That information has been provided a number of times now. It hasn't done any good. The history just keeps getting spun and the belittlingly continues. Like I said, at least that serves as a gauge. Away from that nonsense, I'm enjoying my PiP. Today, it was a round-trip through the heart of rush-hour congestion territory. It was 19.5 miles each way. We escaped the meeting just prior to afternoon rush kicking it. Since I wasn't alone, I took advantage of the carpool lane. Rarely ever having reason to be in that area of the cities during that day of the time, why not try it? Long story short, there was a little bit of stop & slow followed by a nice highway cruise. Having started the trip with only 1.3 miles of EV available, it was almost entirely hybrid operation. I was delighted with the results... 60 MPG on the way there and 61 MPG on the way back. So for those who sincerely aren't aware of the potential the system offers, that's a nice real-world sample of what's possible even with very little plug-supplied electricity available. For those who continue to spin, mislead, and downplay, they can kiss my gas. As for the delay of PiP rollout, it should be clear why. The battery-cost & greenwashing should make that quite obvious. There are other barriers too. People simply have no background or basis of comparison available for making the purchase decision. That education takes time. Just look at how many assumptions continue to come out of the initial rollout states. To make matters more difficult, we even have some EV supporters working against acceptance, despite the fact that Prius can have a major influence on the advancement of plug-in batteries. Toyota really did their homework to deliver a system able to reach the masses. So what if we have to deal with a few sour grapes. Owners are pleased with their choice. They didn't have to sacrifice seating or room for large cargo. They still get fantastic efficiency even when the battery is depleted. They purchased a reliable hybrid with a plug. It's a winning formula for high-volume profitable sales. That upsets a few individuals, which is why we have to deal with their on-going banter.

6-09-2014 **Losing Market Share.** Always be suspicious when a published article doesn't actually include any numbers. All the one today provided was a vague graph, a claim that hybrid cars were losing market share, and this as the closing sentence: "*But the systems are expensive because of their complexity and costly batteries, and their highest costs are often passed on to buyers.*" The article was brief. The intent was to mislead & undermine. That was easy to prove too. All I needed to do was verify the supposed facts. I looked up the actual numbers. The scope of the article was overall sales for the United States over the past few years. For 2010, 2011, 2012, and 2013, the counts were: 11,588,783; 12,734,356; 14,439,684; 15,531,609. The upward trend of those totals is easy to see. The same is (for the most part) the case for hybrids: 274,763; 268,807; 434,498; 495,685. That's undeniable growth. Even if there was some misleading through statistics, that's a difficult argument no matter how you spin things. But it turns out, even the percentages themselves disproved the claim. 2.4%, 2.1%, 3.0%, 3.2%. So no matter how you look at it, hybrids clearly aren't losing market share. There's a clear gain... and that's with even bothering to add in the hybrids with plugs, which have been growing too. The desperation of some continues to be easy to stumble across. No matter how slow change comes, there will always be some who deny & resist.

- 6-11-2014** **Interesting Times.** With Volt fading away into memory, an unfortunate chapter in history supporters want everyone to forget, we see forum & blog activity changing. We're all quite curious what happens next. Volt had stirred so much interest and resulted in so much disappointment, it's hard to imagine what 2015 will bring. Consumer reaction is very difficult to predict. Purchases are even more of a challenge. Basically, there's just plain no way to know. That's why sticking to principle is so important. That's boring though. Toyota gets ridiculed on a regular basis for holding true to keeping Prius practical & affordable. Enthusiasts find that far too much of a sacrifice, since they thrive on power & handling beyond what's actually needed. Mainstream consumers don't notice the effort, since there's little to draw attention. Fortunately, the masses place being practical & affordable high on their purchase priority list. The catch is, the vehicle must also be well proven. Being reliable is vital. The importance of that cannot be stressed enough. That's why Volt is now in such an awkward position. The next generation will hold little in resemblance. People will see the changes as an improved approach, cancelling out credibility of the current. After all, the forum & blog activity is making an effort quite evident to distance old & new. The first Volt had so many shortcomings, the less it can be related to the next plug-in hybrid the better... which is why these are interesting times. Remember Two-Mode? Most people don't.
- 6-12-2014** **Naive & Undermining, part 1.** There are times when patience & tolerance really pay off. Over the past few days, on the big Prius forum, we've been dealing with a blatant Volt troll. He has no audience anymore. The daily blog is dead and the big GM forum couldn't care less anymore. So, we end up with some of that fallout. The situation isn't always understood though. This was the conclusion expressed from one active participant: *"I had higher hopes for this forum than for some threads to degenerate into name-calling sessions."* He got sucked in, a victim without any awareness of the problem. I was intrigued. He took a fierce stance at one point, arguing intensely with me about how Prius worked. He was just plain wrong, not even close. But it was easy to see how his assumptions came about. Providing a video of the gauges showing operation as I drove along with an explanation of the components involved quickly changed his tuned. He happily retracted his erroneous claim. It was a nice, productive exchange... a wonderful result considering how heated it had become. Experiencing that, it's no surprise he was a bit baffled how that degeneration followed.

6-12-2014 Naive & Undermining, part 2. This was my response: When someone wanting to undermine gets caught and there are no more unknowing enablers available, posts turn to shooting the messenger. We've seen it countless times before. Those who didn't realize they were contributing to making the discussion counter-productive end up in a flood of mixed emotion. They had no idea what was happening as it was playing out. It all seemed so innocent. The rise was subtle. Later, they look back and realize it was an good example of being naive. There's an effort to stir the pot, to sour the thread, causing participants to go elsewhere... because that thread had taken such a turn. It becomes obvious if you follow forum activity as a whole over time. You can see the push-out pattern after awhile. But in that particular discussion, motive goes essentially unnoticed. Direct confrontation becomes a necessity at some point. Bringing up goals is an effective way of flushing out purpose, exposing intent. They evade by changing the topic, often in the form of an empty compliment. We saw that here when bringing up big picture strategy. Toyota has one, it's diverse & profitable. GM is still grabbing at straws, leaving us clueless what comes next. That's an uncomfortable position to be in. There is some good that comes out of these exchanges. You were unaware of how Prius operated, acknowledged the misunderstanding, then moved on. It worked out well. Lurkers likely really appreciated the detail that it took for that to happen too. We ended up with a gain, despite the effort to undermine. Participate on some other forums. They get downright hostile at times and will outright lie to protect their interests. It's really sad. We tend to be quite civil here in comparison.

6-12-2014 MPG Revisions. That look back at the big picture helps. Focusing exclusively on a specific vehicle is far too easy of a trap to fall into. It makes people defensive, since they tend to filter out considerations that would otherwise be a necessary consideration... like the need for profit. Engineering praise is great, but it doesn't pay the bills. That's why not drawing too much attention can be a good thing at times. Toyota gets grief for that. But staying out of the spotlight can be a very good thing at times. Ford's latest "oops" a perfect example. They heavily promoted (more like advertised to death) their outstanding MPG ratings. Turns out though, they weren't accurate. We know that well with C-Max. It hurt to find out efficiency wasn't as good as hoped. Today, we found out the Fusion & MKZ hybrids were also misrepresented. Those were inaccurate too. That means a revision to their official MPG estimates, including Energi (the plug-in model). Turns out, 4 models of Fiesta were overstated as well. Seeing that many MPG values go down after-the-fact is sad. Fusion hybrid got hit the hardest, watching the combined estimate go from 47 to 42. Both of the Energi offering now rate at 38 MPG combined. That's far from the hope of being hybrid following depletion. But then again, the 40 & 42 MPG combined ratings for C-Max & Fusion (respectively) aren't exactly competitive anyway. In fact, the 42 MPG combined from Prius V gives a whole new perspective on Ford's advertising campaign. They misled thousands of people, stating their hybrid delivered better efficiency. Turns out, it doesn't. Toyota was in the right all along. Now, Ford is having to apologize. Just imagine the potential discourse that could cause in online forums.

6-12-2014 *The Right Decision.* Seeing Ford take a big reputation hit for having embraced erroneous MPG figures rather than investigating why real-world results were so different makes you wonder. If anything, lack of clarity is misleading. They should have dug deeper into the problem far sooner. Know, it's much too late. They are trapped into a damage-control stance now. How will they recover? Comments like this are emerging: *"We are seeing Toyota made the right decision to make a plugin that they **should** instead of what they **could**. More EV miles does not mean better. A balanced design that gets the most out of both fuel is better, never mind when or not the gas engine fire up. There is a very good reason why looking at the results."* That's not a result Ford will like from any perspective. The values for C-Max Energi are now: 40 city, 36 highway, 38 combined. That's quite a bit lower than Prius PHV: 51 city, 49 highway, 50 combined. To make matters worse, the MPGe value dropped to 88. That's quite a bit lower than the 95 MPGe from Toyota's plug-in hybrid. And for those who doesn't understand the MPGe value, representing the overall energy consumption, there's the EV range. It got reduced from 21 to 19 miles. When we were discussing Toyota's wisdom of delay to avoid fallout, who knew it would be more than just from GM.

6-12-2014 *Fallout.* To no surprise, the problem with MPG for Ford stirred the pot: *"My Volt is rated at 38 mpg. I normally get 40 mpg or higher. The only time my mileage drops to 38 mpg is when I'm driving faster than 75 mph. I'm very pleasantly surprised. Ford could learn from GM's example of under promise, over deliver."* I remember the craziness that emerged from the original "230 MPG" campaign. People were all over the place with that. The well informed knew that was horribly misleading. The naive believed it was the long-awaited efficiency miracle the industry had been waiting for. But that was back in 2009, shortly after bankruptcy had been declared. There was much hope without any substance. Reality eventually set in. That's how the 50 MPG expectation came about. It became the realistic prospect. People believed it too... until the "Freedom Drive". Remember that 1776-mile trip ending on July 4, 2010? It was incredibly suspicious. GM said ordinary consumers could ask anything they wanted while the event was taking place. It was supposedly an educational opportunity, telling people all about how their upcoming plug-in vehicle could run on gas after electricity ran out. More and more kept asking the same question: What is the MPG at that point? GM absolutely refused to provide an answer. Why would they have led us to believe 50 MPG was being delivered, then not confirm it with such an event? It was the perfect endorsement opportunity, lost. Nonetheless, the die-hard supporters kept the dream alive anyway. Things didn't add up. Then the EPA results were revealed, just a few weeks prior to rollout. Seeing 37 MPG for that first-year model was horribly disappointing. There was an incredible feeling of disenchantment expressed online... which no one seemed to remember anymore. In fact, that quote expresses being pleased with an improved 38 MPG rating for the newer model, despite it still falling well short. That number didn't seem correct either. So, I looked it up. It's actually 37 MPG. I wonder why he'd claim 38. Strange. Anywho, the promise of 50 MPG never happened as far as supporters are concerned. In fact, hope of hybrid efficiency following depletion is flat-out denied. Don't you love how history changes as shortcomings are exposed? They spin things to appear positive, regardless of how bad the fallout become. Ugh.

6-13-2014 **More Is Better?** The assumption is getting questioned more and more. It reminds me of the "*not enough*" arguments when Prius first rolled out. Some claimed 50 MPG simply was not enough for anyone to care. Now, we're seeing the same with that magic 75 MPG from plugging in. The reality of diminishing returns has been so easily dismissed in the past. Antagonists insisted the capacity PHV offers is not enough. The claim more is better... even though the data doesn't actually support it. So naturally, there's a lot of discussion about what the next generation will bring. I added this to the online chatting: Toyota established the approach, keeping physical size small enough to prevent a large cargo-carrying capacity sacrifice while at the same time keeping it affordable. Lithium chemistry will improve, as will the software controlling usage & longevity. The result will be in a bump up range. It will fit Prius PHV well. That's how it will be able to penetrate deep into the mainstream. Whether or not Toyota will also offer some type of higher capacity choice is another topic. Successfully achieving high-volume sales with Prius PHV opens the door for that opportunity. Remember, we've seen that priority has been given to delivering a solution for the masses, rather than catering to a niche audience as with other automakers. Notice how important production-cost has been? There's no reason to believe that intent has changed. In fact, things like pursuing wireless recharging helps to confirm ordinary consumers are being targeted. My 73 MPG average is double the efficiency an equal-sized traditional automatic gas vehicle could deliver and quite a bit cleaner. How much more is really needed to achieve high-volume sales?

6-13-2014 **Prius Numbers.** On an automotive blog about the Ford MPG mess, a comment was posted that Toyota should now fix their numbers for Prius. I was a bit annoyed, since it was so horribly vague and provided no suggestion or detail whatsoever. Generic complaints without data doesn't help anyone. So, my response provided lots of data: I owned a 2010 and drove it for almost 3 years before replacing it with the 2012 PHV. That's 55,835 miles in Minnesota, the land of harsh winters. Despite that, the overall average delivered was exactly 50.0 MPG. Now at 42,356 miles with the plug-in model, I'm watching my overall average climb above 73 MPG. When I drive with the plug-supplied electricity totally depleted this time of year, I easily see 60 MPG for the trip. So, I'm not seeing any reason for an adjustment. And yes, the display shows an optimistic value. But all my numbers are from detailed spreadsheets, using calculations based on measurements taken at the pump & plug. Not including my current tank, these are my totals for the PHV: 40,971 miles, 563.149 gallons, 3,712.8 kWh. (Note that 3 kWh is the value used to represent a full-recharge, which includes both the usable capacity replenished as well as the losses incurred while charging.)

6-14-2014 **Balance.** That discussion continues. Getting people to look beyond just the efficiency of electric-drive is really difficult. Sadly, not considering infrastructure is part of our culture. A great example is with trash. Many think throwing it away is all that's necessary. They have no clue what actually happens to it later or how much waste that really amounts to. It being "away" is all they understand. So when it comes to electricity, the "*clean*" aspect is all they understand... since the consumption aspect is all they've ever considered. How that electricity is derived is often disregarded entirely. I added: The belief that "*more electricity is better*" will continue to be a challenge to deal with for years to come. People just assume that's true and don't give it another thought. They have no idea what emissions come from electricity creation or transmission. Some who do recognize smog-related emission simply state they've been reduced dramatically over the past few decades, thinking all is well now. Many still don't believe carbon emissions are any type of problem either. It's a greenwashed mess. Oddly, it is rather fortunate that traditional vehicles continue to advance. That engine-efficiency technology will pay off later. We're seeing that from Toyota already. Being able to take advantage of the engine by being able to run it briefly and at highly optimized rates makes the balance with electricity is what makes it better. The idea of sacrificing electricity for the sake of never starting the engine is a mindset that's counter-productive. It doesn't actually help us overcome all the problems we face. It only looks better when you choose not to consider the big picture. Balance is very important.

6-14-2014 **EPA Advertised MPG.** How many people still don't understand the numbers? It continues. I posted: People seem to forget that the so-called advertised MPG is not a promise, of any sort. The measurement was originally created to provide a standardized basis of comparison. It's actually just a number for rating, not an expectation. Reading the information provided on the window-sticker, you'll see there's a range stated, that the big number is really just an average. So, things like short trips are not necessarily accounted for. Efficiency will be much lower if driving just within the warm-up time. It will be lower in extreme temperatures and at very high-speeds too. There are also circumstances when efficiency is much higher, like suburb driving with few stops. To complicate matters, many new Prius owners have no idea what their previous vehicle actually delivered. There was no MPG display available, so the ups & downs were never known. Things like that contributed heavily to the slow growth of hybrids. Then EPA made adjustments to their measurement process, taking better into account the circumstances not originally considered when the standards were first established. Now, we're finding out the values themselves aren't being properly reported. Ugh.

- 6-14-2014 Super-Capacitors.** The idea of adding a super-capacitor to the hybrid system is getting attention again. This time it was from the Le Mans prototype Toyota is racing this year. The benefit is easy to understand: it provides power, a lot of it very fast. That's something batteries don't. They deliver power better than an engine, but at no where near the level possible with a super-capacitor. That gives reason for pause when considering the plug-in Prius. Having the engine fire up for brief high-demand events, like merging into fast traffic, wouldn't be necessary with a device able to supply that power. Those arguments about the small battery-pack would finally come to an end too. It was irritating having to deal with the lies about the engine being required for hill climbing, when that certainly isn't true. I routinely drive up out of the river valley at 55 mph without ever requiring any power other than that from the battery-pack. It's long and fairly steep. So, that need is clearly covered. A hard acceleration into a busy road will fire up the engine though. But then again, that's an excellent use of the power-sources currently available. Adding a super-capacitor into the system changes the equation... a design approach few have considered up to this point. It could be less expensive than adding more battery-capacity too. Due to its solid-state design, it's much more robust option. So, there's potential to explore... which is exactly what this prototype being raced is doing.
- 6-15-2014 Outstanding Efficiency.** 57 MPG. 123 miles. 0 kWh. That was the result of running around today, many Father's Day destinations and no opportunity to plug in. HV efficiency is outstanding. You can unmatched hybrid performance when the battery-pack is depleted. What else can be said. The system delivers regardless of how you use it. Sweet!
- 6-16-2014 Speculation.** There is a very, very, very long thread on the big Prius forum discussing people's thoughts on what the next generation of Prius will bring, and when. Realistically, we have no real idea of what to expect... since the market is always changing. Fortunately, most of the chance is for the better. The latest to stir the post was that mention of super-capacitor use. There's potential some are quite curious about. I know Toyota will deliver a nice upgrade, even if our guesses aren't correct. At least what we do know is they'll stay true to goals. That important of reducing emissions & consumption without compromise to other purchase-priorities has been the ultimate goal since the very beginning. Planning ahead has been too. I pointed that out with: That brief high-discharge [from a super-capacitor] ability would allow PIP gain the ability to exploit the unused capacity of the traction motor. It's rated at 60 kW. The current battery-pack delivers 38 kW. In other words, there would be increased opportunity to take advantage of the electric system already in place. You could get more power without starting up the engine. That would raise the bar for what the plug-in model delivers.

- 6-17-2014** **Desperation.** I still remember a post from well over a decade ago. You simply cannot ever forget one titled: *"Die Hybrid Die"*. The moderator quickly took it down. But in that brief time it was up, the poster was ranting about some senseless pointless babble that didn't actually mean anything. He was just plain angry and wanted to vent. That's what I feel is happening again here. But now with internet etiquette, there's an effort to at least appear to be civil: *"But when you get into PHEV's, such as the PiP, those numbers ignore electric costs and are therefore BO GUS. You can not compare "Blending" numbers on Fuelly. It doesn't track blending amounts."* His loathe for Prius is quite obvious. A mix of electricity & gas isn't suppose to deliver such competitive results. The plug-in Prius defies what he was taught to believe. So, he's taking out his feeling on us. It's coming out as desperation. I'm growing very curious how it will play out too. In fact, the time has probably come to take action. For the moment, I'm posting this: The numbers are genuine. You cannot just dismiss what you don't like. True, they don't represent cost-per-mile, since electricity isn't included. But when people simply want to know what a large quantity of owners have been seeing for gas consumption, the numbers are quite real. The purpose of Prius PHV is to reduce gas consumption. That's exactly what it does, in a clean manner without compromising affordability or practicality.
- 6-17-2014** **Playing Offense, time.** It finally arrived. When the troll gets so bad nothing else can be done, there is still an option. That belief of ignoring is the best choice really isn't at that point. He or she will continue to drop bait and sucker some innocent lurker to participate. In the meantime, their influence continue. Others will read the posts have no idea their intent is to undermine. You know when to make the move. It's when they outright taunt you in clear disregard of being exposed as a troll. They crave the endless debates. It gives them a thrill and provides interactive entertainment. I've dealt with that in the past. The well known is the *"up to the chore"* thread. It lasted 2.5 years. There were a number of us fighting to prove hybrids were. But rather than the expected outcome, we went for a stalemate. It forced the moderator to eventually declare hybrids were... then hide the thread. Removing access to it was the ultimate win. All that senseless rhetoric achieved nothing for traditional vehicles but provided a valuable opportunity to shake out argument points. Each time they tried something new, we found evidence to prove the claim was false. That worked great. This situation with *"another prius vs prius plug in thread but i badly need your advice"* appears to be coming to the very same end. We gleaned a bunch of points from an absolute desperate Volt owner... yup, the same one who months ago started by outright lying about how Prius operated with *"redline"* claims. Reading his posts on the forum dedicated to Volt made intent obvious. It even upset some of the Volt supporters, who ended up fighting back. But there on the big Prius forum, those allies weren't able to deal with it. Some of that simply came from lack of data... a resource I have in abundance. So, I stated my intention. Rather than being forced into a position to defend, I was about to launch an offensive.

6-17-2014 **Playing Offense, armed.** I hit hard, well armed with data to support whatever he had to counter, responding directly to this taunt: "*Are you still fuming about the directions this thread as coursed through? Enlighten us, please!*" The gloves were off. But little did he know or even try to understand, my goal was never to disprove Volt superiority. No matter how often I pointed out business need and having no interest in trophies, he was too pig-headed to recognize that. It was a weakness of most enthusiasts I was going to exploit. They assume your goal is to prove Prius PHV is superior. I couldn't care less, since no mainstream car has ever really aspired for that. Balance is quite different. Anywho, this was my response: Fuming from blatant undermining? Such obvious trolling isn't worth much to respond. You've may a valiant effort to belittle & insult the plug-in Prius and still have no victory to show for it. There's nothing to defend. The system works quite well. The need is fulfilled. However, this nonsense is an invitation to play offense. So, I will. We've been through this many times in the past. Over the years, it's been intriguing to see the lengths some would go to. A few got very desperate. But in the end, they gave up. They didn't want to acknowledge requirements or even state goals. Finally coming to realize the true competition is traditional vehicles can is a humbling experience. The most recent attack on PHV has been to claim liquid cooling is necessary. No evidence was provided. Heck, we didn't even get any data. It was just an empty statement. I got to do some more testing, in hotter weather pushing the EV system further. The temperature of the battery-pack remained the same, right at the comfort level of 100°F. There's nothing that has been presented to show concern about being able to keep it operating cool with just air. It's a scare attempt falling on deaf ears. Then there's the other superiority claim of electricity usage. Even though there's data showing PHV is more efficient than others, the obscure reference to needing some electricity to hold the sun (MG1) power carrier in place keeps getting brought up. So what? The tiny amount of electricity needed is accounted for in the total consumption stated, which is still lower. Yet, with another plug-in, there's never any mention of the complexity used instead, having to utilize a clutch to allow the system to carry around a gas engine it goes out of it's way to avoid using. What about that waste? There's no reason to have to deal with the obvious rants of a few anymore. The plug-in Prius is proving it's design & approach is capable of taking on the true competition. It would be great if others could do the same. But that's no reason for continuing to put it on the defensive without supporting data. It's pointless baiting. Give it up.

6-18-2014 **Playing Offense, panic.** It took until the next morning to get a reply back. But rather than be a rebuttal, he changed argument points entirely. Obviously, nothing he already tried was working. It was a clear sign of panic. My preparation was undeniable. With so many Prius owners contributing value information and sharing their observations, my summary of the situation hurt. That stance change made it unambiguously known that I wasn't going to take it any more. With so much real-world data collected to back all that had been said by so many already, he didn't stand a chance. Hooray! Wasting so much time & effort on a person who continued to put taunts at the end of his posts challenging his claims just plain wasn't worth it. The tables were turned. I struck with this: The push now is Cost-per-Mile, but the value used for the calculation is price paid rather than the actual cost to produce. That business model is unsustainable. A vehicle must be able to make a profit without dependency on tax-credit aid. Then there's the blatant disregard for actual consumption. Stating a range of 6-11 miles is a obvious dodge to avoid acknowledgement of the capacity available. The electricity is still taken full advantage of, even when the engine runs. Prius PHV clearly can hold its own in the competitive world of traditional vehicle sales.

6-18-2014 **Playing Offense, victory.** The conclusion came dramatically quick. Within an hour, the thread was gone. That hoped for "*it's over*" had become a reality. He lost his soapbox. His posts well off-topic would no longer have to be tolerated. None of the past would either. In an instant, all that nonsense vanished from readers. The content was removed. Yeah! There were over 50 pages spanning over a month. The original poster had left long ago. It turned into a place for undermining Prius. The moderators saw the revolt (pun intended) taking place and wanted it to quickly end. Trolls will always be a problem. But when matters are escalated to what would inevitably become a slaughter, the final step must be taken. In other words, he outed himself. Basically, the switch from us having to defend to choosing to play offense forced him to confront directly... something he hadn't anticipated and unmistakably wasn't prepared for. Seeing that his purpose was not innocent, that he really was attempting to greenwash, made the decision to end easy. That attention combined with the absence of the ill-intended posts can actually have a positive outcome. It presents an opportunity to change without getting kicked off the forum or even having to apologize. It's a second chance. That is usually quite effective. Many take it as a lesson-learned and move on. I can name a number of individuals who changed after recognizing their understanding was based on incorrect beliefs. True, it rarely ever comes to this extreme. But at least there's hope. You really wouldn't want an enemy forever. After all, the technology advances over time anyway. That gives everyone a prospect for a better future. It's just those few who don't take defeat well that we have to deal with in the meantime. They don't want to accept failure... even though that has no indication of whether or not the next attempt will be a success. Toyota understood their audience and recognized need. Goals were set accordingly. GM did a terrible job of identifying who and embarrassed the business with struggling sales... which explains why certain individuals had such a resentment for Prius.

6-18-2014 **Playing Offense, fallout.** Looking back, it's easy to see how some people won't believe any of this ever actually happened. We've seen it before. Two-Mode continues to be a great example too. It was long hyped as being far superior. But then when it was finally rolled out, the "*over promise, under deliver*" problem became all too real. It was quite apparent right away there were a number of shortcomings, many significant. It wasn't a matter of refinements to come, like with Prius. The next generation would have to be a major redesign. So naturally, the choice by a few was to belittle the hybrid that continued to persevere rather than address the problem and set goals accordingly. Fortunately, the choice by the majority was to simply move on. That makes introduction of what comes easier, since there's nothing related to the fallout of the past. Unfortunately, that disassociation means pretty much starting all over again with respect to product marketing. At least that turning point is no longer just a pattern change recognized by those paying close attention. Penetration of plug-in vehicles into the mainstream will proceed. It will be slow going. But the closer the match to consumer purchase priorities, the better chance the vehicle has of becoming common... which is the point... not a trophy. It was rather satisfying to see it come to a close so dramatically. With all the agonizing torment of misleading that never seemed to end, suddenly we find ourselves with a moment of relief. The persistence with a big push to finish worked out really well. Yeah!

6-18-2014 **More Data.** It had been specifically asked for me to observe temperatures of the battery while recharging was taking place. That was an attack point we hadn't been prepared for. Now that the attack is over and the thread dead, it's providing a great opportunity to present & discuss. Hopefully, I get more collection chances soon. But with the crazy rainy weather we've been dealing with, hot & clear days have been rare. Fortunately, today was one. So, I took full advantage of it. That's exciting. Few owners have actually made those observations firsthand. It's so new to us and there's lots to discover & analyze still. I'm getting my nerd on! Here's more: I got that data today. The Prius sat out in the parking lot from morning through lunch, with the hatch facing the sun. The surface temperature was 81°F. The air-intake was 90.7°F. The bank temperatures for the battery-pack started at 90.9°F, 91.7°F, 90.3°F. 1 hour 10 seconds later, 2.235 kWh of power had been used for recharging and the current rate was 2.257 kW. At that moment, the air-intake was 98.7°F and the bank temperatures for the battery-pack were 94.6°F, 94.8°F, 94.8°F.

- 6-19-2014** **Charts.** Several were provided in response to my data. I pointed out: I always park facing the sun, having the front windshield taking the brunt of the hot shine. I also always leave the shade in the cargo area extended to fully cover the hatch area. I leave the Prius in the shade until right before plugging in too. The sun here in Minnesota is less direct than in Arizona as well. So basically, solar exposure in back can be minimized... a point often not taken into account. Yesterday's data collection was an intentional act of leaving the Prius out in the sun and parking with the hatch facing the sun, though the cargo shade was extended. The high temperature during recharging was only 35°C (95°F), a value low on the charts provided. How many owners will recharge during the hottest time of the day anyway? And I do take issue with those charts. That supposed "*significant impact*" glosses over the reality that temperatures are not hot year-round. In fact, here, we only see the potential for temperatures above 25°C (77°F) just 4 months out of the year. That means the battery stays very comfortable for the other 8 months. There's also the fact of SOC level not being addressed. Those charts, from 2006 & 2008, don't make any mention of that. Back then, 100% capacity was the norm. The battery was always recharged entirely. That was years ago. We've learned since then that avoiding 100% is a good practice for battery longevity. Prius stops at 85% for that very reason.
- 6-19-2014** **Significant Impact.** When pushed for clarification & detail, those overly-dramatic naysayers tend to back down. It usually takes more effort to achieve that outcome though. This time, it was surprisingly easy. We got this later in the day: "*I'm just saying that cabin temperatures that feel hot to humans are likely contributing to somewhat faster battery aging in the PiP battery and should be minimized or avoided when it's not too much effort. Just basic common sense.*" Getting several posts from others all finding shortcomings in the charts provided and nothing to explain where most of the numbers came from, not to mention the obvious generalizations, he chose wisely. After seeing the recent all-out assault, being ready for online battle was likely still quite fresh on his mind. I find it very amusing. We went from one extreme to another within just a single day. Gotta like that.
- 6-21-2014** **GM Disaster.** Things did not work out well for Volt. We know all about that mess. But when the trouble spreads, then what? ELR is getting attention from lack of sales. Seeing an article in a popular national publication with this title, "*Cadillac Bombs on ELR Plug-In Luxury Coupe Sales*", there's not much to say. There certainly wasn't any surprise on the big GM forum. So far, the count for that one recall alone is 2.9 million. As of the end of last week, there were only 199,457 vehicles actually serviced. The time & expense is mind-boggling. It's a disaster on a scale unimaginable. How does reputation get repaired after something like this? What will they focus on? There must be some type of "*look forward*" campaign to move beyond the present. But with an automaker not offering anything but traditional vehicles and plug-in heavily dependent upon tax-credits, who's going to be interested? It's that audience problem again. To think of how much anti-advancement crap we had to deal with. The push-button start was routinely mocked. Ironically, eliminating the traditional key start is exactly what's needed. Though hypocritical, that would be a good next step. Status quo is most definitely not acceptable anymore.

6-24-2014 **Brisk Acceleration.** We've been having a problem lately with a Prius PHV owner. He has absolutely no idea how the hybrid system actually works, yet argues with people attempting to correct his assumptions. That push away from facts is troubling. Some people believe he knows what he's talking about. It's unintentional greenwashing. Odds are he got some of what he thinks that way. Misinformation is easy to spread too. His particular comment today about needing to accelerate slow enough to upset the people behind him got me upset. That assumption of slower being more efficient is a common one. It's relatively easy to rebut too... with a regular Prius. Having the plug-in model makes that observation more difficult... and he refuses to purchase an aftermarket gauge to see what we're been saying. This was my attempt to deal with that: Brisk is easy to explain. Owner commonly make the assumption that using the gas engine means an efficiency penalty. They are unaware that it runs in an optimized manner, taking advantage of having a power-split-device interacting to 2 electric motors and a battery. Accelerating with generous pedal will often result in a lot of electricity being generated on-the-fly, the result of the gas engine settling in on a RPM with minimal waste. Some of that electricity is consumed immediately for propulsion power and some goes to recharging the battery. The operation is quite dynamic. In other words, the overall MPG is what to consider, not the acceleration itself. Far too often, owners see the power-bar spike and believe that is a bad thing. The design reveals it typically is not.

6-24-2014 **Back On Track.** It's been a heck of a struggle finding a way to capture & share a large quantity of video data. Seeing the system in action is a powerful learning tool. Conveying so much information without misunderstanding is quite a challenge any other way. But attempting to film a smart-phone while driving doesn't work so well, even under the best of circumstances. To complicate matters, more data than what can be fit on a single screen is needed now. In other words, filming the action live just plain won't work for anything beyond the basics. Improving the look is a plus too. So, for the past year I've been struggling to find a way... hoping something could be derived using the raw data instead. Thankfully, I finally came up with a viable solution. It gets a bit involved, but the outcome should be a high-quality overlay with driving video. This is what I've been experimenting with: 1) Save the data log from the Torque App. 2) Convert the CSV file to Excel format. 3) Import that Excel file into Word using Mail-Merge. 4) Save that Word document in PDF format. 5) Convert the PDF to PNG images of each page. 6) Import those image files as an album into PowerPoint. 7) Export the PowerPoint presentation as MP4 video. 8) Combine that data video with the driving footage. It's many steps, but they're just jobs you submit and wait for... letting the computer do all the work. The trade off is it will make the filming process itself quite a bit easier. The numbers presented will be much nicer on the end-product. No more vibration from having to actually use a camera for the data. Obviously, the raw values themselves will be available for further analysis too. Long story short, we'll eventually have more info to help squash the FUD. It's very exciting to see the process take shape. Yeah!

- 6-25-2014** **\$70,000 FCV.** Diversification is a topic not well accepted in online discussions. After all, looking at the big picture often leads to disappointment. Heck, even in this case it could. That price for Toyota's first fuel-cell vehicle took some people off guard. Of course, it could be that wrecks their arguments. Recently, the spin has been that Toyota will be abandoning hybrids in favor of fuel-cells. That made no sense what so ever. Offering a variety of choices and not risking everything on a single approach has never been a wise business risk. After all, look at how hard of a lesson to learn that has been for GM. Anywho, the price will be \$70,000. That makes it overwhelming clear there won't be a consumer clash of any sort. The audience will be quite different. It's a good way to build reputation and gather lots of real-world experience. Prius will continue to evolve in the meantime. It's a platform with much to offer still. Some of the motor/electric technology will overlap too, providing a mutual benefit. FCV (fuel cell vehicle) is in the very early stages for consumers. It's over 150 years old for the scientific community and has traveled to the moon and back. But being affordable and able to deal with the craziness of our commutes is an entirely different matter. That's why a single offering isn't realistic. Diversifying is a must. Early next year, Japanese consumers will see the first. Europe and the United States will come later in the Summer. The timing will be interesting... since a new Prius will be on the way too.
- 6-26-2014** **Publishing Greenwash.** Reading this today was quite frustrating: *"Hybrids are great at that kind of driving, which is why they get great mileage ratings from EPA tests. But in the real world, they have to keep up with contemporary traffic, which tends to burn more gas. Hybrids are particularly handicapped on highways, where high speeds require their gas engines to kick in and, proportionally, do more work than standard vehicles."* Sadly, things like that are emerging as a result of Ford having to lower MPG ratings on their hybrids. It's fallout which could have been avoided. But since the advertising was so intense on unverified numbers, that is now too late. Other hybrids like Prius will have to deal with false claims. Reluctantly, I contributed some insight about the situation: Using the problem from Ford as anti-hybrid fodder is no surprise. It will likely linger on for quite awhile too, despite no substance with respect to Prius. Heck, having credibility hasn't even mattered in the past. I don't see how this will be any different. Fortunately, the improved internet resources nowadays does at least help us deal with the rhetoric. The nonsense will never end though. Some will fight change to the bitter end.
- 6-27-2014** **Battle of the Uninformed.** One is a well know troll, uninterested in real-world data. The other simply doesn't understand how the hybrid system works. Watching the two of them attack each other on the big Prius forum is something I've never seen before. After so many years, it's quite an eye-opener to actually encounter something genuinely new. I was somewhat blown away. The arguments were senseless, neither interested in learning anything. They were holding to their assumptions and refused to consider the possibility of being incorrect. One has been a troublemaker since the very beginning... a die-hard diesel supporter and a fierce backer of Honda. So, his stance remains clear. As for the other, he's actually... believe it or not... a plug-in Prius owner. Several times now, I've challenged his claims. For some reason, there's no effort to find out why. He simply ignores the information provided. It's a bizarre situation to watch play out. Neither will give in. They'll likely end up escalating the banter. I suspect the insults will grow to the hostile level, much like I encountered when posting on the big GM forum and they didn't like me pointing out certain realities. Who knew something like this could happen?

- 6-27-2014** **More Recalls!** The total is now at 48 this year for GM. Whoa! That affects over 20 million vehicles. What a disaster. The struggle to rebuild both reputation and profitability is growing more and more of a challenge. How in the world does an automaker deal with problems on such a large scale? It's confusing as heck too. Earlier this week, Cruze sales had to be halted due to the recall affecting their airbags. Yesterday, it was their new Pickups and SUVs needing an update to fix a software glitch with the transmission. There has also been some obscure recalls, like faulty windshield-wiper modules and an insufficient weld allowing a shock-absorber to fracture. The variety of issues and knowing what years of what vehicles are included is a mess. The situation is quite confusing right now, as it's all fresh in everyone's mind. Just imagine what things will be looking back a year from now. Misinformation will be abundant. There's simply no way to effectively deal with the magnitude. It makes the recall for Toyota a few years back little tiny in comparison. The mess continues to get worse too. Ugh.
- 6-28-2014** **On The Offensive.** I waited a few days, allowing others the opportunity to chime in before I pounced. This GM salesperson has been pushing Volt by belittling Prius for years. It continues, despite the protests of his own forum companions posting frustrated messages in response to his. The recent belittle attempt was listing the variety of plug-in hybrids available, with this at the bottom: "*7) Toyota Prius Plug-In: EPA All Electric Range- 0 – 6 Miles*". That frustrated me, but at the same time was amusing. He intentionally excluded BMW i3 since it was supposed just a city car and had too small of a gas tank. The reality that it offers a 72-mile EV range from its 22 kWh battery-pack obviously irritates the heck out of him. But we'll address that at some other time, if necessary. Today, it was all about calling out his behavior toward Prius: I'm pleased to be the one to point out that there have been a some Volt owners complaining about your continued misrepresentation of Prius PHV. It looks quite desperate to blatantly disregard total capacity by posting only part of the information available from the EPA. That omission is clearly an attempt to undermine. There's no excuse. Volt delivers 38 miles of EV from the 16.5 kWh battery-pack. Owners often post about exceeding that EPA rating. Looking at capacity the same way, the 4.4 kWh battery-pack in Prius delivers 10.1 miles. That clearly isn't 6, not even close. The fact that Prius weighs less and has a more efficient electrical system is how the EPA rating of 11-mile value comes into play. But you never mention any of that. Tired of your on-going greenwash effort, I've come up with an simple way of capturing both video and a stream of data while I drive. Combine all that with some photos & comments, I've got a handy tool for pointing out Prius PHV performs far better than you care to admit. Remember, the point is to find allies in support of affordable solutions using electricity. Prius PHV does a fantastic job of endorsing lithium batteries for plugging in. This morning's filming was an 18-mile course, a round-trip I filmed many times in the past with my 2010 Prius. It's a mix of suburb roads, rolling hills on a 55 mph country highway, along with some city street. The route is actually what I do when I go to the coffeeshop to hangout while blogging. So, it is what I normally drive anyway. The result was an overall average of 146 MPG... with 13 of those miles EV... double your repeated misrepresentation of just 6 miles... all of which I now have video of to share. Failing to include capacity information will reveal how desperate the claims of just 6 really are. Stop doing it. This nonsense has gone on for far too long.

- 6-28-2014 Replacement Pack.** There was a press release from Nissan for Leaf today. That announced battery replacement details, complete with the price. I sounded off on the thread started to discuss that with: I get the impression the Nissan battery-pack replacement is future-priced, selling it now at a price that will eventually become profitable. After all, how many owners would actually purchase one right away anyway? Cost is likely higher than price currently reflects, but there's no harm from that. In fact, there won't be any need to price adjust later or deal with any of the online nonsense we routinely see with changes being forgotten, overlooked, or intentionally omitted. Subsidizing a little is just another form of warranty. Being able to upgrade with replacement is an interesting (and much hoped for) twist. Support of older vehicles from on-going improvement with battery chemistry is great. It adds a new dimension to automotive practices. We may come to expect mid-cycle upgrades at some point. At the moment, that's just thought of as a bonus. Everyone is used to having to wait until the next generation. This will likely raise resell value too. If nothing else, it's nice knowing with this level of certainty. That unknown was always an opportunity to undermine & mislead in the past. Having such a specific expectation will help prevent some FUD nonsense.
- 6-29-2014 Climate Change.** The cost of inaction certainly has been making the news lately. Sadly, there isn't really that much to say or anything new to look forward too. We can see symptoms of the bigger problem now. Some people just plain don't care though. Why change anything when it hasn't been proven beyond a doubt? I grew up with that nonsense about smoking. There was flat out denial about the health consequences, even though evidence confirming it was all around. An excuse to dismiss each and every circumstance would be offered... until they grew tired of defending. Then they just quietly went about their bad habit. How is guzzling & polluting any different? We know oil is obtained from sources we shouldn't be funding and by means we shouldn't support. Yet, we do anyway. We know the emissions are contributing to breathing-related problems too. So even without the added consequence of climate-change, the reasons to change are quite strong. Seeing the increase in frequency & magnitude of storms just gets ignored. Shortages of water in some places and flooding in others is becoming so common, it doesn't stir much attention anymore. The situation is disappointing. Then when you read about the fights to prevent EPA & CARB regulations, it makes you feel sick. Propaganda has clouded people's judgment. Talking points make the situation easy to dismiss. Not wanting to take action is a sign of trouble to come. Bummer.

- 6-30-2014** **Charge Time.** It's a complicated topic... with an endless source of individuals wanting to simplify, like: "*Your PIP will full charge in 1.5hrs vs 3hrs on stock 120v charging.*" So many factors are left out. That makes even the seemingly straight-forward decision of whether or not to upgrade your home charging a challenge. All I could do was respond with this and hope it somehow helped: That's not enough information required to make a proper decision about upgrading. 1.5 hours will provide roughly 75% capacity recharge from the standard 120-volt connection. Knowing that it recharges faster (high kWh rate) at first, then slows down later is important to know. 2.3 hours has been the 100% capacity recharge time for me over the past 2 years. That 3-hour rating is only for locations with sub-standard electrical systems or recharging in extreme heat. So, I really haven't found the need. Also, I've also been waiting for the 240-volt system prices to come down (which they have quite a bit recently) and offer smart options. Lastly, the ability for 2 rechargers to utilize a single 240-volt line will be available for consumer use; currently at some point, we're seeing them become common for the commercial rechargers now. That's an obvious expense saver for the family with two plug-in vehicles.
- 6-30-2014** **Delay.** That's a popular topic of discussion now... from Toyota just having announced a 6-month delay, pushing the release of the next generation Prius to the end of next year. I summed up my observation of the situation and the big picture posting: This time next year seemed a bit on the optimistic side, considering all the other things happening in the market now and expected to unfold by then. Early Fall was realistic. So, end of year isn't too far off. As for not getting the plug-in model right away... that's good news from my perspective... though watching others upgrade to the new regular model in the meantime will certainly be a test of patience. Getting it right for the masses is absolutely essential for rollout at this stage. We've already seen how much of a mess GM is dealing with from Volt not being targeted correctly. Ford hasn't exactly had hit the bull's-eye either. Toyota has come closest with being able to deliver something capable of reaching a very wide audience. Mainstream acceptance is essential with the next generation. That means high-volume purchases, able to compete directly with traditional vehicles, and no dependency on tax-credits. The regular model of Prius is already positioned for that. The plug-in model is demonstrating the potential. Waiting that plug-in means not getting sucked into fallout from other automakers and having the extra time to refine the new design. We know that lithium battery chemistry continues to improve and the addition of super-capacitors has been experimented with. Those are worth the wait. Cost reduction is obviously too. Then there's the convenience wireless charging has to offer. Also overlooked is the opportunity lost from current PHV owners. Upgrading so soon isn't an option for many households. An extra year could make all the difference. Many would have had theirs for around 3 years at that point. It will still have retained decent resale value and not be too old to just be better off keeping. That's a good time to capitalize on those seeking the latest & greatest. Like with my 2001 upgrade to the 2004, then the 2010, then the 2012 plug-in, each was totally worth it. This won't be any different. The wait will seem like forever, but the benefit from balance of purchase priorities will be worth it.

- 6-30-2014** **8.2 Million More.** The recalls from GM continue to grow. It's a truly bizarre situation. How many more will there be? Does it make any difference at this point? What are the nature of the changes required? In the end, who will be paying for it? Cost of having to do such a large number of part replacements will be incredible. The problem is difficult to even grasp. Most people believed a car purchase was just like any other product... you buy it, then change oil and rotate tires. The idea of a fundamental component having to be updated or replaced was given the stigma of failure. So, it makes sense that automakers have avoided addressing change on that scale. After the initial sale, nothing more was expected from either party. That's finally changing. After all, how many times does the software on your phone get updated? Shouldn't it be an expectation to get updates for your vehicle too? Some have wondered if aftermarket type hardware improvements would ever be offered from an automaker. Perhaps this is the start of that. Having some post-purchase offerings available by choice could make the mandatory type easier to accept. We'll see how this round of recalls plays out. Hopefully, it will stimulate change.
- 7-01-2014** **Diversity.** Certain on-going arguments get quite tiring. When you know the person simply isn't interested in more than just serving enthusiasts and doesn't care that an automaker is ultimately required to seek sustainable profit, it's difficult to respond. They aren't interested in economics. That desire to push engineering achievement and to place reputation above actual sales prevents much of any type of construction discussion. That made reading this a challenge: *"So Toyota is later to market, and you comment how the earlier estimates were optimistic. GM is delayed and it is evidence of their total incompetence??"* Yet again, it comes down to the refusal to recognize audience. But that is what you get coming from an early adopter of Volt in many cases. The expectation from early purchasers was strong sales from that one particular configuration. Even the suggestion of offering a second model was considered an attempt to undermine and promote Prius. It was quite absurd back then. That group truly thought the available production capacity of 120,000 annually would actually be needed by the third year. Reality wasn't so kind. Of course, they didn't have an understanding of who sales would need to come from. So, all I could really do was respond with this: LACK OF DIVERSITY has been the complaint all along for the target audience of mainstream consumers. GM's bet-the-farm approach has proven a terrible risk. Toyota didn't do that. Toyota chose to offer a variety of hybrids instead: Prius, Prius PHV, Prius c, Prius v, Camry hybrid, Avalon hybrid, Highlander hybrid. Don't be defending GM about their lack of choice for mainstream consumers or the consequences they now face. Don't forget about the Lexus models, including a large RWD sedan, plus the AWD minivan in Japan from Toyota either. Who's making an effort to reach middle-market right now?

7-01-2014 Delay Discussion. At one point, the word "sucky" was used to describe the situation. That's quite understandable. Taking a look at the bigger picture does change the attitude though. Of course, it won't necessarily help those with expectations for sooner, but what are you going to do? It is a for-profit business after all. I interjected saying: Another nice part about the sucky wait... [silly smile] ...is that there will be less to rhetoric to have to deal with. The amount of FUD (fear, uncertainty, doubt) we've been dealing with about the plug-in model is a real problem. The more data we gather with the current model, the less opportunity for those intentionally trying to undermine. It's sad, especially when it comes from supporters of other plug-in vehicles, but that's the reality we face. In a twisted kind of way, it is actually a beneficial... since designs incapable of appealing to the mainstream will reveal themselves. Hiding behind false claims only goes so far. Then of course, there are those who are just plain not interested in change. Their denial is easy to overcome when sightings become frequent. To think that some people will still see hybrids as "*too complex*" as the 2nd generation complete their lifecycle with great success is perplexing. But then again, there's has been fallout in the automotive market lately. The re-rating of MPG estimates along with an overwhelming number of recalls does give reason for pause. So, it does make sense for there to be a delay. Think about how well established the C and V models will be at that point too. Toyota gets the opportunity to work on improving them in the meantime. People are obviously going to be expecting them to get upgrades quickly after the regular model. It will work out fine. But for those who were looking forward to the chance to upgrade sooner, it will be a test of patience.

7-02-2014 Lots Of Data - Video. It took a very, very long time to finally figure out how to present all the data I had been collecting from my plug-in Prius. I was able to capture video of a few gauges while driving, but more simply wasn't realistic. The road vibration made mounting a camera steady for more data (smaller images) impossible. After lots of trial & error, I eventually figured out a way to utilize the numbers themselves instead of depending filming. By converting log file provided by the ODB-II reader application and using a Bluetooth adapter, the video could be created with some formatting software. Then, all I can to do was combine it with the scenery footage. Since data is transmitted wirelessly from a device accessing the vehicle's computer live while driving and a cell-phone running an app is frantically trying to translate & record, the result isn't perfect. There will be an odd number (unusually high or just zero) from time to time. But overall the purpose is well served. You'll see what happens, starting with a battery-pack close to the fully recharged (85%) and driving all the way to the depletion point (23.5%). The gas engine will turn on at times, then shut off again when not needed. Much of the 18-mile drive (to my favorite coffee-shop and back) is using only electricity, specifically 13 miles of EV. The rest is hybrid driving, known as HV. Overall efficiency from that drive ended up being 146 MPG, as photos of the display screens at the completion of the video show. The full-charge of the battery-pack uses varies from 2.6 to 3.0 kWh of electricity, including losses from charging. Here's a link to the video... [Prius PHV - Lots Of Data](#)

- 7-03-2014** **Chiming In.** It's difficult to know when to finally post a response. You know certain individuals will spin whatever it is, regardless of content. Some just like to debate. Others simply don't see the big picture. Their reaction is quite predictable. We'll see what this does: I've been waiting for the *if-it-does-not-plug-in-it-does-not-count* people to say their piece before chiming back in. Their refusal to look at the entire market is not helpful... The goal for the past 14 years is to replace traditional vehicles with a choice that's cleaner and more efficient. Remember Toyota's milestone set for 2020? That means competing directly with all the other vehicles currently available. Growth is necessary, which is what makes the 4th generation such a big deal. Gas prices as well as their associated taxes will inevitably go up. People won't be driving non-hybrids forever. For those hoping to upgrade/replace sooner, you'll end up stuck with a vehicle which should hold out in the meantime and has a proven record of retaining resale value even when the next generation rolls out. Not getting to trade-up when a lease expires is an interesting situation, since we've dealt with long delivery waits in the past anyway. Hopefully, that will work out. It makes sense that Toyota is stating intent so directly. For those sitting on the fence, you can now firm up your own plans... especially now that we see how the competition is with hybrids. They won't even be able to compete directly with the current Prius hybrid system. Toyota's improvements to next will be nice. As for the plug-in model, there is a decent opportunity to finally expand beyond the initial 15 states. Yeah! Education about its purpose and how it actually works is going fairly well. We've seen a clear improvement based on the questions here and the reduction of rhetoric elsewhere. Sales didn't plunge when HOV sticker availability ended either. That was good news. Retaining sales at the current level will be even better. That, combined with advertising and ample supply, will make full rollout nationwide realistic. Remember, it's not just consumers that need convincing, it's the dealers too.
- 7-04-2014** **50 MPG.** 111 miles, against the wind, with 2 bikes on back. Trying to use as little electricity as possible, so I'd have it available when we arrived at our destination, that was the result. HV efficiency (the MPG when there's no EV or EV-BOOST) is quite impressive. What other hybrid could accomplish that, even without those aerodynamic compromises? We had the interior packed with lots of stuff too. Being a holiday, enjoying the long weekend was key. Not having to sacrifice in terms of travel is fantastic. It sure is nice being able to load up the Prius like that to escape the everyday pressures of work. Now, the only thing I have to worry about is getting sun burnt... and perhaps eating too much.

7-07-2014 Lesson Learned? Sadly, the answer to that question is no. This today reiterated the problem: *"It looks like a real opportunity for "conquest sales", if other manufacturers are able to produce affordable all electric or PHEV vehicles with "adequate" all electric range and performance."* It's hard to believe how pigheaded certain individuals will continue to be. They choose to selectively look at the market, dismissing anything without a plug. That's called cherry-picking. It's handy when you want to win a battle but couldn't care less about the war. Disregard for overall goals and just having a purpose of short-term gain is a very real problem we still have to deal with. Why? You'd think that lesson would have been learned after having faced such a terrible economic collapse. Not wanting to go through all that nonsense again, I avoided rehashing history by focusing on what's been important all along: KNOW YOUR AUDIENCE. That's absolutely vital. Yet, some still only see current buyers. The 4th generation Prius will be taking on traditional vehicles. Those are the conquest sales being sought, not that from the tiny-slice of the market for plugging in. It's mainstream consumers be directly targeted, those would otherwise purchase an ordinary engine-only car. That's cannot be stressed enough. Taking on the traditional market directly is the focus for this next release. It's not early adopter time anymore.

7-08-2014 PiP Education. This suggestion left me without an effective reply: *"Make the cars available to people."* That's all I got when the topic of education for the plug-in model of Prius was brought up. To him, the design is so simple, there's no reason to bother teaching... which he stated by saying: *"There is very little to learn with the PiP."* Despite there still being misconceptions about Prius itself and the frequency of incorrect claims about PHV at nearly an overwhelming level sometimes, he still believes mainstream consumers only need the vehicle itself to understand it. I wonder how he thinks the correct information will be conveyed. With the media routinely publishing reports that are incorrect, misleading, and from time to time contain an outright lie, that's certainly not realistic. And for the chance that anyone beyond the well studied will have the ability to sift through forums to find necessary detail, that's wild fantasy. After over a decade of dealing with the rhetoric, the poorly informed, and the greenwashing, the reality is rather disheartening. Heck, even the Volt supporters agree with me on this one. Time after time, we keep hearing them beg GM for more educational advertising. Anywho, this is how I responded: Simply making more available was a disappointing response. The purpose of achieving permanent growth cannot be fulfilled by just offering more. That alone isn't enough to result in higher sustained sales. There must be education too. That requires the clever part of marketing. Most often, it's in the form of television commercials with something that stands out to catch consumer attention. Coincidentally, Toyota is doing exactly that starting next week. We were told: *"The goal is to help educate people about the benefits of Prius PHV in a fun and interesting way."* Remember how I stated that the best next step was to expand within the currently established markets? Toyota's effort to learn how to appeal to a wider audience there is priceless information to know prior to expanding to the larger market.

7-08-2014 **In Other Words.** The hope is this newest round of rhetoric will end quickly. Each time seems to be shorter and shorter. Nonetheless, it is still annoying. The trouble and source of the backlash is well known. Unfortunately, those new to the forum don't know that. They have no idea why such behavior would even take place. I suspect only a few of even the frequent posters actually go to other forums, making a true representative of the big picture limited to only a handful. Reading posts from the same individuals in a different venue sure is enlightening. The different audience causes them reveal other bits of info we don't get on the big Prius forum. It's especially informative with the websites not friendly to Prius. That certainly can be eye-opening. Doesn't really matter though. No amount of online spin will make a big impression on someone who doesn't participate online anyway. That's why so much of what goes on in posts fails to make any difference. Too bad that real-world mentality is so hard to come by. Oh well. At least some insight can still be shared and some question still be asked: In other words, successful sales increase which can be maintained afterward is the sign that expanding beyond the initial 15 states is realistic. Otherwise, why would dealers be interested in stocking a vehicle that would only attract a short-term gain? A brief boom from "*early adopters*" is not what you want to risk inventory on. Unless a strong case for them is presented, dealers in the other 35 states won't embrace the supposed opportunity. The market must be well established first.

7-08-2014 **Expect the Worse.** Anticipating a series of unpleasant responses when pointing out someone was incorrect is good advice. Some type of negative response is inevitable. That certainly was spot-on today. Whoa! Looking at those posts from a distance, it's easy to see the outright dismissal. Today, the word "*nonsense*" was used quite frequently. Taking a step closer, it was the usual misrepresentation. Your words are twisted to imply something else. More often than not, they take context from other people's posts (since the words themselves are easy to remember) and state them as if you had actually said that. After all, remember who is difficult. Next comes vague spin. They pretend the topic hasn't ever been addressed in full and accuse you of leaving out detail accordingly. Today, it was ironic that there was an attempt to restart debate by being vague and making it sound as if I had with my reference to that conclusion from elsewhere. This type of behavior is quite typical. It's no surprise. Any time a next step forward is taken, particular individuals will go out of their way to stir the pot... hoping new bait will bring back active discussion which will result in a different conclusion. It all boils down to the same thing: they so strongly believe something, there don't recognize any alternative outcome. It's that "*all or none*" mentality... the classic oversimplification. That clashes with the balance approach and leaves no opportunity to staging. So, the reality that Toyota allowed for flexibility in their approach is beyond their perception. There is only one or the other, nothing in between. It's an easy barrier to encounter when you attempt to have a constructive look at the economies of business with someone who has no actual exposure to the industry. That's why there was so much fallout with Volt. We had well educated engineers not understanding why consumer interest and dealer support was so low. If you don't know how those complex and counter-intuitive the situation is, you're not likely to have a strong positive outcome any. So, the idea of adaption isn't even a possibility. Adding to that it being of an accounting & marketing nature instead, it's a mess. You basically say your piece and move on. Expecting some type of closure isn't realistic. They will be angry for you having been correct... which makes you wonder how much that same situation will repeat. I've seen it so many times, there's no way to count them. Each advancement comes with someone being left behind. That's what sales are all about. That's why a hybrid like Prius continues to progress.

7-08-2014 **Happy & Sad.** It sure felt good reading that post from Toyota Marketing on the big Prius forum confirming they would indeed be doing what I had predicted the next step would be. With so much studying of what should be done, that is rather obvious. Sad part is though, most people don't pay close enough attention to notice. Even more sad is that some choose to now see. Thankfully, there is a happier side. We will see 2 television commercials and get an online video soon. They will kick-off their education/advertising campaign for Prius PHV. Based on the response to that, it's easy to see some expansion begin. Why's those few individuals arguing with me can't see that is baffling. I suspect trying "win" a debate is more important. After all, accepting compromise has been given a stigma of acknowledging defeat. We'll be intrigued as ever going forward. Rollout to other states, like Florida & Texas, seems quite realistic with the 2015 model. By then, we should have seen growth in the currently available states. Happy for them. Sad for us up in the north though. Winter is a nasty time to rollout a new Prius. The key is setting realistic expectations... which still isn't the norm for the regular model. Why would it be any different for the plug-in? Whatever the case, some of us were well aware of the backlash. Sadly, it's the same few people each time too. Happily, it doesn't last long. Really sad is that newbies aren't aware of this and commonly find the rhetoric frustrating and don't realize the attitude will shift relatively quick as the antagonists exhaust their new found argument points. Anywho, the tide change is coming.

7-08-2014 **Facts & Data.** They can be painful to accept, which is how all the spin comes about. The cold hard reality of what the competition is and who the audience is has become an endless source of rhetoric. Scope is arbitrarily just cherry-picked. Basic principles of business are just swept aside too. It never ceases to amaze me how things like affordability are so easily dismissed. Fortunately, it's easy enough to see past all that... once you start seeking out the facts & data. Interestingly, we're seeing a pattern now. Toyota waits for the competition to complete their rollout before making a move. It avoids getting caught up in any fallout. And this particular stage, what a payoff! They were able to stay clear of the many troubles with Volt and the rating problems with Ford. There's a fresh canvas now for them to paint a picture of what a well-balanced plug-in hybrid has to offer.

7-09-2014 **Commute Home (Deplete EV) - Video.** This is my commute home, taking the scenic route along the river via the high-bridge to the bluff. It's a very pleasant drive through the park and on roads with lots of trees. I used that Bluetooth device again to capture OBD-II data while I drove. Unfortunately, it got hung up for almost a mile, leaving a gap in the recording. Fortunately, it picked up and synced nicely with the video afterward. It's still, by far, the best way to record lots of data for presentation later. I started with a full charge. That's a battery-level of 85%. Not charging to 100% is what most automakers are doing to ensure longevity of the pack. The other technique used is to not discharge entirely. For Prius PHV, which has a 4.4 kWh total capacity, that means ending EV travel at 23.5% and HV at 18%. Having an engine makes that easy. You can see that happen in the video too. Watch for it 12.4 miles into the trip. The hybrid system has an engine and 2 electric motors. The RPM values for all 3 are shown in the video. They are connected via a planetary-split-device (similar to a differential) to combine and direct power. Coolant temperature is important to be aware of... not so much in the summer, more in the winter. The engine will run until demand for emission-cleansing and/or heater-warming is fulfilled. Running will stop when specific temperature thresholds are reached. Battery intake & bank temperatures are becoming more and more of a discussion topic. Heat accelerates aging. Keeping the pack cool is important. Showing the effectiveness of the system goes a long way toward greenwash prevention. You can clearly see how well it works. My 17.4 miles of driving home from work yielded fantastic results. 190 MPG overall. You can see the video here... [Prius PHV - Commute Home \(Deplete EV\)](#)

7-11-2014 **Half Million.** This was the title of an article published today: "*There are now more than 500,000 EVs on the planet.*" Right away, there was a comment posted asking for the definition of EV. Turns out, the writing was about a press release, which clearly said "*Plug-In Vehicles*". That's not electric-only, as the article implied. Misrepresentation like that makes some of us nuts. It confuses consumers. Calling anything with a plug will cause the same problem we had a decade ago. Writers figured anything with a battery was a "*hybrid*" vehicle. That led to quite a bit of online fighting and a number of purchase disappointments. People assumed they were all the same. We ended up arguing "*not the same*" so many times, it still stirs anger all these years later. Needless to say, I wasn't happy. Greenwashing starts with being vague. This was a contribution to that... rather than the celebration it was intended to be.

7-13-2014 **Not Posted.** I refrained from posting this. There was simply no benefit from stirring the pot. So, here in my blogs, those thought will be exclusively shared: Yesterday, a bunch of EV owners got together for a meeting. That was quite enjoyable. There were 5 Leafs, along with 1 soon-to-be-owner. 3 I-MiEV. 2 C-Max Energi. 2 Prius PHV. 1 Focus EV. 1 Tesla Model S. By far, the biggest market complaint was dealer disinterest. They had some very disheartening stories to share. The majority of salespeople simply don't have a clue and have no desire to even learn about the vehicles. So even when an excited consumer comes in to look, they end up leaving disappointed. Imagine what it's like trying to get help and finding out you know far more than they do. To make matters worse, the cars generally aren't even charged up. So when you want to take a drive, it's either really short or just with an engine. What a mess. There is a very real problem still. Those here still claiming just the act of making more available is enough to overcome the education barrier really need to talk to more owners. I stand stronger than ever behind the impression that Toyota is learning all they can in the established markets before moving on to the others. Spreading thinner by not addressing shortcomings with dealers first simply doesn't make any sense. Hopefully, it won't take too long. And since we know there is roughly 2 years until the plug-in Prius upgrade arrives, building up dealer confidence & support in the meantime is realistic. The new advertising campaign is should stimulate a sales increase in the established markets. It would be a good indication that expanding to new markets would reach more than just early adopters; otherwise, we end up waiting.

7-16-2014 **New Attack, good riddance.** How would you respond to seeing this: "*To the Prius Plug In, I say good riddance anyhow, because its such inferior engineering (I'm a Volt owner, though I still love my old '08 Prius for what it does as a reliable and efficient "old" car).*" That was only his third post on the big Prius forum. The other two were today too and both were as abrasive. I was rather surprised to see anything like that anymore. With Volt's struggle and the slow-but-steady growth of PHV, sounding off like that doesn't make sense. What could it possibly accomplish at this point? All those disenchanted had already go it out of their system... or so I thought. Maybe it was just a simple lashing out before giving up. Who knows. I chose to address the new attack with: There have been a small number of Volt owners who flaunted "*vastly superior*" and were happy to belittle & insult Prius PHV. Their attitude stemmed from seeing what Toyota did well, especially when they clashed directly with unmet expectations from GM. It was quite interesting to watch the fallout back in late 2010 and early 2011. All these years later, we're seeing how claims of being "*inferior*" don't actually hold up when detail is revealed.

- 7-16-2014** **New Attack, wake up.** There was a second quote in his post I responded to as well: *"More customers will wake up like me and trade in their last Toyota."* That made me wonder if some of what we were seeing had to do with automaker fallout, rather than just Volt. After all, GM recall trouble continues to increase. The situation is quite remarkable. How it will or even can be properly addressed is anyone's guess. What is clear though is Toyota's stance is much stronger. Being closer to goals for the upcoming market and be much more diversified puts them in a far better position. That obviously feeds the frustration. Keeping objective, my post to that was: Not understanding audience continues to be the biggest challenge. Goals of cost-reduction and depleted-efficiency were easy enough to get agreement on. But as for that question of who, the claimed lost customers continues to remain a mystery. Toyota is focusing their hybrid technology squarely on the masses. It's a replacement for traditional vehicles. That means it must match up with mainstream purchase priorities... a reality some Volt owners don't want to acknowledge. In other words, it's the outcome that matters. Whether or not the system stays in EV mode or it accomplishes that efficiency through blending isn't of any interest. They just plain do not care... as they do now with transmissions. They don't care how an automatic works, they just want it to work well, be reliable, and be affordable.
- 7-18-2014** **New Attack, resentment.** The trolling attempt was so obvious, it abruptly ended. The matter was likely either not realizing he'd get called out so quickly or not realizing how intense the resistance would be. Whatever the case, it looks like the attack is over already. Remember the days when those baseless posts would go on and on and on? Now, we've got so much good quality data, there is little available for trolls to exploit. Gotta like that. It sure was a nightmare in the past. Certain members and their reputations still send quivers down some of our spines. We'd have to deal with their blatant lies of desperation. Undermining Prius at all costs was their intent. Now, especially with this particular individual, it's hard to know. As Volt leases expires, those former owners are finding themselves at a loss for what to replace it with. They didn't expect the plug-in market to be so fickle or anywhere near the money-loser. They didn't recognize the importance of the *Who?* question. They didn't understand how long or complicated the process to change would be. Prius owners did. So, naturally, there is some resentment.
- 7-18-2014** **Moderator Intervention, removed.** There hasn't been anything even remotely *"troll worthy"* published as a daily topic on that daily blog for Volt in ages. All they get now is just a repeat of what's shared on the generic hybrid sight. Interestingly though, there was news about Prius PHV. So when that made it to there (usually a day or two lag), the reaction was something I was quite curious to witness. A record was set with it on a track in Germany. The Volt enthusiasts started posting responses with zeal. That's understandable. Most were fairly objective & respectable. One though... whoa... was an outright attack. It was from that same Chevy salesperson who's been doing everything he can to mislead about EV capacity. It's embarrassing to the supporters of Volt. Not competing honestly is something they just plain don't want to be part of. The moderator obviously feels the same way. The post only remained visible for about an hour. Then, it vanished. I was happy to see that happen. It was a rather blatant trolling attempt and he didn't want anyone to take the bait. Cool! That type of intervention to keep discussions constructive sure is a welcome improvement.

7-19-2014 Moderator Intervention, posted again. Not willing to accept the disappearance of his original post, he posted the same thing again. This time, I decided to respond, specifically to this: *"The Feds tell us that 74% of commuters drive less than 34 miles a day. Driving a Prius PI in EV Mode more than 34 miles with blended gas and electric fuel would require me to plug in over 5 times a day, and still be using gas! If gasoline is at \$4 a gallon I can go 50 miles in a Toyota Prius Plug-In for \$4 dollars."* The obvious exclusion of non-commute miles should be a dead giveaway about intent. It's rather blatant cherry-picking. You cannot just exclude the rest of the miles people drive. Going back & forth to work is not what people actually do in the real-world. That "5 times" claim is rather bizarre. Is he really that clueless about how PHV works? My guess is he actually believes that 6 miles is all the system delivers... even though it has been pointed out countless times that it doesn't. Heck, even video has been provided showing that's not the case. My choice of how to reply was as follows: I find such dedication a sign of desperation. Misrepresenting the plug-in Prius by continuing to imply that "6 mile" rating is the entire plug-in capacity available is just plain wrong. Or look at it another way, misleading about the plug-in Prius is a terrible way to promote Volt. It's been pointed out many, many times that the EPA's testing course triggers the engine briefly at the 6-mile mark. It's a simply on, then back off again, point during the drive. That causes it to get a "blended" rating of 11 miles total rather than the entire battery-capacity available being labeled as EV. Yet, we see on-going exploitation of people's misunderstanding of what that number actually means. In other words, it's greenwashing. You don't want to be any part of that by associating with those contributions.

7-19-2014 Moderator Intervention, facts. Refusing to accept reality is nothing new... but how deep in denial can someone actually be? We've known of individuals who made an assumption and never bothered to do any research. They continue to dismiss facts presented as clarifications to their error for quite awhile. But in this case, especially since the person is a Volt salesperson, there isn't much how of an epiphany. I keep trying though. At least others reading the posts will see his mistake and wonder what's wrong. Hopefully, this at least helped a little: 4.4 kWh is the battery-pack capacity. Avoiding that reality by hiding behind the EPA testing course is intentional misleading. The engine briefly runs at 6-mile mark, then shuts back off for the remaining 5. That's a total of 11 miles using electricity, not just 6. On my daily commute, that amount of electricity takes me an average of 12 miles before the engine starts.... because I don't have a spot where hard-acceleration is required and the traffic tends to flow along with very few stops. On really nice summer mornings, I can go 15 miles... all EV... all consecutive. Continuing to post "electric only" numbers by leaving out vital information is misrepresentation. There's no excuse for that. Then there's the misleading about blending by never including any numbers. It's just given a stigma and the message of inadequacy is conveyed, doing everything possible to avoid ever actually mentioning the resulting MPG.

- 7-19-2014 Moderator Intervention, definitions.** The refusal to acknowledge Volt was a hybrid led to heightened promotion of EREV, even though the other plug-in hybrids contradicted the very definition they embraced. It's screwy. But then again, arguing semantics is never straight forward. In fact, most of the time, it's pointless to even bother. In this case though, I at least wanted to highlight the confusion he contributed to with: "*11 miles Elec + Gas. All Elec: 0-6 mi <———— This is NOT a PHEV!*" That didn't make any sense. Is Volt now a PHEV and this was an effort to disassociate? HV, EV, and blending is an expectation from PHEV. That's what the acronym represents. I found no reason to reply. It would just be a waste of time. Though, it is worth drawing attention to the obsession with EV purity clouding judgment. Any gas usage whatsoever is considered bad... even though Volt has an engine for use after depletion and for battery & cabin warming during the winter. It's so hypocritical. That's why posts are vague and requests for detail result in shooting of the messenger. It's rather annoying to have to deal with too; however, these incidents are so few and far between now that it isn't a big deal anymore. Yeah!
- 7-20-2014 Fuel Price.** It's \$3.29 per gallon here for gas and \$3.89 for diesel. Such a large difference explains why we are seeing more greenwashing they usual from diesel supporters lately. They've been pushing statistics using the percentage technique. It's when you only show sales gain through the use of relative measure. By doing that, it gives the impression of more. But in reality, exclusion of detail (the actual count), it can actually be much less. They hope people assume more though. Not checking facts is important when misleading... and they are quite the pushers of that particular approach. It's sad to know that honest competition doesn't happen. That's why the "*self regulate*" mindset is such a problem. You are only fed the facts they want you to know. Sadly, comments posted about the article can be just as bad. We see the same old talking-points again and again. The most common is that diesel thrives on the highway and there's no benefit from hybrids at those same high speeds. The avoid posting actual MPG as much as possible and simply never explain how they came to the conclusion of no benefit. They also try to keep focus on highway, so the poor city performance isn't ever mentioned. They flaunt the "*clean*" label to prevent addressing actual emission ratings. Again, that's a relative measure. It's annoying to see this same nonsense so often. Fortunately, the much higher price per gallon keeps the situation in check. That's extra expense makes it a difficult sale. It makes you wonder how the loss of some truck space and extra expense is explained away for the diesel vehicles which spray urea into the exhaust system for emission cleansing. Hybrids like Prius are even cleaner, without even using special liquid & equipment.

- 7-20-2014** **53 MPG.** Well, today certainly was exciting. I took a stand-up-paddleboard class with my girlfriend. We had a blast, though I did get a bit sun burnt. That certainly is an interesting way to travel on the water. It's quite remarkable how stable they are, even when you are moving around on top in a standing position. Anywho, since we were going to the lake anyway, I brought along the kayaks. The round-trip was 37 miles, not far enough to bother covering the cockpits. That increases aerodynamic drag even more... as if a 12-foot and 14-foot object carried on the roof of the Prius wasn't enough. On the way home, it was particularly noisy too. With so much air being pushed through and around, that's no surprise. What did surprise me was the efficiency performance. I really wasn't expecting MPG to be so high, even when taking advantage of a full battery-pack. Most of the driving was at suburb speeds, though there was a few miles out on the open highway too. Knowing that my trip up north with the kayaks years ago with the regular Prius resulted in a 36 MPG average (lots of high-speed travel then), I was figuring somewhere in the mid-40's with the plug-in model. After all, efficiency flattens out after awhile. But with shorter travel and that extra electricity, perhaps upper-40's was realistic. Seeing a final result of 53 MPG was quite a delight. I had no idea that expectation could be set for that distance. Sweet!
- 7-21-2014** **Commute Work (Deplete EV) - Video.** Driving to work, rather than the way home, was the next thing to film. The video & data capture went remarkably well. Conditions were near ideal for driving in EV until depletion, which made it great as a measure comparison for battery degradation. There still isn't any after over 2 years of plugging & driving. That's the period when the largest drop supposedly takes place too. Not seeing any at all is proof that Toyota really studied the need and the chemistry well. There are so many conditions to take into account. And with the extreme lows here in Minnesota, that isn't something to be taken lightly... as with the extreme highs in the southern most regions of the country. Staying between the 23.5% depleted and 85% full levels is a key to that. Avoiding too much stress on either side of the total capacity available for the pack is a major contributor to the longevity. And now I have another detailed video illustrating exactly that. I was particularly thrilled with the results too. It's not everyday I get to see results that nice. Traffic & Temperature variations impact the outcome, but causing lower efficiency... though, still quite noteworthy. Anywho, here's the short & sweets comments I included and a link for the video itself: Taking the scenic route to work, along the river, the performance on this beautiful summer morning was outstanding. 418 MPG for the 17.2 mile drive. [Prius PHV - Commute Work \(Deplete EV\)](#)

- 7-21-2014 Self-Fulfilling Prophecy.** Kicking the can (postponing) rather than dealing with the problem at hand is becoming so common of a practice, it doesn't get much attention anymore. That's simply the way business is conducted... which is how the mess we're in with road repair/replacement funding has become such a massive problem. Rather than adjusting gas tax to match inflation, it remains at a fixed value... decreasing it's worth year after year. In the meantime, the amount of work and number of roads continues to grow. So, the entire system is under-funded and continues to grow worse. The issue continues to be political poison too. If you want to remain in office, you have to be against raising taxes. It's a disaster in the making... hence kicking the can, making it someone else's problem to address or get blame for later. Each time the issue comes up, other programs suffer as a result of money being taken from them to pay for what should have been collected through gas purchases. It's the robbing Paul to pay Peter dilemma. That gives the appearance of having solved the problem, but in reality just moved the consequences elsewhere. It's disheartening to witness the lack of action being taken. Rather than being responsible, we watch the problem get worse. Sadly, the excuse is there's no time to deal with it... which is ultimately what will be the case. The on-going delay will use up the time available. It's a self-fulfilling prophecy in the making.
- 7-22-2014 Opel Ampera Discontinued.** That was the big news in the hybrid world today. Online sources were all a buzz. Sales of that Volt counterpart in Europe have been quite a bit lower than the disappointing numbers here. So, it wasn't much of a surprise to find out it won't be upgraded to a next generation. It will simply be discontinued instead. That made me wonder what would be offered instead. Interestingly, that thought didn't stir much from others. The enthusiasts were in heavy defense mode. That intrigued me. What were their expectations? For that matter, what are they hoping for from Volt? They still absolutely refuse to identify the audience. Supposedly, GM was going to take middle-market by storm. Ordinary consumers would purchase Volt in quantities as much as double the mainstream minimum. Things fell apart when reality set in. In fact, the sales rate has remained flat for about 2 years now. We're still seeing between 1,600 and 1,700 per month... despite the dramatic price drop. That's obviously a concern, but we don't hear much about that anymore. There's no point. The next will have to be different to both attract buyers and deliver a profit.
- 7-23-2014 Double-Standard.** This was apparently an opportunity for the last stand: *"If you're going to try to paint a picture you need to back it up w/facts."* In just that thread alone, there were 3 rather blatant examples of others making statements as facts without presenting any data. Yet, I was the one who got called out on it. That was what I had been hoping for all along. Outright lies would be posted about Prius, obvious efforts to undermine Prius PHV. No one would question that though. Integrity was of no concern. They'd just look the other way. That's why I've been filming my drives. I knew at some point I'd be able to expose the greenwashing... and this was finally my chance. So, I did: How come others aren't held to that same standard? We see the same "6 mile" claim being made over and over again, a clear misrepresentation of the battery-capacity available. Yet, no data to back that is ever requested. The "fact" is simply accepted at face value without question. That's just plain not constructive. Some would call it a double-standard. Here's data to finally bring that misrepresentation to an end: [Prius PHV - Commute Work \(Deplete EV\)](#)

- 7-23-2014** **No Challenges.** That video certainly brought the rhetoric to a screeching halt. I now have undeniable proof showing the battery-capacity is far more than the 6 miles claimed. It absolutely amazed me how desperate certain individuals were to misrepresent Prius PHV. They exploited a vague bit of information by leaving out vital detail, with the hope people would make an incorrect assumption. In other words, they lied. It's dishonest when you know your portrayal is inaccurate... and they knew it. I pointed out the problem with their claims over and over again. On that one particular venue though, a few particular people just plain didn't care. They kind of behavior spoke volumes. Rather than compete directly & openly, they resorted to posting like that. It was quite frustrating to deal with at times... especially when others allowed it to continue. It happened time after time. But now they have to deal with be confronted by a rebuttal in the form of detailed video. It's a nerdy type of revenge. I enjoy that type of victory. The nonsense posts will simply end. There won't be any mention anymore... knowing I'll just post that same link again... which would expose what they are attempting... hence, no challenges. Gotta like that.
- 7-28-2014** **Lonely.** It's sad reading a quote like this: "*Well over a year of ownership and I have yet to see another PiP in the flesh other than my own.*" Even here in the Midwest, where none are sold anywhere within a 500-mile radius, I still have a sighting from time to time. The person making that comment was from Nebraska though. I guess that's far enough away from large populations to lower the chances. Even so, I just got back from a vacation out in a sparsely populated area. It was quite exciting. This is how I described that road trip: I was in Iowa last weekend for Nordic Fest. Had a blast, in a tiny Midwest town... where there were Prius everywhere! I was surprised as heck by the quantity. It got to the point where it was rather amusing. Not only was I seeing them all over the place, sometimes there were several parked together. Twice I ended up in a group of 3 and once a group of 4. And yes, there was even another plug-in model. Of course, if you think about it, Prius is a great long-distance travel vehicle. So, it does make sense seeing so many concentrated like that at a special event. Last year, a trip to Wisconsin had similar results. But in that small town, there were actually 3 plug-in Prius all within sight at the same time. We even saw a special edition model. It was sweet!

7-29-2014 **Wireless Charging.** Clarity about delay is becoming apparent. The word today is the next generation Prius PHV will offer wireless charging. That research & development we heard about from Toyota awhile back is indeed going to be a reality. Rather than having to plug in, you'll have the option of simply driving over a pad on your garage floor. It's like the induction charging long ago, but no longer requiring a paddle and the distance increasing. Unfortunately, there are certain people who just plain don't understand. They still think the audience is enthusiasts. Why they don't recognize the goal of appealing to the masses is even more of a mystery. Reading this particular comment really got me rather frazzled: *"You need to realize that many people buy electric cars for their efficiency. Taking a 11% to 14% loss on that, for a minimal increase in convenience, is pretty much opposite of what a section of the market is looking for."* This came from an EV owner who continues to argue with me and for some bizarre reason still hasn't noticed the message from other plug-in owners... who overwhelmingly state the number one reason for purchase is to help end our dependency on oil. How he can sight an increase in electricity usage as a deterrent is beyond anything I can fathom. We've even had a few owners openly state they don't care how many EV miles they drive, as long as no oil is used. In fact, I've complained many times about some not caring about MPGe values for that very reason. In other words, he still refuses to accept goals of the masses. Appealing to mainstream buyers is something he won't embrace. In a way, that is understandable. It would make the vehicle he currently cherishes just ordinary transport. Toyota wants that. Tesla is obviously striving for that too. Wireless is a convenience option which will help bring an end to guzzling dirty non-renewable fuel.

7-31-2014 **New Owner Assumptions.** The opportunity came up, yet again, to point out screen comprehension issues. With detail displays, it's far too easy to jump to the wrong conclusion. We often see that with the Eco-Meter. This is how I respond: The misconception that the PWR zone should be avoided for the sake of efficiency gain is very, very common. New owners misinterpret that RED color as bad. It never crosses their mind that the purpose is actually to inform you to minimize the time spent drawing high power, rather than avoid it entirely. So naturally, we get posts on a regular basis about how driving that way irritates those following behind them. The best advice is to *"Just Drive It"*. That's what long-time Prius drivers have been telling new owners for over a decade, because it's what delivers the best results. Using the engine at a higher RPM is not a bad thing. In fact, the hybrid system takes advantage of the situation by splitting the power. Some of it is used for generating electricity, so you actually end up using the electric motor more and topping off the battery-pack. That's counter-intuitive. You'd think consuming more gas would result in an overall efficiency loss, not a gain. The assumption comes from having grown up with a vehicle not having the ability to split power. Prius can and does frequently. That's a major part of how it achieves higher MPG even without plugging in.

7-31-2014 **New Owner Advice.** The same suggestion will likely be needed for many years to come still. New owners assume slower acceleration is better. We have to provide the advice pointing out that isn't the case, that faster can actually be more efficient. That's a difficult concept to accept, especially for those without any engineering background. It's too easy to jump to the conclusion that using less fuel will result in higher efficiency. The idea that bigger MPG numbers can result from stepping on the pedal harder goes against everything they were taught... back when an engine was the only power source. Adding a battery-pack and 2 electric motors complicates the equation to such a degree, many owners don't have a basis to even try those calculations. It's too complex to easily visualize the benefit. That's a simple matter for a computer though, which is what the hybrid system takes advantage of. Simply altering the speed of each of those devices interacting with each other is easy with sensors & software. That's far more sophisticated than your foot interacting with just a single tachometer. However, you can actually use that engine in the hybrid to influence the motor operation, letting the computer do the rest for you. So, the experienced owners offer this advice to the new: Accelerate briskly (a brief engine spin-up to 3500 RPM) and watch what happens. You still get outstanding MPG, even with the quick speed burst in ECO mode. It's counter-intuitive. But since traditional vehicles don't possess the ability to split power, most people haven't ever taken the time to think about how an alternative approach could yield very different results. The PSD offers flexibility well beyond what just an engine alone can deliver. There's 2 electric motors and a battery-pack that it connects & controls. That gives it far more efficiency opportunities. It's why the hybrid system delivers both much better MPG and lower emissions. Try it. You'll be surprised.

7-31-2014 **Falling Behind.** When it comes to the interpretation of competitors, having a background in economics really really helps. Unless you've studied the business aspect, the trap of engineering-blinders will catch you. It's far too easy to focus exclusively on the achievements of engineers and assume that will result in great sales. There's also the problem of how long change actually takes. The acceptance process is inevitably way longer than people hope. Sadly, even the rollout of technology improvements is riddled with business barriers having nothing to do with the design itself. It's a complicated beast. With billions of dollars at stake, taking well thought out steps should be acknowledged as vital. Sadly, that too isn't given the credit it deserves. This closing part of a post today caught my attention: "...the end of next year (December 2015) is when they are saying it will be available. 1 1/2 years away. That is a long time in my book and with the competition catching up, Toyota may be falling behind." When all aspects of business aren't taken into account, there should be reason for concern. Fear of falling behind and others catching up doesn't do that. The market as a whole must be considered. A single automaker cannot stand alone. My thoughts to this were: There is nothing that says "*falling behind*" is a bad thing. Marketing has convinced us that the most of something is a sign of leadership. That's called advertising, when they make you purchase something with greater capacity than what you actually need. They appeal to want and make the others appear to be falling behind. Fortunately for us, Toyota isn't playing that game. They've told us repeatedly that cost-reduction is a very high priority. Sadly, many haven't actually heard that message. People tend to listen to the "*most*" promotion instead; consequently, they get the wrong impression. Lithium batteries are indeed available, but they aren't in high-volume nor are they cost-competitive. That's a big issue some people overlook and others aren't aware of. If you listen to enthusiasts, they tend to dismiss that reality and focus on range & capacity instead. Talk to an ordinary consumer, someone who would otherwise purchase a Camry or Corolla. They're the audience, the market Toyota wants to capture. They're big deterrent is price. It's not whether or not other automakers are "*rushing ahead*". There will obviously be cross-shoppers, but attracting them isn't as important as making the hybrid a stronger product in Toyota's own production-line. In other words, the "*competition*" isn't what you think it is.

8-02-2014 Sales Interpretation. There were 3,019 Leafs purchased last month. That alone was enough to mute the Volt enthusiasts... since it was 999 more than Volt. Looking at the situation is the interesting new though. The 2,020 included a heavy push to get 2014 models off the lot, since the slightly improved 2015 is already available. To further erode hope, some of those purchases were the result of current leases expiring and owners leasing a new one in its place... which counts as a sale. In other words, there isn't really any growth for Volt and Leaf is doing better and better. Remember the "*range anxiety*" fear? That approach clearly wasn't effective. Anywho, it's nice not having to deal with spin anymore. In the meantime, I can only find listings for 273 Prius PHV, with the closest 912 miles from here. Toyota is obviously trying to clear out inventory before introducing the next model year. We still don't know how that will play out either. Expanding to other states remains a *wait-and-see* situation. The dependency on tax-credits is a liability vehicles collecting the full amount (\$7,500) cannot afford anymore. Next generation offerings must be able to survive without, which isn't looking promising based on the current market. That's why there is much less of a concern coming from those supporting Prius. With the plug-in model just a package difference from an already profitable high-volume hybrid, the odds of the next generation being self-sustaining 2 years from now is fairly realistic. Though, even without that \$2,500 assistance, it's still a challenging sale. The business of selling hybrids is difficult in itself. But at least the progress coming from Nissan & Tesla is helping open up opportunity. The other EV offerings aren't stirring much attention. Ford is making some progress with their plug-in hybrids, but sadly the depleted efficiency mislabeling debacle set them back some. It all leaves you wondering. There is lots to interpret, but not much of a point in doing in yet.

8-03-2014 July Sales. Failing to recognize the true competition has serious consequences. Toyota, Honda, and Ford all recognized that right from the very start. That's why Prius was introduced as a model choice between Corolla & Camry. That's why Honda introduced their Civic hybrid as a traditional vehicle variant, then re-started with a new hybrid system. That's why Ford struggled with Escape and ultimately chose to abandon it in favor of directly competing with Toyota. It was only GM who didn't see the need to address the market with something realistically competitive. Two-Mode was a disaster from the start, grossly over-priced and targeted at a tiny audience. Volt wasn't much better, also well out of reach for ordinary consumers. That's why posting these numbers are so humbling. At least some of the automakers are better off. But when you look at others, like VW and Hyundai, it makes you wonder what they'll end up doing. There's also Chrysler, which is a complete unknown. The point is, traditional vehicles dominate and their reign of waste & filth will continue on for quite awhile. The sale counts speak for themselves. The top-6 sellers for GM: 25,321 Equinox; 20,926 Cruze; 13,537 Malibu; 9,961 Camaro; 9,636 Impala; 6,430 Spark. The top-6 sellers for Ford: 26,558 Escape; 23,842 Fusion; 17,724 Focus; 7,545 Fiesta; 6,564 Mustang; 5,587 Taurus. The top-6 sellers for Toyota: 39,888 Camry; 30,833 Corolla; 26,779 RAV4; 12,866 Prius (liftback); 11,357 Highlander; 11,661 Sienna. Thankfully, Prius is holding steady in third place here. In Japan, the smaller C model (known as "*Aqua*") is the top-seller for the country, not just Toyota alone. The second most popular vehicle there is the regular (liftback) model of Prius. Clearly, our market is less receptive. But there is hope. As each automaker invests and delivers next-generation improvements, overall interest should grow. In the meantime, sales here are basically flat.

8-04-2014 **13.1 Miles.** That was a moment to savor. It was what the EV range estimate stated today. That's the high value I see at times during Summer. This year, it's been a bit elusive though. It doesn't reflect actual results well anyway. The number is nothing but a calculation based on recent driving. And since I don't have a pattern of any sort, especially during the warm season, expectations are hit & miss. The other day I carried 2 kayaks on the roof, but traveled exclusively in the suburbs. That meant lots of EV driving, but in a very inefficient way. Who knows how the computer interpreted the results of all that aerodynamic drag added to the vehicle. I used the A/C at the same time, further complicated matters. Of course, that was exploiting the flexible nature of such a dynamic system. It handle the big demand increase quite well. Perhaps it knew that. With so many factors to take into account, it's amazing the estimate value is even close. After all, the EV range goes down quickly when you're cooling the interior using electricity but not actually driving. Wanting a comfortable interior after loading up the kayaks onto the roof is a very worthwhile feature. It lowers MPG overall, but no where near as much as if the engine had to run to provide that same cooling instead. The electricity is used in the best way... sometimes for EV, sometimes for HV, sometimes for blending of both (called EV-BOOST mode). The point is that 4.4 kWh battery-pack is taken advantage of. That plug-supplied electricity helps reduce consumption & emissions, but not necessarily by just delivering a range of EV alone. So, that number really doesn't mean much. Just ask other owners. Some see higher estimates. Others see lower. It works out nicely regardless. Just drive it!

8-06-2014 **EV-Boost Mode - Video.** Watch this morning commute to work as I take advantage of the plug-supplied electricity while traveling at speeds faster than the EV limit. We call that "*EV-Boost*" mode. There isn't really much to say about it. The outcome speaks for itself. MPG is much higher, even when the engine runs. You can see detail in the video showing the gas-engine running at a much lower RPM than usual. That's due to its power be blending with output from the electric-motor. It's a simple approach to achieving great efficiency. In fact, that's what Prius has been doing from the very beginning. The only real difference now is that there's more electricity to take advantage of and most of it comes from a plug. So, no matter what speed you go or what the driving conditions are, the result will be a boost over the regular model. See for that for yourself... [Prius PHV - Commute Work \(EV-Boost mode\)](#)

8-08-2014 **Misinformed.** There is a particular individual, who posts very frequently on technical threads, still doesn't understand the detail. On the big Prius forum and being a PHV owner, you'd think he'd study the data provided. Instead, he's becoming a conveyance of misinformation... which sadly, makes the posts a source of greenwashing. Obviously, stopping that has been a priority. I jumped on this today: *"Actually once the vehicle exceeds 62 mph, full EV mode is no longer possible, because the maximum RPM of the MG electric motors has been reached. The gasoline engine has to kick in to prevent over-speed of certain parts of the transaxle."* It makes sense why he originally jumped to the wrong conclusion. But after awhile, you'd think one of the sources reaching out to help would finally get heard. Overcoming beliefs about EV aren't easy. So, we keep trying. The stigma created to make people dislike any engine running was part of a major effort to undermine. It will take work to changed the minds of those already convinced, based on what they were told by so-called experts. This is how I tackled the situation: That's a very common misconception, based in part on outdated information. The design has been improved over the years. That is clearly not the case anymore, as the videos confirm. MG2 has a maximum RPM of 13,500. You can see the spinning doesn't come close to that, even when cruising at 60 mph. The actual reason for the blending is to not sacrifice efficiency. Rather than wasting electricity to spin the motor extremely fast, especially since power fades as RPM increases, the system takes advantage of having an engine available. Running it at low RPM is a much better for overall efficiency. It uses very little gas that way, while also better using the electricity.

8-08-2014 **Next Volt.** Today was the big pre-announcement for Volt, so the daily blog was quite active. The next generation will be revealed at the big auto show in Detroit this coming January. Supporters still have no clue what to expect. Profitability and no more dependence on Tax-Credits is a very big deal, but never discussed anymore. Those topics have become taboo. So, we get other attributes discussed instead. That's not bad. After all, getting more legroom in the back seats and having having 5 of them has been an improvement many are hoping to see. The request for increased EV range is another popular item. Someone did actually bring up the topic of sales though. The mention of *"mainstream"* really stirred the pot too. I was intrigued when this popped up in response: *"Why the big uproar over the 'not a mainstream' comment? What is everybody afraid this means?"* It was my pleasure to point out why: Mainstream has been concisely defined in this market as sales of 60,000 per year (5,000 per month). That was the target the industry had established prior to Volt rollout and what GM embraced as a benchmark to achieve for the first generation Volt. Since the results ended up well below that clearly identifiable milestone, the topic is avoided... hence the skittishness when *"mainstream"* is mentioned.

8-08-2014 **Fools.** I saw this today and just plain couldn't believe it. I certainly wasn't expecting an attack on the competition. But one of the troublemakers on that daily blog couldn't resist. He wasn't happy about someone posting constructive information and retaliated with: *"The biggest lie is the PiP, which promotes a 11 mile EV range, but only gives six, because the other five is with the engine on! Those buyers were fools, and you are becoming one of them!"* Reading such blatant greenwashing and such shameful smug was quite a surprise. You wouldn't expect anyone to go to such extremes anymore. Oh well. That provided me with the opportunity to present data: Biggest lie? Yes! Though, it is becoming quite telling by how often it is repeated. Lack of clarity about the EPA label is being used to mislead and some people are spreading that misinformation. No matter how many times that 6 value gets addressed, pointing out that it really is 11 miles and explaining how the results are misinterpreted, the incorrect posts continue. Again, here are 2 videos clearly showing the 11 is indeed a correct representation of the electric capacity available. The commute in the one direction delivered 12.4 miles of consecutive EV driving. The other direction delivered 14.1 miles. [Prius PHV - Commute Home \(Deplete EV\)](#) and [Prius PHV - Commute Work \(Deplete EV\)](#). It's too bad more people don't understand how PLUG-IN HYBRIDS actually work. They make assumptions without checking facts. The engine will start at times of high demand, then shut off or cut fuel when not needed. It will also take advantage of the plug-supplied electricity to allow the engine to run at a low RPM for optimum efficiency. That available capacity is used to improve MPG. It may or may not be achieved through EV driving alone. It doesn't matter. The goal of reduces emissions & consumption is still achieved. Notice on this video how the engine shuts off and EV resumes after the high-demand request and warm-up cycle are complete. On that particular drive, there were 13 miles of EV. [Prius PHV - Lots Of Data](#)

8-11-2014 **Denial.** I watched the posts get increasingly more desperate. It has reached the point where there's no way to take them seriously anymore. The lies are absurd. One reply to me referenced something I didn't even say. Anyone could see that was a blatant slander attempt. Normally, implying what you meant through the use of misquoting provokes a rebuttal. But when I mention sales and the response to that was claiming I had complained about EV range and HV efficiency is downright hysterical. I didn't say anything even closely related. Then there's that on-going "6 mile" nonsense. They know it's a simple equation to figure out range based on kWh capacity. Yet, they try to mislead by excluding that vital information. The hope really is that we're fools. The point of this recent exercise was to expose the reality of denial. Marketing based on emotion didn't work. The focus on "*range anxiety*" assumed people would have a fear of running out of electricity. Turns out, they don't. Leaf has been selling well despite that and the outstanding depleted MPG of Prius PHV satisfies even the most stringent need. They are in denial that their favored approach failed to take the market by storm. Rather than being the celebrated leader, Volt has become just another offering in the variety of plug-in choices available. That's why I knew trouble was coming years ago. When I sought out an ally, their exclamation of being "*vastly superior*" sealed their fate. They were doomed. Rather than accept a partnership, they chose to face the challenges alone... which is why some are so desperate now. Pride is a very large obstacle to overcome. Too bad some still don't what join the rest of the team trying to end the reign of traditional vehicles. It's really quite sad.

8-11-2014 **All-Electric Range.** Statements like this are so close-minded, it's hard to know where to begin: "*CARB should base their rules on all-electric range, and nothing else.*" It has been overwhelmingly proven that goals should be set based on outcome, not the means. What good is that electric-capacity if it isn't utilized well? After all, the BMW i8 just got certified with an all-electric range of 0. Yes, zero! That's so far off of the expected 22-mile rating people had hoped for, it invalidates all previous arguments. Another automaker took another approach. They didn't choose to design for the test, a troubling practice of the past... which a few still endorse... as those pushing "*all-electric range*" still don't understand. So what if the engine runs briefly or in an extremely efficient state. The point is the outcome, not how it is achieved. Copyright law prevents similar design anyway. I sounded off to the narrow perspective saying: Certain people have requested data. Then when they actually get it, with video samples comprehensively detailing operation, they find excuses to dismiss that as an extreme or anecdotal. Fortunately, organizations like CARB don't play games like that. For your example, they won't end up settling on something as simplistic as just "*all electric range*". We all know the "*6 mile*" nonsense is nothing but a testing scenario being exploited with the desire to greenwash. Anyone taking time to look at the numbers will easily see that the 4.4 kWh battery-pack will deliver much more electricity, hence the actual distance of 11 miles. The calculation to confirm is quite simple. Those wanting to mislead will hope you don't actually do the math though. CARB will include capacity in the determination of qualifying vehicles. How could they not? After all, it is when & where you choose to engage EV mode that's important, not whether the engine is utilized at some other time.

8-14-2014 **Next Step.** We're seeing the same speculation emerge again, where want overshadows need from those posting not showing concern or even any supporting material. That's interesting, especially since the "*too little, too slowly*" was so well confirmed for that very reason. This explains why we got the quote the other day that GM considers Volt "*not a mass-market*" vehicle any longer for the chief marketing officer. It's a way of satisfying both audiences going forward. For those who focus on want, they will indeed get the Volt they've supported all along. It will be a premiere plug-in vehicle to showcase what the technology can deliver. For those who focus on need... in other words, the mass-market... they'll get that second model some of us have been pushing to get since before rollout began. We knew priorities differed so much, a single choice wouldn't be able to appeal to a wide audience. After all, diversification is a fundamental aspect of good business. Odds are very good that new plug-in choice will get a unique new name, to disassociate itself from Volt, since it will differ so much. Clashing directly with some of the principles enthusiasts haven't wanted to compromise isn't a bad thing. This is why the "*goals*" and "*who*" questions were asked over and over and over again throughout the years. That acknowledgement how the next step is taken.

8-15-2014 **Better Late.** Firing back is usually pointless. Since the audience is unreceptive, that type of sparring goes no where. But in this case, we now have the hypocritical stance as an element of change. We're seeing statements being made which agree with what used to be dismissed. But rather than that past coming back to haunt them, they try to present the idea as new and from them instead. These blogs clearly confirm that's not the case. Winning an argument isn't the point though. It's to get change to actually happen, regardless of how. So, claims like this are more of a footnote in history rather than effective debate material: "*We can certainly all have our differences of opinion and even engage in some heated debate but throwing fire bomb statements is always counter productive.*" In other words, things like pointing out the fall well short of goals doesn't help anymore. That message has been received. Finally. There is a struggle to take the next step though... and there is an opportunity to re-try to create that partnership they summarily dismissed in the past, show how the playing field is level. I posted: So is down-voting facts, yet we see that all the time still. Personally, I find it quite interesting to see the "*constructive*" comments of recent to simply be recites I what we've been saying for years, but got labeled as trolls for it back then. That's confirmation of having been right all along. In other words, there were business realities dismissed that are finally acknowledged. The goal of mainstream acceptance is a whole lot more difficult than those blissfully posting years ago had ever imagined. Heavy emphasis on engineering with wide disregard for the market has consequences. It's nice to see that now being addressed. The "*too little, too slowly*" has turned into "*better late, than never*".

8-15-2014 **The Same.** What antagonists hate the most is having it pointed out that goals are the same. That's why when Prius isn't even mentioned, they bring it up... claiming that's what you were talking about all along. Today, it was: "*Are you talking about the PiP again?*" I found that vindicating. That daily blog still hasn't learned. Years ago on the big GM forum, they discovered their own members were trolling by doing exactly that. They'd drop bait, posting insults and incorrect information with the hope of a rebuttal. Some just liked to debate. Others used in as a means to distract. None were happy to hear that the statements made applied to them too. They didn't want to face the reality that each for-profit business faced the same challenges. I simply pointed out that reality with playful banter: That's an example of not even trying to be constructive, just a joking effort to divert attention away from Volt's business struggle. But since you provided an invitation to post about PiP, noting that I didn't make any mention, it will be replied about & compared. Toyota designed a platform able to support battery augmentation. It allows them to leverage something already profitable, by just switching to a larger pack and offering it as an upgrade option. That's genuine progress, pushing forward a high-volume choice even further into middle-market. GM bet the farm on an approach which didn't work out. Simply reducing cost is not enough to reach mainstream buyers. They have even stated that, quite clearly. Despite that, certain individuals choose to disregard goals and just flaunt EV range and EV speed instead. Talking about not even trying to be constructive. Keep denying, making excuses, and diverting attention all you want. That won't help GM advance though. Their own traditional production will continue to grossly overwhelm their hybrid offerings. That's the true competition and it's far more difficult effort than imagined to overcome the barrier it presents. No matter how appealing Volt becomes, there will be countless consumers who will simply keep purchasing Malibu & Cruze anyway. That's why a profitable choice which doesn't compromise the priorities those buyers have must also be offered. In other words, don't mock Toyota for already doing what GM will end up having to do too.

8-16-2014 **Know Your Audience.** Buried in a stream of Prius insults coming from a Volt enthusiast who enjoys belittling, something somewhat constructive emerged: *"If that's the goal, OK."* That was unexpected, especially considering how the rhetoric is ramping up again. Though, there is no expectation of that having much of an impact this time. With each automaker taking a different approaches and GM itself changing their tune, the same nonsense as before won't be possible anymore. A bit uncertain how the information will be accepted, I responded with this: Middle-Market buyers couldn't care less about those descriptions or labels. They just want something that's affordable, reliable, and comparable to what they currently drive. Things like EV purity are not a priority, which is the very reason they are part of the mainstream rather than being an enthusiast. It's no different than other appeal factors we've seen as a draw for low-volume vehicles. With a plug-in hybrid like Prius, they'll see the instant MPG gauge at +100 while traveling at 65 mph on the highway and be pleased. Arguments of whether or not the engine is running then would fall on deaf ears. It's pointless. They'll see the efficiency gained from the electricity and understand the benefit for plugging in. That's the goal. Achieving high-volume sales to the level where reducing traditional vehicle replacement becoming noticeable requires far more than trying to selling the benefit of being cleaner and not dependent on oil. The high-efficiency vehicles must be directly competitive on the aspects ordinary consumers find important. Things like comfort & convenience cannot be sacrificed. They simply won't be interested. The lesson of "who" has been taught many times since the introduction of hybrids. It's vital to understand what the audience will actually purchase, not what they find impressive.

8-18-2014 **Change, acceptance.** The situation is getting ugly. More and more evidence is emerging that Toyota's approach was correct all along. GM's scramble to remake Volt in a fashion suitable for the masses is an admission of error. A few can't stand the idea of falling victim to the very thing they claimed Prius had suffered. They don't want to admit having misunderstood mainstream buyers. That question of "who" has burnt them severely. The importance of knowing your audience has become painfully obvious. So, starting the morning with this was a sign of trouble about to erupt: *"Here on a slow news day, we've already seen a re-report that the Bolt name seems likely for a down-market Volt. How this was arrived at was not explained, but the story went on to unequivocally state the new Bolt "will" cost around \$30,000, have a smaller battery, and less content than the Volt. This, "will" reportedly combat customer complaints that Volt is too expensive and let GM price the next-gen Volt higher."* That wasn't liked at all. It basically cancels out any advantage GM made have supposedly had, resetting customer expectations from 2010 to 2016. Meanwhile, they know next year will bring improvement to Prius. The news is a bitter pill to swallow... which means anyone pointing it out is in for some serious retaliation. Remember the lashing out we saw at the end of 2012? Basically, the fear that GM would "kill" Volt has been realized. They always knew it would actually live on in some way. Seeing the model they cherish no longer be the emphasis of sales was the true concern... and that's exactly what will happen. The original will remain a niche for enthusiasts and the new will get lots of attention from ordinary consumers. Acceptance of that is difficult. Finding a scapegoat is easy.

8-18-2014 **Change, reaction.** It's bringing out the worst in a few. The pattern is all too familiar. Personal attacks went from annoying to terribly offensive. I summed up my observation by posting: The big GM forum didn't react well to the introduce of C-Max Energi. They could handle Prius PHV references, but Ford's new offering was too close to Volt. The long-time posters quickly discovered arguments of how the efficiency was achieved didn't matter. So, they lashed out at those providing the information. Moderators had to step in, not wanting the integrity of the forum to fall apart due to the poor behavior of their own members. It worked out well. That restored civil exchanges. This time, here on this daily blog, the situation is more complicated. Volt will retain premiere status, but a second model will emerge... one that's intended to be an option for the masses... which vindicates those who had pushed for that all along too. The potential of "*Volt lite*" makes certain enthusiasts very uncomfortable. They don't like the idea of Volt with a smaller battery-pack and less content to make it appealing to ordinary consumers. The very goal GM is striving to achieve, they don't want. That model of Volt will become common. It's success will draw attention away from the one they are quite proud of. It comes down to whether or not they will join the team. The idea of embracing other offerings from other automakers at a level, all competing against everyday cars rather than being a niche leader, is difficult to accept. They've spent years avoiding that, hoping the technology would somehow experience a breakthru to allow it to be cost-competitive without having to tradeoff any aspect of performance. The reality of for-profit-business is crashing down. Evidence of that is quite apparent. Change is coming.

8-18-2014 **Change, proof.** Confirming the end has arrived certainly was easy today. We had the paranoid conspiracy guy and the guy with a personal vendetta. Posts were from them were flying. Both trying to make myself and another feel so unwelcome, we'd leave. Of course, my posts prior to that were down to almost nothing anyway. It was the recent news of the "*lite*" model which stirred this particular pot. Both needed to vent their frustrations and we were the scapegoats. My final reply to that nonsense was: A moderator's handbook would call this the "*nothing to lose*" stage, where it is obvious the venue has run its course and those clinging on to what's left get rather desperate to prevent change. In this case, Volt was promoted as vehicle for middle-market, but an expensive niche was delivered instead. The hope by enthusiasts was people would be drawn to the above-and-beyond qualities. That didn't work, despite the generous tax-credit and large price-reduction. Knowing that Two-Mode fell apart after a few years, the strategy with this was to delay until the next generation. But when news of the next generation came and it also included an alternative choice, things got ugly. We now see excuses, chest-pounding, and a stream of insults, nothing constructive. That's the proof of change. It's over.

8-19-2014 **Change, desperate.** There's always one who hears the word "*Prius*" regardless of what you say. He's angry from having lost and wants to keep fighting. When you make no mention whatsoever about Prius or Toyota, he'll claim you did anyway. It's quite bizarre. The responses are blatant trolling. Everyone can see the posts were exclusively about GM or only had reference to another automaker (almost always Ford), but you'll still get blamed for defending Prius & Toyota regardless. I guess the hope is content of the messages aren't actually read, that people will assume that's what you met. So, we have to deal with that spin. It's seemingly endless. Until something like this emerges: *"How much \$ does Toyota make on a standard base Prius? It took 17 years for Toyota to even turn a profit. The Volt is only 7 years from concept and 3.5 years on the market. Yet you love to deem it a failure already. Conquest sales, along with painting GM as a hi-tech innovator are successes by themselves."* The other guy, who had joined into the fray with me, ended up responding with humorous dismay. How could anyone be so desperate they'd just make up a lie so obviously false? Toyota's hybrid sales reached the million-per-year level a number of years ago. That would be impossible if profit wasn't being made. Heck, Prius has been the top-seller in Japan for quite a long time now. To make such a wild claim in an attempt to defend Volt is remarkable. Of course, the reality is that Toyota achieved profit from Prius by the end of the first generation (way back in 2002), a whole year prior to the rollout of the second generation. That's what should be happening with Volt by GM now. So, there's obviously pressure building for that to happen soon... especially since we know Volt is much older than 7 years. GM experimented with EV1 drivetrain variations, showing prototypes back in 1998, including a hybrid approach... which would have given them a 10-year head start on Volt, had they not abandoned it in favor of monster-sized guzzlers. Remember Hummer? Long story short, that is quite upsetting. So, people like myself are recipients of their frustration that this latest effort didn't amount to more than just conquest sales and a bunch of trophies.

8-20-2014 **Change, profitability.** Ultimately, it always boils down to that. A for-profit business must earn profit. It's that simple. What's complex is how profitability is calculated. Some people like to include development cost, especially when it comes to hybrids. They exclude them for traditional vehicles though. That's how you know they aren't be constructive. They also exclude advertising budget, which is almost non-existence for Prius but enormous for traditional vehicles. It's basic accounting & economic misleading by omission. That's quite frustrating, but not remarkable. We get remarkable from the desperate. To my surprise, it was the anti-Prius individual who couldn't let the profitability argument cease. He posted a rebuttal today, with some rather obvious points excluded. It was the usual spin. I responded with pro-Volt information. He won't like that, since the offering of another model will wreck enthusiast support. But since the goal is mainstream accept, who cares? (Notice how "who" comes into play again.) Anywho, this is how I responded: 2002 is when profitability was achieved, a year prior to second-generation rollout. It's well documented. As for the "after conception" spin, it's easy to see how that's being avoided with Volt. There were EV1 variations, including those with engines, shown way back in 1998. Also, let's not forget about Two-Mode and its plug-in prototypes. That confirms GM's efforts were on a similar timeline. Yet, those years aren't counted to make Prius appear older. Of course, we already knew the true situation from the PNGV program. All automakers were pursuing the same goals at the same time, starting in 1993. That Toyota profitability was achieved in-part by offering a variant of Prius, known as Echo. The hybrid system was replaced with a traditional transmission and the engine detuned. It was a clever way of reusing what was already available, taking advantage of high-volume to help reduce overall production cost. That is also why the third-generation was designed from the start to utilize a larger battery-pack. It could take advantage of lithium cost falling without requiring a generation upgrade. GM will be offering a variant with the second-generation, attempting to take advantage of high-volume for profitability in a similar fashion.

8-20-2014 **Change, question.** I chose to conclude by stating... Get use to the answer to this question becoming the focus of discussions: What do the KWH and GALLON values tell us? It's a clear effort to take the next step, a constructive effort to look forward. We know there's nothing in the past to prove that will make an difference anymore. Marketing claims about engineering approach won't either. We know driving patterns vary so much there's no consistency in results. Automakers are a for-profit business. EV purity is an ideal of enthusiasts, not a purchase priority of ordinary mainstream consumers. The desire for higher MPG through the use electricity is appealing, but there is no evidence that middle-market is willing to pay for the absolute of no engine use until all the electricity is first consumed. Promoting a high-efficiency vehicle by informing consumers about their KWH and GALLONS usage is the proper way to tell them the outcome of their drives. After all, the MPG value doesn't actually provide any information about GALLONS consumed. It's only a relative measure... which has contributed to many, many problems over the years. So what if the upcoming "lite" version of Volt has a smaller battery-pack and offers less EV in favor of blending. The point of GALLONS reduction through the use of more KWH is still achieved and far more will be sold due to it being better matched to the traits of high-volume vehicles. Offering increased interior room and an affordable price is a required tradeoff, a necessary balance to appeal to the masses.

8-21-2014 **Change, answer.** To my dismay, the response was blatant greenwashing. But when dealing with someone who's got nothing to lose, it wasn't a surprise. Agreement of any sort means the end to what he's been desperately trying to retain. Holding onto the last bits of "*vastly superior*" is something we've witnessed before. Two-Mode was the first colossal letdown, where expectations were built up so high it just plain wasn't realistic for any type of triumph. We saw the same mistargeted approach then as we do now. It appealed to so few, how could it result in high-volume sales? So naturally, posts in defense of it kept getting worse and worse. Eventually, the same thing played out with Volt, on the big GM forum. So, seeing a repeat of that very behavior on the daily blog was inevitable. It's still hard to believe someone would attempt to mislead like this though: "*Mainstream consumers don't even know how these cars work let alone start thinking about MPGe or Kwh.*" See what he did? I call that being dishonest. Others may say it's being disingenuous. Whatever the case, it certainly wasn't constructive. That change of "GALLONS" to "MPGe" was reprehensible. But it's not really worth the effort without someone who doesn't care. It's also redundant, since purpose of the Miles-Per-Gallon-Equivalent value is to take kWh into account. Stating it twice adds to the confusion consumers are already struggling with. In fact, that new measurement approach has been so misleading, those wanting to inform people about plug-in basics don't use it. They refer to fuel quantities instead. This Volt enthusiast intentionally made it appear as though I had used it too, hoping others reading his post would dismiss my information just as quickly as he did. Misquoting is a deliberate act used when someone is attempting discredit. Rather than debate fairly, it's a dire final effort to prevent change.

8-22-2014 **Groundwork.** Reading this from a Ford spokeswoman today made me wonder: "*Ford has done more technological development in the last 10 years than Toyota*". She went on to add that Toyota's latest Prius redesign failed to provide a significant increase miles-per-gallon. Sadly, I don't have the exact quote for that, though there was this which followed: "*Basically, give me the Fiesta they have now with the 1-liter engine, and I think they can get 60-plus mpg ratings, which Toyota needs to get with the next Prius. Ford has laid more groundwork for its next hybrid than Toyota.*" That's obviously far from the vague comments provided by GM, but what difference does it really make... since that large of a MPG increase wasn't even a goal. Toyota clearly stated their primary objective was cost-reduction. Who ever said 60 was needed in any regard? For that matter, who said it is later either? The market has been begging for competitive prices. A large increase with efficiency won't sway those who have a budget. Mainstream buyers shop with price as a high priority. Efficiency is nice, but it's far from being a compelling feature. The attitude of being good enough is all too clear. As for those "*more*" comments, since when does quantity of work make any difference? In fact, having less is the point. You want a well thought out platform to build upon. The buzzword for that is "*future proofing*" a design. It's how business is effective and risks are minimized. Stepping up to the challenge is worthy of praise, but already having prepared for it is often overlooked. It often results in criticism too, from those who don't consider the industry as a whole. Hopefully, Ford will end being in a position to compete directly. Everyone will benefit from having a variety of choices for middle-market.

8-24-2014 **Final Post?** That daily blog is nothing but a shell of what it had been. The scene of the last stand is there. But with no more battles to be fought, the war is over. Volt is not "*vastly superior*" to all other plug-in offerings. Supporters are not looking at it as a major player in the team instead. That irritates enthusiasts, who have all but entirely lost their audience... including me. They are without a goal. There is no purpose there anymore. It's just a venue to repost the same topics already available on the parent website. So, I gave this parting message a try: I'm well aware that it's not in good form to use "*you*" when addressing a volatile topic; however, that is not the case at this particular time of transition... which we have arrived upon just recently. Having friends who own Volt, Leaf, and Tesla plug-in vehicles, it is quite obvious to me that the few here who continue fighting against change are not at all representative of the majority. That's why taking the time to address them directly is worthwhile... even if it does stir the pot the wrong way. They will be helpful later with the effort to demonstrate viability to the mainstream. Talking to ordinary consumers about hybrids, it's disheartening to hear how quickly they still dismiss them. The same old arguments about payback and replacement are sighted as their reasoning. It's quite sad, but understandable. That's why the importance of having a good relationship with those who truly want to move the industry forward is being addressed now. The high-volume vehicles are what will end up swaying the masses. A vehicle like Prius PHV will contribute quite bit to the reputation of lithium batteries. Nothing elaborate is needed. It's just an option on a familiar platform. The push to get GM to do the same has been a challenge. All along, there's been resistance to the idea of less being more, from Volt enthusiasts... those who feel more is necessary, even at the sacrifice of cost & space. Fortunately, more and more Volt supporters are helping change that turn by endorsing a "*lite*" model. They see the true opponent is non-hybrid sales. Too bad for those few who still want to Volt to stand alone. The goal is to make the platform common, to replace the popular traditional vehicles. That means seeking out a balance, not trying to convince people to spend more for more than what they actually need. The second model will indeed dilute the spirit of the original, but that's called progress. It will still accomplish the ultimate purpose of reducing emissions & consumption. We are now seeing attention getting drawn to Ford, as they attempt to compete directly with Prius, while also advancing their current hybrids. We see Toyota diversifying, investing in fuel-cell technology while at the same time improving their hybrid platform with a next-gen rollouts, while also experimenting with a dedicated plug-in. There is no standing alone anymore. Change is happening and market offerings will become far from clear. Each will be somewhat different in operation. What they'll all share is reduced use of non-renewable fuels and reduced smog & carbon emissions. Their adoption will be hypocritical & abrupt too, just like we saw with handheld devices. Remember the PDA years? Most people were clueless about their potential. Then suddenly, we see them everywhere in the form of smart-phones. That's because they changed to become extremely practical by being made to closely match ordinary consumer interest and were offered in a wide array of choices.

8-25-2014 Heat Push - Video. Any hotter outside, you'd just turn on the A/C to stay cool. Since the battery-pack in the car also uses the cabin air to stay cool, it benefits when you're comfortable. So, this particular drive with the windows open instead was the ideal for demonstrating effectiveness of cooling without the A/C at a high. To add to the observational opportunity, I started the drive with the battery-pack already warm. Recharging had just finished shortly before and the car had been sitting outside in the sun since parking that morning. Pushing the limit, I kept the engine off, climbing out of the river valley on the highway. That meant speed of travel was a little over 55 mph with the engine not running, all the power coming from electricity supplied by the battery-pack. All that combined equates to lots of heat being generated. The system is well thought out and tolerances should stay within the normal tolerances of lithium battery chemistry. But this was a collection of circumstances most people would normally avoid. Turning on the A/C when the temperature exceeds 80°F is an ordinary thing to do. Allowing the engine to run briefly when merging onto the highway or climbing a long, steep hill is too. None of that is a big deal, but I didn't for the sake of collecting data about what actually happens with the battery-pack than, by allowing a heat push. The data itself was interesting. Rather than starting with the usual battery-pack temperature in the upper 80's, it was the upper 90's. Specifically, the drive began with an extra 9°F degrees to have to deal with. The 45 to 50 mph drive out of the city to the highway was uneventful. Heat only went up by 2°F degrees. It was the merge onto the 55 mph highway with an immediate climb out of the river valley which pushed the temperature into uncharted territory. I hadn't ever observed it beyond 102°F. Driving on the flat for the next 2.5 miles using just electricity only bumped it up another degree. That was nice, especially considering the speed. Then I hit the 70 mph portion of the drive. That stretch of highway meant the engine would join in. When that happens, the battery-pack continues to be drawn from. I was curious what that would do to the temperature. Turns out, that is what pushed it to the highest I had ever seen. Watch the engine RPM when has heated coolant (for emission cleansing) to the HV warm-up temperature of 145°F, at 9.4 miles into the trip. Though brief, you can actually see the battery-pack had already reached a peak of 105.8°F and was starting to fall, even though electricity draw was continuing (as indicated by the SOC value). I don't ever plan on driving that particular scenario again. Taking advantage of the engine to climb out of the river valley is a better use of the available fuels. That way, more electricity would have been saved for while driving on the faster section of the highway, so the engine uses less gas then. The point of capturing data was well served. That peak temperature was nothing to be concerned about. But even so, it's best to keep the battery-pack cool, by doing things like turning on the A/C while driving and parking in the shade. Not recharging during the afternoon when the car is already warm is an obvious thing that's easy to avoid too. That's how the battery-pack will last the entire lifetime of the vehicle... [Prius PHV - Commute Home \(Heat Push\)](#)

8-26-2014 **Clear Progress.** The newest video and feedback to is has been quite encouraging. I added more to that sentiment, pushing even more for closure acknowledgement from others. Change is exciting... to those who embrace it. For the few who aren't ready, they either turn hostile or simply disappear. That's quite an extreme, but a pattern we're very familiar with. Other chapters of the past ended in the same fashion. In fact, that's how you know it's over. The start of the next is then filled with new voices. That progress is very encouraging. We don't want to forget how that was achieved though. You want to build off of that success, to take what was learned the next step forward. This was my contribution to that today: It's nice to have that level of detail available now. There was quite an effort in the past to undermine Prius PHV, claiming it was necessary to have a liquid cooling system for the battery-pack. Yet, those making those statements never actually provided any data. The hope was that you'd assume they had supporting evidence. In reality, they were just passing along vague & outdated bits of information. I found that rather frustrating. They were clearly trying to convey a message of superiority based on people's lack of background. It sounds likely, so it must be. But what tipped me off early on was that those same individuals would also claim Prius PHV could not climb hills using only EV. This video not only shares detail about battery-pack temperature, it also shows they were intentionally trying to mislead. After all, how many times must owners point out what they say isn't true before you have to resort to actually showing it? Thankfully, owners of other plug-in vehicles have joined in to help. That's a very positive sign that the market is changing. We're past that initial rollout where there was something to prove. Now, it's a matter getting the attention of ordinary consumers, sharing our stories of day to day experiences.

8-27-2014 **Vastly Superior.** In their spirit of closure, I gave the most irritating of Volt trolls on the big Prius forum one last bit of attention. He dropped this bait with the hope someone would bite: "*The normal Prius had a patch added by the factory.*" I obviously hit him where it hurt, because there was no response. It is now 4 days since I replied too. People like him can sometimes be helpful, as with this particular argument. Posts get refined after repeated attacks. We learn how to rebut the undermining with simple & concise messages. They eventually give up. Of course, that sometimes results in a new argument being started. But at that point, reputation for not wanting to be constructive is easier to see, like the dismissal of facts. Our bite on the bait is rather fierce. Why hold back when you know ordinary exchanges of information are not enough. Rather than accept vague, we overwhelm with detail and point out elements difficult to dispute. It typically works nowadays too. That certainly wasn't the case years ago... which is even more evidence of that chapter having come to a close. We've moved on. Will he? The lack of anything following this post is a positive sign: The regular Prius comes with a 60 kW electric motor, yet it has a small battery-pack which only delivers a fraction of that. How do you explain such obvious under-utilization? Toyota built a system that could be upgraded when cost of the battery dropped to a competitive level. The strategy of planning ahead to minimize financial risk and to fully test the system ahead of time is called good business. Calling that a "*patch*" is inappropriate. We can clearly see how the extra power from the larger battery improves the regular Prius without having to do anything other than pack upgrade itself. It's a package option, in a market where using electricity is still a niche and is still dependent on tax-credit incentives.

8-28-2014

Victory. Our compulsion as a society to hold out for victory rather than accept any type of compromise is a major fault. We've seen the terrible consequences of that mindset from the wars we've been involved with. Heck, we even see it with the game was play. Notice how professional sports here don't end in a tie, how overtime is required to determine a victor? The idea of congratulating both teams for a game well played isn't acceptable. One must win and the other lose. That's what we've been taught. So, achieving closure with the current generation of plug-in vehicles is quite a challenge. It's why certain individuals would rather fight to a bitter end than to welcome the opponent as a worthy adversary. Oh well. I summed point-in-time we are at now this way: The nonsense of the past is over. Most of that is due to having such thorough data available now. With so many owners sharing their real-world experiences, the hype is just a bad memory. There were groups who would generate quite a bit of hope based on vague statements. When those of us trying to keep discussions constructive asked for support evidence, we got labeled as trolls and down-voted. They were actually the troublemakers. We even had to deal with well-proven facts getting dismissed... until it was discovered how effective videos could be. Words alone weren't enough. That's become very clear on the various forums & blogs. It is now quite easy to squash a false claim by simply posting a link to a video. Evidence of the change in focus became easy to see the start of this year. The shift of attention over to sales is the hot topic of discussion now. It's not exactly constructive in all venues though, as this quote from yesterday tells us: *"If even the PiP is now outselling the Volt with its pathetic range and performance, I think that leaves zero doubt that there'd be a market for a cheaper 25 mile Volt option in 2016."* That's still a bit on the insulting side, but at least it's progress. The posts which followed that topic-opening statement were a mix of helpful and misguided. That particular audience still doesn't want to acknowledge the reality that Prius PHV sales remain limited to just 15 states, that some Volt sales are the result of expiring leases being replaced by new leases, and that tax-credits will expire during the life-cycle of next-gen offering. Nonetheless, the true measure of progress is finally being recognized as important. We've moved from engineering bragging-rights to what discussion that includes being practical & affordable. They say third time is the charm, but to have to endure both Two-Mode and Voltec failing to draw sales prior to that was a massive waste of resources. All the time & money that was lost due to focus on want rather than need... Anywho, being able to sum all that up and declare closure on those chapters in history is great. The more-AER and anti-blending chants have lost their audience. The market has moved on. Remember how it was based upon the *"range anxiety"* campaign, which proved to be a non-issue. Sales of Leaf became undeniable evidence that having an engine available was not essential. Offerings will be a wide array of configurations, even the increasing talk of a *"lite"* version for Volt support that. We welcome the change, especially due to it having been so painful to reach this point.

- 8-31-2014** **Looking Back.** I wrapped it up with this: It's over. There is nothing left to debate/argue/flaunt about the first-generation Volt anymore. Attention has almost entirely shifted over to the second... and we're all wondering if the hype will begin again, or if it will finally become a realistic high-efficiency player. The last constructive comment I got from an enthusiast was the current served its purpose well as a "*halo*" vehicle. The catch is, we all know that is not what it was intended to be. The goal of being a mainstream seller by the third year fell apart quickly after rollout. Of course, those who refused to state goals prior to that were aware of the problems early on. That's why the "*too little, too late*" concern was so irritating. They knew what was delivered had veered far from both what was wanted and what was expected. What mess. To make matters worse, Prius ended up making so much more of a difference, accepting failure to make moving on to the next attempt was very difficult. Thankfully, we have now arrived at that point. Hearing that worldwide sales of Toyota hybrids came to 665,740 for the first half of the year, there's no way to deny how much "*gas saved*" happened as a result. The next step must be taken, but it will be in a very different market... one without tax-credits. The high-efficiency choice must be able to compete directly with that automaker's other offerings. It won't matter what choices come from elsewhere. It will come down to what's on that dealer's lot. That's why it has been so important for Toyota to focus on deeper penetration within the existing markets. Figuring out how to sell to consumers in an area already saturated is far more difficult than appealing to enthusiasts. That's why discussion of a "*lite*" model of Volt is no longer outright dismissed. Delay time is being used up. Being able to deliver high-volume and low-cost is becoming absolutely necessary. Toyota is already selling 1 million Prius annually. Improvements from the next-generation combined with increasing pressure on reducing emissions & consumption will make it a nice choice for ordinary consumers. Looking back, we see how Toyota stayed true to need and how GM decided to favor want instead. Looking forward, we certainly hope need is taken seriously.
- 9-03-2014** **August Sales.** Nothing new to report. Sales of high-efficiency vehicles are flat. Sales of traditional vehicles are strong and growing. Cheap gas and little to no concern for the air we breathe and dependency on oil makes for a very difficult situation. That's why it is so important for the high-efficiency choices to actually be competitive. Those who choose to measure success based upon sales of other plug-in vehicles, rather than looking at the market as a whole, are worse than cherry-pickers. That refusal to acknowledge the true situation has consequences. In other words, sales to improve quite a bit. Status quo is really presenting challenges. Sad.

9-05-2014 **EV-Boost - Video.** Unlike the *"heat push"* video, when I did everything I could to stress limits through ordinary circumstances, this was a demonstration of what an owner is more likely to actually do. Avoiding direct sun is the most obvious means of protecting the battery-pack for longevity. Since rain was in forecast for later that day, the cloudy conditions would ensure the interior of the vehicle didn't get too warm. Another technique is giving the battery-pack time to rest both before & after recharging, which I did. That gives it a chance to cool in the meantime. The humidity level had climbed nearly 100% by the time I was ready to leave work. That moist air was uncomfortable. A/C use was the sensible choice for interior cooling, for both myself and the battery-pack. My plan was to drive that same route under similar EV conditions as the *"heat push"*, but at a cooler temperature for summer had worked out. (Sometimes, you get lucky!) A few drops of rain had just begun to fall. The edge of the approaching storm made for a rather scenic situation to film, while also serving as a comparison video. The drive itself was indeed quite ordinary. Having started out with both a lower air-intake temperature and all 3 battery-banks on the cool side, the data expectation was it would be quite a contrast. Sure enough, that drive home was what I had hoped... other than I forgot to reset the display statistics before drive. So, you get to see my overall results for the work commute, morning & afternoon drives combined. Looking at the temperatures, the effectiveness of the air-cooling system is clear. It works well. Also, to my delight, that same route driving with the windows half open was barely any more efficient overall than just running the A/C instead. I now have data showing the penalty for being comfortable is negligible. It's nice to see results so revealing. Using the electricity for cooling and the engine for assisting delivers a clean & efficient drive. Gotta like that... [Prius PHV - Commute Home \(EV-Boost\)](#)

9-06-2014 **Good Questions.** This was asked today: *"Why isn't Toyota building more PiPs? Do they lose money on every car sold? Are they worried about reliability and don't want too many out there?"* The answer boils down to audience, no different than what we've been seeing for years. That aspect of business is absolutely vital. Simply building & offering a nice product isn't enough. That's the lesson GM has learned the hard way. You have to understand what they buy. I responded with: This topic has been discussed in great detail many times. The aspect which continues to float up to the top is: Staying within the initial rollout states has the advantage of learning how to penetrate a market which has already satisfied early adopters. In other words, Toyota wants to figure out how to appeal to ordinary consumers. It's absolutely vital. The reality of tax-credits expiring and HOV stickers running out is a very big deal. Toyota would like to be well positioned for when that happens, which means figuring out how to achieve mainstream sales. Knowing that in advance of rolling out the next-gen design will have a big payoff. Simply building more won't reveal that desired information.

- 9-08-2014** **Red-Herring.** It's easy to see how the fuel-cell offerings will be used to confuse & mislead. It's getting annoying already. In reality, it's really a distraction. What happens with fuel-cells doesn't have any bearing on what happens with hybrids. They will co-exist. But you know how certain people want to paint a different picture. For example: *"The three biggest reasons for car buyers not purchasing plugin cars are: high upfront costs, fear of new technology, and lack of public charging stations. Honda and Toyota's answer to low plugin sales is fuel cell vehicles. Good luck with that!"* Knowing how to respond is a challenge, since the comments will basically fall on deaf ears. They want you to waste time on the distance, hence being a red herring. It's much better to stay on topic, rather than follow. But sometimes, you can't resist: The effort to offer fuel-cell vehicles is in no way related to plug-in cars. They are mutually exclusive. They are a diversification of business product. They are not a replacement. Toyota has been working to reduce upfront cost at the same time. The question has not changed and neither has the answer. That's why Toyota hasn't been pushing the plug-in beyond just raising awareness and building up real-world experience. The choice to share a platform with the non-plug model is an obvious path to reduced cost from high-volume production. They are preparing to compete in a world **WITHOUT** any tax-credit incentives.
- 9-10-2014** **Reluctance.** This was a reasonable assessment: *"I'm starting to suspect, as some posters here have mentioned, that the reason Toyota is reluctant to release the PiP nationwide is because they don't believe there's enough demand in the states that don't normally sell them."* It's based on anecdotal evidence though. Observation of activity, rather than knowing background & purpose, can lead a person to draw an incorrect decision. So, you have to be careful when responding. Being made aware of missing information is part of the learning process. You don't want to alienate someone due to a simple misunderstanding. Here's my attempt at being constructive: That's not reluctance. It's smart business. There has been overwhelmingly confirmation that the mainstream market is not interested in any vehicle offering a plug. Even with great incentives, the plug is confined to just a niche audience. It simply doesn't make sense rolling out a product to the masses when the masses aren't ready for it. Look at how Volt's approach made no difference. Designed with the assumption that *"range anxiety"* would be a major purchase deterrent, the hope was it would crush the plug-only competition. Clearly, that didn't happen. It didn't come anywhere near close to anticipated sales volume either. The goal of being able to offer PHV as a competitively-priced Prius package option is especially challenging in a market that doesn't even embrace hybrids. Prius sales are flat and the other automakers face even more of a struggle. What would there be to gain by expanding rollout right away? It was smart of Toyota not betting the farm on a single choice. GM really backed themselves into a corner with Volt. No one knows what their next move will be or even what it should be. At least with Nissan, we see the commitment and a solid plan forward. The path for Ford is clear too. But none are in a position to compete now. Traditional vehicles pose far too great of a barrier to overcome still.

9-10-2014 **Change of Season.** The temperature here has plummeted. It's 30°F cooler now. Conditions have switched from being comfortable with the A/C to desiring use of the heater. That certainly will change the data for me to collect. Last night was the first taste of it. I set the timer, but forgot to actually plug in the Prius. That's what happens when you're in a rush. Anywho, the drive out from one end of the cities to the other... without any EV charge available... resulted in an average of 59 MPG. That's certainly nothing to complain about and it got me thinking about battery temperature. On the return trip this morning, I got 59 MPG again. But this time, I started with both an engine & battery that didn't have any hint of warmth. In fact, I had to fire up the heater. It was just 52°F outside and I was still dressed for Summer. The Fall conditions immediately revealed interesting data. The battery banks reached highs of only 79.12°F, 80.26°F, and 78.92°F. That's well below even the starting temps I had seen just last week with when pushing EV with it hot outside and no A/C cooling. HV driving clearly isn't anything to ever be concerned about. I'm looking forward to observations with plug-supplied electricity now that the warm season is just a memory. Winter will make things especially interesting. I sure am glad for having figured out how to share all that heat data before the cool arrived. It should be quite a contrast when you're required to wear a jacket & gloves.

9-11-2014 **The Turn-Around.** We've reached that point. Hold on. It's going to get ugly. You can tell something is amiss when "*this is what I meant t say*" is used in replies to a rebuttal. In other words, those who have discovered they've lost the battle are attempting to stay in the war by now finding a way to agree. That's been happening a lot recently, coming from those who have firmly stood their ground for years. An abrupt change of stance like that doesn't make sense. But with the real-world data so plentiful, clearly confirming they were wrong, what other path is there... other than to save face by backing down for now. It's quite hypocritical, though welcome nonetheless. Not fighting anymore is nice. In the end, it doesn't matter anyway. There's an entirely new audience waiting. I went through the drive-thru the other day and absolutely fascinated the employee who looked in and commented on the dashboard. He had no idea I was driving anything special until pointing out the current 81 MPG average. That certainly got his attention. So, the nonsense with Gen-2 of Volt will begin shortly. Wait for it, a bang after a delightful silence. This isn't a prediction. It's just observation and good memory. We've seen the pattern before. It will happen again. Lessons of the past will be completely unknown. They'll consider that a fresh start with no possible connection to errors of the past. It's a turn-around, but not necessarily in the right direction. Sorry to be so pessimistic, but stuff happens.

- 9-19-2014** **5 Years Ago.** The calm lasted just a little over a week. Ugh. The daily blog for Volt was basically dead, barely any mention of this generation anymore. It was just casual mentions of plug-in related topics, nothing even remotely like anything in the past. Then, bang! Something poked the sleeping bear. That same old hype from 5 years ago showed up again. Excitement about the next generation being superior to the competition emerged from the rubble. Nothing of any substance to support claims is available. Yet, the chest-pounding started. GM will crush the competition... even though who they're competing with is a mystery. It will be better and that's all that matters. There's no point in asking for goals this time. With the previous rollout, the avoidance to acknowledge and obvious back-pedaling made it quite clear that particular group was just a bunch of enthusiasts who wanted to celebrate some type of victory, even if it was hollow. Giving them something to fight about again is just a waste of time. The pattern is well established. I will post a few facts though, since now there is lots of real-world data to confirm the information. Hype grew due to blind hope. Stuff like driving videos show the true nature of the situation. That's a level of detail well beyond what we had available 5 years ago.
- 9-20-2014** **Questions.** It's refreshing to get ordinary questions, new owners taking notice of more as they drive, then asking for more information. The craziness from the supposed competition is annoying. Ordinary consumers aren't interested in bragging rights. They just want a nice experience from the vehicle they chose to purchase. Anywho, I enjoyed responding to this today: *"Is EV mode only available when the battery has been charged via the charging cable, even though the battery is fully charged via regeneration?"* The discussion already had quite a bit of activity by the time I jumped on board. That too was encouraging. I posted: It's available at other times, but that kind of side-steps the purpose of being a plug-in hybrid. For starters, the behavior of "EV mode" is different for the plug-in than it is for the regular model. The plug offers both more power and more speed. It also allows you to engage it without the emission system already have been pre-warmed, but will consume gas for the sake of cleansing emissions once you have exceeded the power/speed threshold. Put simply, the system is designed to take advantage of plug-supplied electricity. You'll see that by watching the MPG display. At times, it will be sustained at the max, even though the engine is running. That's achieved by taking advantage of the battery-pack to allow the engine to run at a very low RPM, which in turn is very efficient. Those miles of travel won't be counted as "EV" though, since the engine wasn't stopped. They'll be counted as "HV" miles instead. Over time, you'll observe when it's best to allow the system to do that. The "HV/EV" button lets you disengage that electricity boost. For long drives on the highway, you'll find saving the battery-pack for later better overall. You'll also discover there are circumstances that will allow you to top-off the battery through brake-regenerating, like when exiting off the highway. It's quite a dynamic system, very smart with how it utilizes the electricity available by taking advantage of the engine at times.

9-21-2014 **Meaningless.** This was the first of the superiority posts I chose to respond to: *"That EPA value is as meaningless as saying that your Volt uses 5 gallons to travel 200 miles, when every ICE users understand miles per gallon and few travel 200 miles in one day or trip. We have to educate correctly. A meaningless value confuses even more, and more questions will be asked. Keep it simple, straight, and related to something that has a cost."* I found it very amusing that his attempt to greenwash was so blatant. There's been a huge effort to educate which focuses heavily on how misleading the MPG value is. In fact, that was the very reason those new EPA values were created. Yet, he attempted to claim the opposite. It makes you wonder what other concepts he has a fundamental misunderstanding of. That would explain the constant arguing. Anywho, I responded with: Actually, most of the rest of the world uses QUANTITY/DISTANCE to measure efficiency, which has been overwhelming proven a more effective means of conveying that information. Our misleading system of MPG is being phased-out in favor of using QUANTITY/DISTANCE instead. For far too long, advertisers have exploited those MPG misunderstandings. People assume that the measure is linear, when in reality it's a diminishing return. That's why the difference between the higher numbers is less and less. See how the gallon reduction is less as the MPG increases... 300 gallons from 50 mpg. 200 from 75. 150 from 100. 120 from 125. 100 from 150. 86 from 175. 75 from 200.

9-21-2014 **Most Important.** Like the other post, I suspect the reply to this will fall on deaf ears too: *"And for plug-ins the most important number is the electric range, so that should be the largest text."* The only reason I even bothered to respond was these numbers didn't exist 5 years ago. There was no standardized measurement approach available back then. Now that there is a basis of comparison, it's not good to allow misleading to take place. It's like watching a bully. If you don't speak up, you're an enabler. In this case, these particular Volt enthusiasts are still trying to push the purist view. Any blending whatsoever is considered a violation of what they hold most dear. It's actually quite amusing, a source of entertainment at this point. When GM finally offers a lite version, they sure are in for a reality shock. No matter how much you point out the goal of reducing gas consumption doesn't require elimination, they cannot come to terms with electricity utilization actually being wasteful. How that electricity is consumed is more important than making sacrifices to prevent the engine from running, even if brief. Whatever. As time progresses, that real-world data will also become difficult to avoid. I simply put it this way: You mean KWH capacity, since RANGE is not a constant. Think about the impact temperature has. The amount of KWH the battery can deliver is always the same, but the RANGE you actually get from that varies significantly. Then there's the benefit of taking advantage of the engine at times. You're still consuming that same KWH, but it won't be counted in the RANGE due to the engine joining to contribute power. It's still the same plug-supplied electricity being consumed, which fulfills the purpose of plugging in.

9-21-2014 **Seemingly.** I liked the way that word was interjected in this quote: "*My sense is that many Prius enthusiasts are "dis-comforted" by Toyota's (seemingly) lowered expectations for a new Prius.*" It was from a 2010 owner who had looked forward to upgrading, rather than having to sell the Prius at a later age. Long product-cycles are tough under normal circumstances. But with the economy recovering at a far slower rate than anticipated and gas prices considerably lower than forecast, it's not much of a surprise the hybrid market is holding steady instead of anticipating change. So, again, I had to point out what should be obvious at this point: Know your audience. Toyota has stated they want to stir interest from those who have never considered a hybrid. That's far more of a challenge than appealing to enthusiasts. Toyota is aiming Prius directly at the mainstream, attempting to hit middle-market hard with the next generation. Offering a base model that uses a NiMH battery-pack will be a let down for an enthusiast, but a serious draw for ordinary consumers... who's looking for a well-proven efficiency technology that's dirt cheap. These are the same consumers who have no idea how an automatic transmission works and simply doesn't care. They just want something reliable & affordable that actually delivers. Toyota's expectations are high-volume sales, not breaking new ground for enthusiasts to thrive. Seeing a Gen-4 Prius easily exceed 50 MPG with a price that competes directly with other popular family cars makes it a big winner, for both business and the masses. That approach reinforces the path for an affordable plug-in model too. Again, that may not appeal to enthusiasts, but it is a choice which mainstream buyers will actually consider.

9-21-2014 **Events Today.** I missed both. There was a big one for Prius out on the East Coast. That just plain wasn't realistic this year. So, I looked forward to the local one for plug-in vehicle at the state capital. Being sick prevented participation with that too. In fact, the 3-day weekend I had planned was a total loss. It's sad. There were 243 owner registered to attend. That would have been fantastic to be part of. Oh well. It's an annual event, perhaps next year. But then again, the hope is for plug-in vehicles to become so common that won't be necessary. You'll just see the variety available on a regular basis over the course of daily drives. That's certainly not the case yet, but the spirit of cooperation is changing things. The ugliness from Volt won't have much of an appeal to ordinary consumers, who will just seek out the more affordable model anyway. They're a different audience... not unlike that of the other plug-in hybrids. For that matter, the electric-only vehicles will attract new newbies too. Put simply, the upcoming new generations will be a reset rather than an upgrade. Though, that does send a little feeling of regret for missing today's events my way. The market, the outlook, the expectations, (and obviously) the choices, will all be different. What's happening right now is a unique stage in history. Remember the absurd times when we had people comparing Hummer to Prius? Some nonsense is hard to believe. It's actually hard to believe close to 4 years have already passed since the calamity GM unleashed too. It turned out to be a disastrous outcome of the "*if we build it, they'll buy it*" approach. The events today set far more realistic expectations, addressing problems & limitations directly... rather than just hoping for the best. I get to meet with the group at the end of the week, for the Fall meeting. Hearing stories afterward are quite informative. That works for me. I'm quite curious to get more real-world battery information, especially with all the thermal research and video-documentary I've done lately. There's much to share and those real-world observations are priceless with so many detail-oriented owners trying to help progress along.

- 9-22-2014** **Brisk Acceleration.** It's interesting to read about observations made by new Prius owners. Experimenting with acceleration speeds can sometimes lead to really mixed up understandings of how the hybrid system works. It often comes from assuming slow acceleration is better. They grew up only knowing how an engine works. You press the throttle harder, more gas is consumed. That's not the case for Prius. It has not one, but two, electric motors. Having just one would make the "figure out" process based on anecdotal evidence fairly accurate. You draw from the battery to supplement the power demand. Prius isn't like that though. The power-split-device combines both a motor for traction and a motor for generating to the engine. That means all of the energy isn't used for propulsion. Some is used for the creation of electricity... which isn't always used for providing thrust to the wheels. Some is sent to the battery-pack. That means you must look at the consumption of energy over the span of time, not just a single acceleration event... hence common confusion. That's why we recommend: JUST DRIVE IT. You're better off letting the system figure out how to achieve the best efficiency instead. But if you really want to give it a nudge, you can. An owner today did figure it out on his own. Reading his observations was a nice confirmation that the system can be understood simply by watching it carefully, even without aftermarket instruments. I chimed into that pleasant thread with: That is indeed an efficient approach, excellent observation. The recommendation for BRISK acceleration came from the days of the classic model and had held true ever since. It takes advantage of the hybrid system, utilizing both engine & motor for an overall gain. Accelerating slowly actually defeats the intent of the design. That Eco-Meter is there to remind you to keep power-demand brief, not to avoid it entirely.
- 9-23-2014** **Just Plain Wrong.** Sometimes, you simply don't know what to make of what newbies post. I jumped into a thread that had taken a turn for the worst: There are indeed people who are able to maintain higher MPG. I just post extensive collections of real-world data and move on to other things... like correcting: "*Toyota system does not assist with highway driving*". That is just plain wrong. 100% of the time the gas engine is providing thrust to the wheels, it is also providing power to the generator. Sometimes the resulting electricity is used to recharge the battery-pack. Sometimes the resulting electricity is used to directly supply power to the electric traction motor. Sometimes both. Having a power-split-device adds flexibility a regular transmission can't even remotely compete with. That energy-flow changes frequently too, between 10 to 20 times per minute is common. The outcome is efficiency optimization a gas engine alone could not achieve.
- 9-24-2014** **No Highway Benefit.** Yesterday's post went no where. Some people apparently think they know, even without data to actually confirm their belief. It really surprises me how there are some still who don't understand how the system in Prius actually operates. The assumption of no assist and no recharge on the highway is not correct. There is quite a bit of electricity generated from normal engine spinning and from the reality that most highways aren't actually flat. With even the most subtle change of pitch downward, you can see the MPG spike. The system rapidly cuts fuel and routes excess power from the change to the generator. The power-split-device also shunts that power to the generator when the reverse happens. The result is energy which would have otherwise been lost... hence a net gain.

9-25-2014 **Being Competitive.** That more-is-better mentality is very difficult to overcome. It's far too easy to dismiss based upon a single attribute. Remember how computers we're rated solely upon CPU speed long ago? This is the message of being competitive spreading now: *"Whatever Toyota has planned, they need to increase the EV range just to stay on top cause the other manufacturers are catching up & passing Toyota."* Simply offering larger capacity batteries isn't a solution. Look at the mess we ended up in from cars & trucks growing larger. That wasn't actually an improvement. In fact, it made dealing with emissions & efficiency even more difficult. We don't need a step in the wrong direction like that again. Substituting one fuel for another isn't really a fix. Expecting that to be competitive is a setup for disappointment. This is how I put it: Seeing that greenwash message spread is disappointing. Do you just happen to know when or how that belief was passed along to you? More is not necessarily better and we certainly don't want to fall into the same trap as we did with speed & horsepower. This market is quite gullible, easy to convince that bigger is a sign of leadership. Misplaced priorities was a big contributor to automotive industry problems in the past. Let's not repeat those mistakes. Those plug-in hybrids with larger battery-packs already are faced with the reality of not having anything competitive to sell and heavy dependence on tax-credits. Traditional vehicles pose far too large of a challenge to overcome. An expensive plug-in hybrid compromising storage/seating space and delivering low efficiency following depletion isn't a solution. Toyota is working extremely hard to deliver a lot from a little. Convincing those who would otherwise purchase a Camry or Corolla is the goal, not trying to upstage other automakers.

9-25-2014 **Labels.** The topic of "EREV" got stirred up again. There are some dead set in their belief of what a vehicle of that type is. When you push for details, their definition falls apart. When you point out contradictions, they just brush them off. It's quite frustrating how they absolutely refuse to be construction. The reason why is obvious. Of course, when I pointed it out today, the reaction was explosive. No surprise. Labels have always been a really big deal, even if they don't actually amount to anything. Oh well. Here's what I posted... on that now quite hostile daily blog for Volt: Arguing semantics is a very old greenwashing tactic. The purpose is to divert attention away from the topic. Rather than address actual results of whatever technology, discussions end up chasing label red-herrings instead. Notice how specifics are avoided, how vague descriptions actually are? There is no official definition, nor should it make any difference anyway. It's the outcome that counts, not what marketing name is used. Thankfully, the emission ratings don't succumb to that nonsense. Rating categories are the same. How that level of clean is achieved doesn't matter. The point is the goal was accomplished. Hopefully, the same will happen with plug-in hybrids. It shouldn't matter how the gas & electricity is actually utilized. The goal is to significantly reduce emissions & consumption.

- 9-28-2014** **Brisk.** It's nice getting comments like this: "*In the Prius, accelerating quickly, especially above certain power levels, is slightly less efficient...*" But you never really know where replies will go. Some of the time, context simply doesn't match. Thinking big picture is often a problem, so you end up arguing with the person. People tend to focus on the moment, rather than considering final results. Hoping for the best, I replied with: That does NOT take OVERALL efficiency into account though. Prius is a hybrid with a power-split-device, adding into the system a generator and battery-pack along with the traction motor. So, that engine-alone efficiency assessment does not apply. When the engine goes beyond the most efficient state of operation, there isn't as much of a loss. It seeks a higher RPM to reduce that, which as a result creates power not needed for propulsion. The unneeded power is converted to electricity for use later, something a traditional vehicle cannot take advantage of. In other words, the penalty can actually be a wash or even a modest gain under the right circumstances.
- 9-29-2014** **In-Vehicle Internet.** When there isn't much else to attract customers, trying new things is reasonable. This one is a strange and doesn't seem to offer anything worthwhile. It's the option of having the car provide 4G LTE service. On the Volt blog, I asked: "*What's the benefit of having a separate plan tied to your vehicle?*" Now, 2 hours later, still nothing. That abruptly brought the thread to a halt, no posts since. Why would you pay extra for something you wouldn't be able to use much, especially when alternatives are already readily available? I followed with this: I already have a shared data-plan for the family. Each phone works as a mobile hotspot without any extra fee. You just flip a switch and have a secure internet connection available for your other devices to use anywhere you go. I can't imagine having to stay within range of the car. With the phone, you can be quite mobile, especially when carrying along a USB battery.
- 9-29-2014** **Fact or Rumor?** Reading this today was annoying: "*GM previously announced the second generation Volt will be able to travel on electric power between 50 to 60 miles (80 to 96 km) or even more whereas the current model can cover up to 38 miles (61 km).*" There was nothing ever but a vague mention about this option being explored. That's it. There was no promise of any sort. But then again, the same thing happened many times in the past with Volt. People built up hype based upon hope, nothing of substance. Even so, properly identifying what was actually promised verses what was thought to be a promise was quite a challenge... hence all the entries here documenting events & announcements while they played out, rather than trying to remember detail long afterward. It should be interesting to see how things play out as the Auto Show circuit proceeds. It's just starting now.

- 9-30-2014** **No News, situation.** We're in that dead-zone now, where there's nothing for the spotlight to shine on. That's putting the "*upstage*" group at a loss. So, they pretend none of the previous rhetoric or hype ever happened. Obviously, it's the next-generation Volt enthusiasts attempting to draw attention. We'll be back to the "*vastly superior*" nonsense in no time. Flaunting EV range & purity is far more rewarding than having to address goals and acknowledge business need. In other words, high-volume sales to ordinary consumers is still a taboo topic. Somehow, GM will magically deliver a product they'll be proud of that will also appeal to the mainstream. Being 2 entirely different groups of buyers, with mutually exclusive purchase priorities, still isn't seen to be a problem. Ugh. The silence from GM makes it worse. The so-called transparency from before is no longer offered. They aren't saying anything anymore. In a way, that's good... since those vague hints of the past ended up doing more harm than good.
- 9-30-2014** **No News, reach.** It's a waste of time bothering with that daily blog. There's nothing new and the audience is tiny now. Reflecting upon the comments still posted worthwhile though: Saying that GM prided itself on its "*transparency*" is a good way of looking at the situation. Thanks for that perspective. They did indeed share quite a bit of detail on the design as it was being developed. The catch was, actual operation information wasn't shared. Certain things were clearly avoided. When the question of depleted MPG was brought up, there was an obvious effort to change the topic. When the question of cold-temperature was asked, it simply fell on deaf ears. When revelations of direct-drive and sticker-price came about, that was proof of the transparency not actually providing facts with respect to goals. Too many vitals hadn't been shared. Ultimately, it comes down to matching audience with expectations. GM had chosen to focus on enthusiasts for the first generation, but hoped somehow that mainstream consumers would be drawn to the same appeal. That didn't work.
- 9-30-2014** **No News, goals.** We all know the "*over promise, under deliver*" reputation and the "*too little, too slow*" concern. Like the vaporware claims, we knew early on something was wrong. There's simply no way to accomplish so much with such a lack of clarity. It starts when you cannot even answer the question of who. What's the point if you don't understand the audience? Of course, we've always known. Some just didn't want to admit the first-generation was directed at a niche. It should have been so easy to see that want had taken the place of need. That's because sales of mainstream vehicles are not exciting. Being common means not standing out. That was a direct contradiction to what stirred excitement. So, what mention it now? The reason is these upcoming announcements about second-generation plug-in hybrids are really important. The goal to survive without tax-credits or state-incentives should not be taken lightly. The designs must be capable of competing. No one will care about conquest-sales or bragging-rights. Success will be based upon acceptance from ordinary middle-market consumers.

9-30-2014 **No News, agreement.** Lack of consistency is a serious problem. There is no pattern with expectations for Volt, hence the concern now being raised. No agreement upon purpose means disappointment is inevitable. Someone won't be happy. We'll see a repeat of the same disenchantment as with the current generation. That rollout was filled with those abandoning support when they discovered GM hadn't followed the path they endorsed. With so many different paths now, how could that not happen again. Reading posts of those still active, there's arguments taking place about priorities. Some feel increased EV range is absolutely vital, while others still hold true to the heavily promoted current range. We see that with MPG too. Then there's lack of agreement about cost. That is all over the place. Feeling vary so much, there's no way to know what to anticipate. There certainly isn't anything in common about the points being posted. There is one aspect many do sound off consistently about. It's legroom in the back seats. Oddly, nothing has been said about this from GM. Providing another 2 inches to make it competitive wouldn't be easy. That essentially means switching from a compact platform to midsize... which increases cost and reduces efficiency. What a mess. Thankfully, we get a consistent message from Toyota. Prius engine efficiency will increase. Cost will be reduced. Capacity will be increased as battery technology dictates. Being 4th generation, the baseline is already established. We simply look forward to system improvements.

10-01-2014 **September Sales.** They weren't any surprise. Traditional vehicles are selling well. As usual, Camry & Corolla had a strong showing, with 28,507 and 20,530 respectively. Having sold most of their year-end inventory, that was anticipated. Prius still had 2014 leftovers, so low inventory from final clearance made its numbers on the small side. PHV was especially limited in stock, so the 353 sold was expected. Currently, there is only an inventory of 311 listed for the entire country. The new model-year rollout is a rough time. But then again, we knew this was coming. The true competition is a mighty foe. Trucks continue to be popular, very very popular. 50,176 sales for Chevy Silverado alone. That's a freakishly scary count. Talking about a reality shock for those still not wanting to consider the big picture. Even more so though is the new Ford pickup; their F-Series sales was at 59,863 for the month. How does a hybrid car compete against that? Fortunately, Toyota isn't so lopsided. Their total for pickups was 20,729 for the month, here. Over in Japan, Prius is a top-seller. So, it's this market that's trouble. We know that the attempted remedy to that was a disaster too. Two-Mode was expensive and no where near as efficient as hoped. And anytime you attempt to provide constructive criticism about GM, it turns into a defensive "*failure*" response. So, little opportunity awaits. It's a daunting challenge to face. Anywho, there is a glimmer of hope, but don't look forward to a miracle. Currently, there's an inventory of 7,632 listed for Volt. Setting realistic expectations is very important. Balance is vital. High EV range numbers may be appealing, but allowing them to offset other aspects of the purchase decision. Ask yourself why traditional vehicle are still selling so well.

10-02-2014 Encouraged Trolling. There really isn't a proper term available when someone from the inside drops bait. When someone from outside the forum does that, the behavior has been labeled as "*trolling*", since responses are disruptive. But in this case, the intent is to encourage participation, to stimulate discussion to keep the blog active. Today, the moderator of the Volt blog stirred the pot by posting this in the thread about September sales: "*Prius plug-in sales were a dismal 353 versus 818 in August, 1,371 in July, 1,571 in June, 2,692 in May. Talk about falling like a rock.*" Complete disregard for how many were actually available for purchase was conveniently omitted, giving a false impression of demand. That's both annoying and a little frustrating. I responded with: That's called good inventory management. Notice how Cadillac ELR has such a huge pile-up of unsold inventory that there won't even be a 2015 model-year? The plug-in Prius has a very limited supply. You cannot purchase was isn't available. There's nothing to gain from selling lots of the current plug-in model either. This generation Prius is at the end of its cycle, on the market 1.5 years longer than Volt. And within the next 3 months, the 20-year strangle-hold on NiMH will end. The patents expire, opening new opportunity for the hybrid market... which will inevitably stir the plug-in market. Looking at the big picture, we see 50,176 sales for the Chevy Silverado pickup and 59,863 sales of Ford F-Series pickups in the month of September. That should be a reality shock, a rude awakening, for those thinking sales of plug-in vehicles will gain major market-share, especially when the tax-credits expire. Much still needs to be done for the entire high-efficiency effort. The industry is not going to cooperate much either. Many challenges await.

10-02-2014 Nothing. The enthusiasts were quite angry, all half-dozen of them. So few are left, there's no real point of wasting any time anymore on them... with the exception of pointing out that there's nothing left... which the other constructive poster actually did: "*You've got nothing.*" They were not amused. I was. There's a sense of wonder how they can't see the change coming. We've seen so much already. But what comes next is big, really big... something they've been fighting against. I chimed in with: That's an excellent way to summarize the situation. We've been going in circles for years with the same old nonsense. We point out need, they come up with excuses rather than just address the situation. No progress. There still isn't a concise message or expectation either, after all these years. It's just an endless stream of wishes and contradicting statements. In the end, it doesn't matter. Those high-efficiency vehicles meeting the needs of ordinary consumers will become the usual choices; the others will be a chapter in automotive history... as will the enthusiasts who fought for attention. We've seen it already, several times over the past 14 years. This isn't any different. Automakers are a business. Being able to sustain profitable high-volume sales is what measures success. Period.

10-02-2014 **Change.** This year has been one of change. I remember when it started; there were arguments against any type of transition taking place. Now, there are so few still chanting "*leap frog*" and "*vastly superior*" no one cares. They've lost their audience. New enthusiasts are emerging who simply want no part of the first-generation nonsense. They understand the changes require and support them. It's quite interesting to observe. Too bad so few will take the time to read about what actually took place. Oh well. I pointed out to those still desperately grasping onto the past with this: It's like eating your vegetables and doing your homework. Some people hope they'll be able to get by without having to. The rest of us know the next generation of Volt will be quite different and the changes will be embraced. Those who opposed will just act as if that was the plan all along. We've seen it before. This isn't any different.

10-03-2014 **Interesting Timing.** I hadn't expected that change to arrive the very next day. The biggest argument about Volt acceptance has been engine efficiency, the MPG delivered following depletion of that battery-pack. Certain individuals got outright hostile about it sometimes, claiming it was meaningless, since most of the driving was in EV mode anyway. That put them in the stance of being highly against a "*lite*" model of Volt and showing outright hate for Prius PHV. What I found most interesting about that was they'd pretend the regular model of Prius didn't exist. It wouldn't ever be mentioned. It became quite evident after awhile the HV performance was a strength they despised. Some of that stems from the rush GM made to deliver Volt on time, postponing the high-efficiency engine inclusion until the next generation. That meant all publicity would have to focus on plugging in, since Volt reverted to traditional vehicle efficiency once the plug-supplied electricity ran out... rather than delivering efficiency a little bit better than a hybrid afterward. The long-awaited solution from GM was to be a 1.0 liter turbo 3-cylinder engine. That should bump up MPG, but it comes with the tradeoff of reduced power and added cost. It's the topic of today's daily blog. To no surprise, the contradictory claims of MPG are absent. We were told the increase from 40 to 50 was meaningless, yet the bump from 50 to +150 was absolutely vital. Looking at the data though, that was proven to be quite incorrect. Yet, they continued to argue it anyway. Not anymore. That is a very welcome change. Suddenly, they are very much anticipating the increase in HV efficiency. It's hypocritical, but it's also progress.

10-04-2014 Real Competition, comments. I was amazed to see such a post. So, I'm including it in its entirety: *"LOL. Then what the hell is the atrocity called the PiP? A weak attempt to compete with the Volt. Keep trying to drag the Volt down to the Prius level all you want, but it's in a league of its own, even among plug-ins. It still doesn't have a serious competitor."* The smug from certain individuals is really unfortunate. It gives a false impression of the other Volt owners possibly feeling some type of attitude themselves. They don't. Most are just those taking advantage of an opportunity to drive primarily with just electricity. In other words, consumers with EV interests, but not mainstream. That's why survey results from them are so different from the masses. They have a passion and seek out more than just reliable & practical transportation for a good price. Knowing your audience is absolutely vital. That was the lesson to be learned from several hybrid failures of the past... most notably: Two-Mode. Now, we see the same mistake was made with Volt. The design was sound from an engineering perspective, but there wasn't a large consumer base to appeal to. That's why I kept asking who. I was amazed they weren't seeing the business error being repeated. Amazingly, a few still don't. Most enthusiasts realized there was something horribly wrong when the founder of the daily blog & forum abruptly abandoned support shortly after Volt rollout began. That's why there are now only a handful of the originals remaining. Everyone else is gone. They've been replaced with the owners I hang out with, those interested in industry advancement as a whole and support my endorsement toward solutions for the masses. After all these years, my purpose still shines true: *"To significantly reduce emissions & consumption in a reliable & cost-effective manner."*

10-04-2014 Real Competition, reply. This is how I ended up responding to that smug nonsense: WHO IS THE MARKET FOR VOLT? That question was asked over and over and over again. The reason was to get enthusiasts to recognize the targeting of first-generation Volt was at them, not serious competition. It was a niche configuration, built with the hope that more than just enthusiasts would be interested. It failed to achieve that goal, specifically identified by GM as sales of 60,000 annually. Serious competition has continued to absolutely crush Volt, keeping it at just a minor fraction of monthly sales. Of the 223,437 vehicles sold by GM here in the United States in September, only 1,394 were Volt. That's just 0.6% of the total. For Toyota, their total was 167,279 sold, with 14,277 being Prius models. That's 8.5% of sales... much more, here. In Japan, the portion is even larger. Volt being in a *"league of its own"* is actually the problem, hence the on-going rumors of a *"lite"* model configured to increase sales. In other words, GM would be offering a *"Prius level"* choice to target that serious competition. The lashing out of a few enthusiasts at those who keep pointing out needed change is quite understandable. They feel let down and seek someone to blame. So, why not accuse the very people who correctly identified the market long ago of being the reason for their trouble? Automakers are a business. They require sustainable profit. The source of that revenue is on-going sales in large quantities. That won't be achieved from a niche vehicle. It comes from offerings which match purchase priorities of the masses. Increased fuel-efficiency is not an aspect they are willing to pay a large premium for. Price must be competitive with the other choices they have available. That means traditional vehicles will continue to present a significant challenge to overcome. No amount of choosing to only compare plug-in sales to other plug-in vehicles will change that reality. Pretending hybrids like Prius don't count either is a denial of true situation too. It's time to take the market seriously. Face the real competition.

- 10-04-2014** **Exact Same Thing.** It's nice to finally be stepping back to look at the big picture. For far too long, there was the "only plug-in vehicles matter" attitude. Arbitrarily dismissing the rest of the market wasn't constructive. Now, we are getting some perspective. Though not accurate, at least it's an attempt to consider more. I found this a bit frustrating: "*It is identical to the path Toyota took.*" That's the new version of those not-the-same battles from ages past. Had GM actually taken the same path, Volt would have been given aspects of performance to meet need, like Toyota did. Instead, there was an emphasis on speed & power want, sacrificing efficiency and seating comfort. There was obviously a big cost penalty as well. Remember, there weren't any tax-credits available back when Prius was rolled out here. So, that "*exact same thing*" we keep hearing is a crock. The tax-credits didn't appear until 5.5 years after Prius sales (the start of 2006) and the money was half what Volt gets. If GM had really followed the Toyota approach, Volt would have started with a modest battery-pack, then increased size as cost permitted. Anywho, I kept my reply simple. After all, acknowledgement from having overlooked something rarely ever happens: I have pages upon pages upon pages of blog entries pointing out differences observed over the years. I suggest you read them. It's easy to come to a different conclusion without that kind of detail available, especially when looking back long afterward rather than reading about the history as it was unfolding.
- 10-07-2014** **Refueling.** The topic of refueling rarely ever gets any more attention than just what you do at the pump. How the fuel itself is stored simply never gets considered. That's really unfortunate. Consider this food for thought: "*Renewables need a storage and H2 is a good choice. Both are important so I am dumbfounded why some are anally against it.*" I was quite pleased to see that posted. As much as people are in favor of using electricity for driving, the reality of not having a way to actually hold onto that energy until it's needed is quite a problem. Expecting a power-company to hold onto for your recharging use later isn't at all realistic. Power is generated, then sent out to the grid. They adjust the creation rate based on demand. It isn't stored. That's why there's such a supply & cost difference between daytime (especially in Summer when A/C use is heavy) and late in the evening. They generate & send. There isn't a means of storing it... unless you consider H2 (hydrogen). I added this to the discussion: Let's not forget act of refueling. As much as we'd like to dream of a time when all parking spots provide the ability to recharge, that just plain is not realistic... not by a long shot. It's sad to think of all of those apartment & condo dwellers who are at the mercy of landlord simply not interested or financially able to retrofit their property to support that. There's an obvious expense & effort for those owning a home too. It sometimes isn't logistically possible either. With H2, that population has a solution available.
- 10-07-2014** **Milestones.** A major one was reached recently, by Toyota, who doesn't have much fanfare. Of course, celebrating too often would be considered behavior like the you-know-who automaker. So, the excitement is contained to basically just a press release. Keeping that low profile has always been the choice for Toyota. Today, the milestone was 7 million hybrids. Back in January, the 6-million mark was reached. Only taking 9 months to reach the next is definitely noteworthy. Not bragging is a good plan. I chose to point it out, on the now hostile daily blog, this way: That know-your-audience is what led them to the decision to branch Prius into a smaller & larger model. The approach obviously worked. Worldwide sales of their hybrids just hit the 7,000,000 milestone.

10-07-2014 **Back to Basics.** It is very easy to step away from that small obsessive group of Volt enthusiasts now. All that could be learned up to the reveal has been. It was important to learn about their perspective well ahead of time. Today's topic heavily reinforced their attitude. It was about EV miles and saving gas. They just plain didn't care how much gallons were actually consumed. Their clearly stated they had no interest in how much kWh of electricity were consumed either. It was totally about bragging rights. I was astonished how they just plain didn't care... but not surprised, since that is why their group stands apart from those who genuinely hope GM delivers something for ordinary consumers. Another vehicle for enthusiasts is clearly not what they should be cheering for. At this point, I'm simply aiming for closure. Those few individuals caused quite a stir over the years and didn't actually achieve anything. Now, we see GM branching out with the plan to deliver a different design. Meanwhile, Toyota, Ford, Honda, and even Chrysler are pursuing a choice for the masses, a vehicle with mass appeal, striving to deliver the basics rather than having something to brag about. As I put it: Removing tax-credit from the equation levels the playing field. That absence of subsidies is what will reveal the winning approach, since success absolutely requires on-going profitable high-volume sales. Automakers will have less than 2 years of full government assistance available when the next-generation offerings are rolled out. So, it's best to plan to sustained sales without. As for battery-capacity defining whether a plug-in hybrid is PHEV or EREV, that's contradictory criteria... since the "*lite*" version of Volt wouldn't fit the definition. An increase for Prius could be done too, which would increase EV power and offer electricity for heating. In other words, there is neither specific nor even arbitrary measures to label type. That's just marketing... as effective as "*range anxiety*" was. Instead, they'll end up being categorized based on vehicle size, consumption ratings, and kilowatts available. Recent reveals from both GM and Chrysler further solidify that aspect of consumer awareness. People won't care what a technology is called. They'll focus on the results of using it. They won't even care about recharging. Overnight is overnight. Each morning, it will be back to full. They won't even care about when the engine runs either. Seeing MPG well above what a traditional vehicle delivers will satisfy their purchase choice. It's back to the basics. Is it reliable, comfortable, practical, and affordable?

10-07-2014 **Panic.** There's one individual on the big Prius forum who consistently uses adjectives to stir emotion. His words, like "*flaw*" and "*defect*", tend to make me crazy... especially when used to describe a well-proven operational behavior of the system used in Prius. My guess is he doesn't have much of an engineering background. Just picking up knowledge along the way is fine, but don't instill a sense of panic to others. Geez! Of course, some people thrive on the attention such actions provide. It's like a child using a "*naughty*" word. They know they'll get the attention of the parent that way. So, responses need to be well thought out and not demeaning... since he is striving to learn, just not in the most appropriate way. I ended up posting this: Neither applies to the plug-in Prius. A charge of "*full*" is actually just 85% and the "*empty*" level is really 23.5%. And when you want to save the maximum charge while out driving (after the engine has fired up), it depletes to 72.5% for optimal longevity. The battery is always kept in that happy place, automatically for you. Overnight charging is the best, since you take advantage of the lowest electricity rates while also minimizing grid demand, as well as recharging when the pack has had an opportunity to cold soak (rest).

- 10-08-2014** **Pointless.** That closure I was looking for was presented this way: "...*obviously comparing a hypermilers mpg with a fleet average is kind of pointless.*" It was a fascinating journey witnessing hope transform into hype, then disappointment become excuses. That's why goals were a continuous request prior to rollout, then following later as sales struggled. What could be said at that point to be constructive? Progress has to be achieved somehow. Toyota proved Prius was a solid platform to continue improving. As battery cost dropped and energy-density increased, the system would benefit. Reaching more and more consumers was the goal, not winning praise. Declaring victory from an online debate doesn't accomplish anything. It always comes down to sales. High-Volume & Profitable is absolutely essential. You'd think after all these years that particular group of troublemakers would finally see that. Clearly, that don't. So, I let them have it with this point and move on: Yup, that's why the certain somebody's here with the trophy-mentality can't use their own data. From me, it's a different story. I've published a collection of videos clearly showing results of just driving along with the flow of traffic. You can see for yourself how the system operates. And with my own data, I drive several 400-mile trips per year with the bikes on back and no charging. That certainly drags my average down. All the running around to see my fiancée and her family without charging does too. It doesn't matter anyway. This group refuses to consider the entire fleet. That cherry-picking isn't constructive. Whenever the rest of GM's production gets mentioned, their panties get in a bunch... which will certainly make things interesting when a "lite" model of Volt is eventually rolled out... since some statements made will end up becoming contradictory. The market will become more complex too. Reaching out to new consumers means new options. Things like wireless charging will certainly stir the pot. Even if it doesn't catch on, that will still get a new audience to take notice of the selection of plug-in vehicles available.
- 10-11-2014** **Unheard Of.** This is a quote to make you think: "*10 years is unheard of in consumer electronics.*" I was pleased to see that. Most people, including myself, don't look at the situation from that perspective. It's a great point. Imagine a phone or computer battery lasting even half that long and still delivering so much. We not only expect them to need replacement, we face the decision directly. The catch is the expense is much less. But then again, how many people do you know who still carry their phone from 5 years ago? Their computer? More often than not, that necessity of battery replacement leads to the decision to replace the entire device. So, it's rather hypocritical to hold an automobile to a much higher standard. The reality of Prius batteries lasting 10 years is truly remarkable. But then again, if you understand how it is utilized, that should be no surprise. The engine is used to protect the battery-pack, starting up at times to ensure longevity. Imagine if you had that ability available for your phone! So, it really isn't unheard of. It's well designed... to keep you from having to deal with replacement.

- 10-11-2014** **Sales & Who?** That question is finally getting some traction. Simply telling us about Volt owner satisfaction doesn't get much attention anymore, since we're seeing more and more comments like this: "*Tesla is moving product while GM gets more nervous.*" It's hard to believe how much effort was expended to distract from the purpose of sales. Fortunately, that isn't effective anymore. I pointed out and asked: While the rest of the industry strived to deliver something for the masses, GM launched a massive "*range anxiety*" campaign. They even went as far as trademarking the term. It was a gamble that battery capacity would remain low and cost remain high. The plan was to deliver a "*game changer*" product which would "*leap frog*" competitors. The hype was amazing. It was unsupported nonsense being spread like wild fire. How could so much be achieved in so little time? It ended up being a disaster. The design fell short of a number of goals. Any hope that was left turned into spin. Sales clearly revealed the game was not changed. In fact, quite the opposite happened. Both Tesla and Nissan demonstrated there was a market without anxiety. Volt didn't have an audience. This is why Prius so often got attacked. It weathered the publicity storm. Staying out of the spotlight by offering a modest (affordable) boost to emissions & efficiency was enough to demonstrate it too had a market. The next generation offerings are what will make a real impact. GM is scrambling now. Who will they target this next design at?
- 10-13-2014** **Decisions.** We have an interesting dialog going on about the next-generation Volt, in the big Prius forum. That's been remarkably constructive. People have been quite candid too. It's a very good sign of change. Too bad the daily blog is still quite hostile. I wonder how that will change over time. This was my interjection to the discussion today: I had countless arguments with enthusiasts about their engineering-only perspective, insisting they take notice of the business perspective. They were blinded by the performance and design. Consequences of refusing to acknowledge the market were provided and warned about, repeatedly. They didn't care. They didn't want to accept the reality that engineering skill alone wouldn't be enough. Management decisions made a mess of things. That's how we got to the situation we're in now.

10-13-2014 **Acceptance.** My issue with those decisions of the past was not addressing need. If GM executives had delivered a sporty type Volt in addition to one aimed at middle-market, good for them. It would have been a win-win. Both business & consumer would benefit from the platform being used in a diverse manner. Instead, GM gambled on the sport, hoping its performance focus would appeal to the masses. It didn't. They also hoped cost would rapidly fall as gas prices continued to climb... neither of which ended up happening. Toyota focused on middle-market, delivering a platform able to be augmented further as cost justified. In the meantime, there would be something relatively affordable without any dependence on gas prices. That's a very different approach from GM, especially when taking into account only get 1/3 of the tax-credit. The hope is GM will take that proper step, reaching out to mainstream consumers. Achieving profitable high-volume sales is absolutely essential with this next-generation. A configuration designed for the masses is required. If they also deliver and second choice, a more expensive model, good for them. But if that's all they deliver, game over. I see Prius PHV as the true game changer, since it focuses heavily on the low end. Yesterday, I had a bunch of weekend running around to do. After 84 miles with just a single recharge, the average came to 60 MPG. Providing an effortless efficiency boost like that is what will really make a difference. Imagine people pulling into their garage and having the system automatically recharge wirelessly. They set it up once, then JUST DRIVE IT. With such a small battery-pack to keep cost down and not compromise large cargo carrying or seating in back, that's realistic. Hopefully, other automakers will pursue a similar goal. Without gaining acceptance from the masses, what are we accomplishing?

10-13-2014 **Engineering Only.** This perspective is getting old; yet, it needs to be addressed again. I guess the classics never die. After all, we still see some of the really old greenwashing techniques being used... despite being exposed as blatant efforts to undermine. It never ceases to amaze me how some people fail to recognize the forest round them. That cliché of only seeing the tree in front is far too fitting. I suppose if you never take a business class, you have no idea what economic & accounting influences are and how much of a role they place. So many factors related to sustaining sales are simply disregarded, it's like having to listen to 30-second television commercials. All you get is hype about performance. Anywho, I tried to inject some sense into the discussion: I had countless arguments with enthusiasts about their engineering-only perspective, insisting they take notice of the business perspective. They were blinded by the performance and design. Consequences of refusing to acknowledge the market were provided and warned about, repeatedly. They didn't care. They didn't want to accept the reality that engineering skill alone wouldn't be enough. Management decisions made a mess of things. That's how we get to the situation we're in now.

10-14-2014 kWh & Gallons. On that surprisingly constructive thread today, they took a closer look at MPG. The comment was made that when in "*proper context*" that value tells the efficiency story. I was somewhat in dismay to see that posted, replying: There is no proper context. We all know the variance within EPA testing results and real-world vary dramatically. Beyond 100 MPG, that variance can be greater than the value itself. A consumer choosing a 300 MPG vehicle over one listed at 230 MPG may not use any less gas, based on how the vehicle is actually used. And even if they did get exactly what the sticker states for testing results, that's only a difference of 15 gallons over the course of 15,000 miles. That's just 450 miles of travel for a 30 MPG vehicle. That same "70 MPG" difference equates to 350 gallons of gas when comparing that same 30 MPG vehicle to one which delivers 100 MPG instead. That's 10,500 miles of travel for the 30 MPG vehicle. Context is far from clear and will basically never be represented properly in terms of MPG. The only appropriate method is stating KWH and GALLONS. For example: 300 MPG for 15,000 miles = 50 gallons; 230 MPG for 15,000 miles = 65 gallons; 100 MPG for 15,000 miles = 150 gallons; 75 MPG for 15,000 miles = 200 gallons; 30 MPG for 15,000 miles = 500 gallons; Notice how higher MPG doesn't actually make much of a difference? Notice how that MPG is achieved is not told? Then, there's the reality of how far a person travels before recharging. That makes comparisons even between like vehicles unrealistic. Between different vehicles, it's even more difficult. Since it takes a lot more battery usage to compensate for a less efficient engine, that mismatch complicates matters tremendously. It's a mess! How could vehicles appropriately depict efficiency without having kWh quantity information?

10-14-2014 Data Discovery. Someone with access to the large GM database posted this today: "*From the OnStar data average mileage is going 100 miles on a gallon of gas plus 22 kwh of electricity.*" That tells a very different story from the self-selected enthusiasts who expose their data on a public website dedicated to sharing Volt statistics. I quickly calculated my own 100-mile average. Go figure. It was much lower. In fact, I used the old 3.0 kWh per full-recharge value. It's long overdue that I switch to the 2.75 kWh value that ChargePoint has been routinely reporting. Knowing how much electricity is loss as a result of recharging is important. The battery-pack has a 4.4 kWh capacity and uses 61.5% of it, which means roughly 0.044 is consumed from the act of plugging in. In other words, only 90% of the electricity is actually used by the vehicle while driving. Anywho, it's part of the equation... sometimes included, sometimes not. Unfortunately, the amount of gas consumed is rarely ever stated by Volt enthusiasts. That recent thread on the daily blog overwhelmingly confirmed that. The choose to focus on electricity instead. Who knew that was so inefficient. I knew Toyota's system was more refined, but we really surprised to discover it was by so much. This was my reaction to that: Wow! That is horrible. My 100-mile average is 1.36 gallons plus 8.8 kWh. I had no idea Volt was so much less efficient. What a great example of MPG being misleading! Are you sure that is correct?

- 10-15-2014** **Competition.** I find it fascinating how Volt has become a competitor with no other vehicles. It makes claims pointless and serves as a great example of not taking a situation serious. It was quite unexpected watching it become the opposite of Prius. Ironically, it was supposed to be a direct competitor... which would have made it the same, attempting to fulfill the same goal but do it much better. Clearly, that's not what actually happened. So, we get stuck in non-sensical spin-debates from time to time. This was an attempt to escape from that, to bring back to constructive outlook: Efficiency measure a moot issue anyway. GM cannot sell a vehicle not making a profit and dependent on tax-credits forever, hence this discussion about Gen-2. Toyota is in a far better position to compete with the true competition: traditional vehicles. Whether or not GM will be able to substantially narrow that gap is the question. Getting crushed by their own production isn't a good situation. We see how Cruze, Malibu, and Impala sales dominate. Then when you look at the popularity of Equinox sales, reality sets in. Volt is just a tiny player on that very large game field. Sadly, GM considers the "*competition*" other plug-in offerings from other automakers. The recent confirmation of that in the article published at the start of this thread should serve as a red-flag for people, a warning that the executives are heading down a wrong path, again. They are about to repeat mistakes if they continue to ignore their own production. Ironically, GM is its own worst enemy. They keep spinning an "*every is fine*" message. How is that helpful? A teacher certainly wouldn't say that to a student when there is an opportunity for improvement.
- 10-15-2014** **What Market?** The answer to the WHO question overwhelming results in this answer: "*They want to compete in the 'alternative fuel' market, and in the 'advanced technology company' market.*" It's validation that GM continues to be motivated by want, rather than need. That's quite disappointing, especially since that means there will be backlash to deal with as a result of the next-gen rollout. It would be fantastic for something actually competing in the same market as Prius, but that becoming clear that won't be the case. That's unfortunate. Oh well. All I can do is prepare and hold on to hope that someone in management will come to their senses. There's no reason GM's business has to struggle. They just need to expand offerings to entice their own customers to choose a high-efficiency low-emission choice instead. This were my thoughts on the emerging situation: With gas currently \$2.89 per gallon here and nothing pointing to higher prices in the next few years due to increasing supply, expectations of a vehicle like Volt to compete in the mainstream without state & federal assistance is totally unrealistic. How some continue to evade acknowledgement of the situation is remarkable, but not as much as GM still not having a plan "B" to fall back on. Toyota has a popular profitable platform to leverage from. Offering the plug as a package choice is a great business move... so much so, we see other automakers following similar paths. It reduces risk significantly and provides the opportunity to exploit as the market shifts, by just adjusting production levels. What in the world will GM do? At some point, something will fall apart that won't be repaired with a clever press release. Think about how much the 30 million recalls will affect the bottom line. How much will they have to invest in keeping their vehicles competitive? The reveal of Gen-2 in January will certainly be interesting.

- 10-16-2014 Timer.** Proof that new PHV owners are not just enthusiasts comes in surprising ways. Of course, we already knew that from experiences with the regular Prius. This time, with the plug, it's not anything different. The most recent example was from an owner who never used the timer. For that matter, she didn't even know there was one. When it was pointed out to her, the question of "*didn't you wonder what that button was?*" came up. Since she didn't know what it was, her response was that she hadn't ever tried it or even looked up what it was in the manual. Having a plug-in hybrid appealing enough to make the sale but still a bit too intimidating to press a button is an interesting situation. Toyota went to a great effort to follow the KISS principal. But even with the "*Keep It Simple, Stupid*" approach, you can still overdue. As an engineer myself, I know all too well how much complexity it takes to provide a very simple interface. Apparently, even just a button is too much for some... hence the effort to deliver wireless recharging. Eliminating the plug itself removes another potential purchase barrier. Who knew? I did. But those on the big Prius forum are a diverse mix. Some do find it surprising. Others are pleased someone shared their feeling of it being too much. I find that fascinating and very good to know.
- 10-17-2014 Choice.** It's nice seeing how that Volt thread on the big Prius forum held on so long, constructively. However, it is quickly dwindling down to that particular individual who thrives on debates. So, his asking this today was no surprise: "*I don't understand this obsession that car A is a bad car because it isn't 'mainstream'.*" Either that was intentional to keep the posts coming or it is a case of terrible memory. Having been threw this several times with him already and knowing he's quite smart, I say it was an effort to stimulate thread activity. And since he did play friendly, why not play along? After all, that's how some of the best out-of-the-box ideas come about. I replied with: I never said it was bad. GM can build & sell Volt to their heart's content. That's fine. They must also deliver a choice for ordinary consumers too. That's the catch. What I've said over and over and over again is: CONSUMERS WHO WOULD OTHERWISE PURCHASE A MALIBU OR IMPALA OR CRUZE NEED TO BE OFFERED A CHOICE OF A HIGH-EFFICIENCY LOW-EMISSION VEHICLE. The purpose of replacing traditional vehicles will never be fulfilled if GM keeps delivering good to a small audience. Those other GM vehicles will just continue to overwhelm sales. Do they really have to wait until after Gen-2 ?

10-17-2014 **Expectations & Shortcomings.** After a few exchanges with others, he got back to me with: "*THIS is a VOLT thread.*" I found that amusing and took quite a bit of time to think through my response. It was obviously just a debate for the sake of debating thread now. Nothing else could be gained. Fortunately, I learned more than anticipated from the friendly exchanges. Actual useful information was conveyed. Gasp! The consideration of gas & electricity usage is clearly a weakness in Volt that many go to great lengths to avoid. Seeing that behavior pattern here too, though in a tame fashion, confirmed it was a good perspective to highlight. We even came up with a simple way to convey the data. Anywho, my attempt to conclude went as follows: This thread is about leap-frogging the "*competition*", as stated in the title. Yet, we have no clue who that actually is. The vehicle called "*Volt*" will be changing again too. GM originally told us that "*Volt*" would achieve mainstream sales... the same definition everyone else had been using for here for years: sales of 60k annually... by the end of the second year and that production capacity of 120k would be available for the third. Should we be expecting that for Gen-2 now? Will the next "*Volt*" be aimed at just the plug-in segment exclusively? Will the next "*Volt*" be a premiere technology vehicle for GM and there be something else targeting ordinary consumers? What's the plan? Too many questions unanswered does not set proper expectations. The resulting endless debates are pointless. At a time when gas has dropped to \$2.79 per gallon, sales are going to be a challenge. Betting the farm on a single high-efficiency low-emission choice is quite a gamble. Fortunately, I'm leaving this better prepared for the upcoming confusion. Refusals to consider both kWh & gallon consumption is a dead giveaway the technology, whatever it may be, isn't being considered appropriately... because, having those numbers available is vital for proper comparisons. They reveal shortcomings the odometer and MPG does not.

10-19-2014 **Waste of Time.** I get a kick out of some who draw conclusions without addressing everything. From their perspective, it makes sense. But not identifying all the factors at play leads them to make assumptions. So, who knows if having posted this will do any good: Stepping back, way back, to look at the big picture, there's something new to see. Very few have the background & experience to actually see the pattern though... hence the seeming waste of time and same 'ole GM responses. There is far less interest in Gen-2 of Volt than the hype would make it seem. Discussions drop off quickly on forums & blogs that actually hold any interest, which is much less than with the build-up to Gen-1 rollout. Volt gets the attention because GM attempts to draw it, to make it stand out among what has now become a crowd. The posts in a venue like this is what flushes out the argument points... which we can analyze and develop KISS response for proactively... rather than waiting for them to emerge as greenwash material later. Having to reactive after the fact is much more difficult to deal with and damaging in the process. Those are lessons learned which we should take seriously. I participated on the big GM forum and that daily blog for Volt on a regular basis having to "*defend*" Prius. What I was really doing was responding to the constant stream of misrepresentations. Much of it was blatant lies. But not having any effective way to share data, it was a seemingly endless battle. Turns out though, that waste of time wasn't. I eventually refined comebacks, leading to simple messages and detail video. Many of those Prius undermining efforts have ceased. That's why perspective has become a consideration of overall production. It's vindication of successfully having dealt with that stage of resistance. Preparing for the next is a sensible thing to do now... which is what this thread was truly about.

- 10-19-2014** **Vehicle Shape.** I particularly enjoyed responding to this: "*Prius (liftback) problem, I think, is so many people do not want to consider that shape of a car and be labeled as a 'Hybrid' driver. I still think Toyota's best bet is to keep the Prius shape and size and vastly improve...*". It's fun looking back and sharing how those observations resemble what's currently happening: Remember what came before the heavily stigmatized minivan? It was the heavily stigmatized wagon. Guess what is back! The wagon is becoming popular again. We could see it coming too. To make a SUV more aerodynamic without sacrificing a lot of the interior space, they transformed to wagons. Notice how sedans need to become more aerodynamic and how there's a demand for an increased interior space? Slope the front a little and raise the back a little, you've almost got hatchback. Look closely. You'd be surprised. The back roofline of the Hyundai Sonata already resembles Prius. The reputation of "*hybrid*" driver being a stereotype will continue to fade away as more and more are seen on the road. In areas with heavy saturation of them already, it's emerging as a non-issue. After all, there are more and more SUV owners who mocked Prius that we no longer hear from anymore. Prius will continue to be upgraded as it continues to build reputation. Just think of what the next-gen rollout delay will do for the older generation. More of them seen on the road will further reinforce its standing.
- 10-19-2014** **Ambiguous.** The guy who likes to debate is at it again. I nibbled at his bait. Curiosity got the best of me. Sure enough, his comeback to my reply was just more of the same. I've seen that many times in the past. He's just one of those who enjoys tossing conversation back and forth, going out of his way to ensure responses result in more replies. Never enough detail to draw a conclusion is the key. This is what he was trolling with: "*...and analysts expect plug-in growth to far exceed hybrid growth...*" It was a nice test-the-water quote. Maybe he'll get someone else to bite later. Post and move on for me: Ambiguous statements like that shouldn't be spread. It literally tells us nothing. The complete absence of detail gives reason for question. "*Growth*" could mean anything. No actual quantity estimate or even a percent is a red flag. The same goes for "*far*" being meaningless. "*Hybrid*" doesn't really mean anything anymore either. What is Prius PHV counted as? Fusion Energi? Volt? What about vehicles with start-stop? What about tiny assist motors? And of course, who the heck are the so-called "*analysts*" saying that? Are they part of the auto industry? Someone supporting EVs? Someone pushing fossil fuels? We learned long ago not to take statements at face-value. That one is an excellent reason why.

10-19-2014 **Small Steps.** The effort to consider more than just engineering & politics can fail too. Adding business typically need isn't enough either. That's why some seemingly endless problems never really get solved. Yes, you can get lucky. But betting the farm on that possibility obviously isn't a good plan. What you need to do is talk with someone like an anthropologist. Take a perspective of analyzing human behavior too. People are most strongly driven by fear & revenge. That's why I poke the leaders stirring that very mindset. Many simply cannot see beyond their own hate. That means the only way to deal with competition is to eliminate it. The concept of friendship is laughed at. Who would ever take the hand of a former enemy? That's why trying to get certain Volt enthusiasts to join the rest of the plug-in community is an absurd idea. They've been greenwashed to fight Nissan & Tesla and make fun of Toyota. So, when I send out an endorsement for plugging into lithium batteries, they remain suspicious and unwilling to even consider the thought that I'm fighting the foe I declare. Other plug-in vehicles are the competition in their mind, not traditional vehicles, period. This is the same reason why my suggestion for a second model of Volt falls on deaf ears. They just plain don't believe me. History is on my side though. Success from extremely difficult resistance has always worked best from taking small steps. For example, that's why Toyota overly simplifies the Energy screen. They didn't want to overwhelm. Look at the effort to deliver wireless recharging. Same thing. Not having to plug in makes it more like a traditional vehicle. That seems counter-productive. But looking back into our previous turn-of-the-century change, many social taboos and scary barriers were overcome from being introduced in tiny doses. Toyota will ask a small premium for a system that isn't in any way intimidating, yet it still delivers decent efficiency boost. Taking one step at a time was always good advice. Learning to walk before running was too. What about the size of the step? It went without saying that small was better. This time though, we actually have to say it.

10-21-2014 **Silence.** It's beautiful. An end has come to the superiority fighting from Volt enthusiasts. They have nothing to gloat about anymore. Volt sales have been flat and plug-in Prius sales have been supply-impaired. Forthcoming announcements tend to bring about a silence anyway... especially with the antagonist group. They are the ones who go out of their way to provoke, a step more than simply being enthusiastic about something uncertain. Being civil in response to someone that simply doesn't care can be quite a challenge. Fortunately, we don't have to deal with that right now. It's so quiet. Yeah! Anywho, there are press releases on the way to stir the pot. Activity online over the next few months should be interesting. Toyota has delayed the next Prius rollout for a variety of reasons. That clears the path for GM to do whatever they want with Volt in the meantime. Do you think they will chose wisely? Promoting a new offering isn't exactly their strong suit. The reputation for "*over promise, under deliver*" is very well established. Being realistic this time sure would be nice. Since the very beginning, the hope was to find an ally in the effort to replace traditional vehicles. Hype about Volt undermined that purpose. Enthusiasts turned on Prius, not the true competition. They lost sight of goals. Maybe there's hope this time around.

- 10-22-2014 Deciding After The Fact.** You cannot; yet, he believed that was totally acceptable. *"Will the gen II volt leap frog them? I think it has a good chance, but we won't know until it is released. After that I figure we can decide if it was puffery or real. It will be the first gen II so even if it does leap frog those models, those models may catch up in the next generation which is 2016 probably for the gen II leaf and next prius phv."* I was beside myself after having read that. It's not the slightest bit constructive. For that matter, it's so vague, it doesn't even tell us anything. It's simply more hype, coming from the very person claiming no such spreading of unsupportable hope ever happens. It's more feeding of the nonsense we've had to endure for years. Oh well. I'm still willing to fight it: There's nothing to decide. What is meant by *"leaf frog"* must be clearly defined prior to rollout. If that detailed criteria is met, then it succeeded. If not, it didn't. The nonsense with rollout of the first was inexcusable. We saw the goal-posts being moved after the fact. Volt clearly wasn't achieving sales goals, so focus shifted over to performance instead. The reality that it was in no way sustainable without a large subsidy was pushed aside in favor of promoting EV miles. There's nothing to debate anymore and spin falls on deaf ears. We want to know what *"leaf frog"* means.
- 10-23-2014 Oops!** My references in the previous post to *"leap frog"* were misspelled. They were oddly fitting too. You rarely expect anything like that to happen. But it did. So, we got a good laugh from the blunder: hehe! That's both a funny typo and ironically fitting. Gotta like the auto-spell feature on phones. Anywho, we all remember how GM hyped the *"range anxiety"* angle. They even went as far as trade-marketing the phrase. Their purpose was to show the world how EREV was vastly superior to EV. It was Tesla who stirred the pot, but the target was Leaf. We were told over and over and over how valuable having a *"range extender"* would be. As time progressed though, Leaf showed signs of consumer interest. The fear campaign was falling apart. That vital feature of Volt wasn't crushing the competition as hoped. So, attention was refocused on a seemingly weaker foe: Prius PHV. But it turns out, that wasn't as easy as hoped. Despite the limited market availability and much lower tax-credit, it still held on. I was surprised how much misleading effort the enthusiasts had to expend to save face for Volt. It's something they'll look back upon with regret... hence asking now what looking forward will bring. Instead, we are seeing the hype being encouraged again. That vague *"leap frog"* exclamation without any detail matches an all-to-familiar pattern.
- 10-24-2014 Fuel-Cell Debate Points.** Cost and overall emissions are the big ones. On their own, they don't provide enough justification either way. So, the debates tend to drag on and on. EV supporters love to bring up infrastructure as a shortcoming for hydrogen, but then end up being hypocritical about not wanting to address that very topic for plugging in. That lack of balance obviously rubs me the wrong way. Of course, the Volt supporters had been doing the very same thing up until recently. That refusal to acknowledge is frustrating. It's a red-flag about upcoming rollout issues... because you cannot just hope shortcomings will magically go away. Anywho, I brought this point up, hoping to at least bring the level of rhetoric down in the discussion: Refueling is a very real issue people seem to either dismiss or be unaware of. Fast to refuel should be obvious. The other is storage. The grid doesn't actually have any. That results in an efficiency penalty most fail to acknowledge. When the electricity is generated, it is sent out for immediate use... since there isn't any way of holding on to it. Hydrogen provides that means of capture, preventing waste in some circumstances.

10-24-2014 **Final Greenwashing.** The last desperate attempts to revive the hype for Volt are now being made. Watching the end draw near over the last few months has been quite vindicating. A struggling approach with no alternative can only survive so long before reality sets in. To be successful, the price of gas had to stay high and the cost of lithium batteries come down some. If the battery cost came down too much, Volt would lose its advantage to the EV. If gas prices dropped, Volt would lose its advantage to traditional vehicles. The position of Prius PHV irritated those enthusiasts to no end. It required less of a premium and gas & lithium didn't have as big of an impact. It also had a popular hybrid counterpart, one without a plug keeping the platform affordable. Needless to say, no growth for Volt made the story worse. With each month pounding another nail into the coffin, they knew the next-gen would have to be quite different to attract sales. But in spirit of true denial, we got this today on that daily blog: *"It would also be interesting to compare the amount of EV miles of the top 15 plug-in sales."* My response didn't make him happy. I made me though. There's no excuse for greenwashing like. Pointing out his attempt is totally appropriate. So, I did: That would be misrepresentative, since it wouldn't depict all the electricity actually utilized. Blending is when plug-supplied electricity is taken advantage of to reduce gas consumption by the engine. The result is significantly boosted MPG, a value not represented by EV miles. They are counted as HV miles instead. When purpose is to reduce gas consumption, electricity consumption is very important to know.

10-24-2014 **EV Sales.** These were the numbers that provoked the greenwash attempt: (10) Renault Zoe: 15,063. (9) Renault Kangoo: 15,369. (8) Ford Fusion Energi: 15,611. (7) Ford C-Max Energi: 16,377. (6) Mitsubishi i-MiEV Family: 30,501. (5) Mitsubishi Outlander PHEV: 35,188. (4) Tesla Model S: 47,000. (3) Toyota Prius PHV: 65,300. (2) Chevy/Holden Volt & Opel/Vauxhall Ampera: 83,687. (1) Nissan Leaf: 142,000. They are worldwide sales totals. I'm wasn't certain which irritated that Volt enthusiast more, the count for Leaf or Prius PHV, at first. Knowing his reputation for being disregarding data he didn't like and being a Prius antagonist, the response of attempting to belittle PHV was a safer bet. But then again, the numbers are a little too close for comfort when you consider the reality of PHV availability still being limited to the initial 15 rollout states. That sets a very interesting stage for next-gen competition. The lack of inventory reminds me of the Classic rollout more and more. The Iconic model which followed made the supposed lack-of-demand for the prior a trivial matter. People really like the new offering and couldn't care less what led up to it. That's why burning bridges with Volt doesn't make any sense. Why set a precedent for greenwash when the future could be so different anyway? After all, what does an antagonist really hope to accomplish by fighting both plug-in hybrids and electric-only vehicle when they are leading the way toward a market with fading interest in traditional vehicles?

10-24-2014 **Volt Summary.** This chapter in history is clearly coming to an end soon. The following wrapped up the situation well: *"Not to take anything away from Volt. It is a fine car that has been ride and handling and cleaner than a regular gas cars. If you look at it from a wider angle, it is not an effective solution. Costs too much for too little gain with many side-effects introduced, especially with the emission level in current grid."* Looking at goals, rather than just the vehicle itself, Volt fell way short. It was terrible from a profit & risk perspective, proved to be an unwise business choice. For the market as a whole, what did it actually accomplish? It certainly wasn't the game-changer it was hyped to be. In fact, it turned out to be a promotional disaster. Looking back, it closely resembles Two-Mode. The enthusiasts hated that prediction. Supporters had a feeling it would be true. Owners confirmed it was. So, the only thing to do at this point is look forward: Excellent summary. Having driven Volt several times on a closed track, I can attest to the ride & handling. That view fails to consider the unfulfilled goals though. The "saving gas" campaign further illustrates how need hadn't been fully addressed. Fortunately, many of the enthusiasts have come to terms with that reality and are placing their bets on the next-gen offering. They had thought we were being unfair by forcing the big-picture perspective, not giving Volt a chance. They now realize the importance of that cost-reduction, how it brings about vital improvements. Look at what shedding weight delivers; using fewer materials for the build also provides an efficiency gain. With subsidies expiring within the next-gen production cycle and the necessity to seriously increase sales volume, being an effective solution cannot be emphasized enough.

10-28-2014 **Grille Blocked.** The cold weather is quickly settling in. Fall seemed unusually brief this year. Freezing temperatures for the night low are already a reality. Ugh. The seasonal ritual of blocking the grille took place today. I simply squeeze foam-insulation for 1/2" pipes between each slot. It takes about 20 minutes to entirely cover the bottom grille on the Prius. The pressure alone keeps the stuff in place all Winter long, even with repeated trips through the carwash. It looks surprisingly nice that way too. When Spring arrives, the removal is just a matter of giving each a firm tug. In the meantime, it there to help retain heat. Why let so much cold air flow through the engine compartment when not that much is needed? That reduction keeps the engine from having to start up as often to for warming. Both the interior of the vehicle and the emissions system require heat. Blocking is the solution to consume less gas for that. It also helps the system warm up faster too. With a price of just \$2.35 for the foam, why not?

- 10-29-2014** **Product-Gap.** Remember how concern has been about the product-gap? That fact continues to get overlooked. Either you purchase a traditional vehicle or a Volt. Offering nothing in between doesn't position GM well for business sustaining profit in a highly competitive market selling to the masses. Yet, that's what we found how they will be doing. Whether or not the next-gen Volt is a refinement for the niche they carved out is besides the point. Too bad today's online conference didn't see that as a problem. We were told Volt would be without any variant model. It's the one-size-fits-all strategy reboot. Rather than reaching out to a wider audience by offering a choice, the decision has been made to rollout just one. Either you buy an affordable traditional vehicle delivering MPG in the 30's or you buy an expensive plug-in with a battery-pack delivering roughly 50 miles. Nothing between doesn't seem to worry anyone. Ugh. This upgrade was supposed to overcome shortcoming of the original. That's not going to happen... based on what we learned today. What could the details to be revealed in January do to change that?
- 10-30-2014** **That Question.** Yesterday's new information from GM was interesting. Everyone, including Toyota, is waiting to see what happens with Volt before making the next move. After all, gas prices are falling and high was necessary for sales growth. So, there isn't much to do in the meantime except wonder. Sadly, the market is loaded with examples of weak sales for high-efficiency offerings. The reason GM stands out is due to their magnitude of goals having been missed. Two-Mode, BAS/eAssist, and Voltec were all heavily hyped and were all a struggle to sell. Achieving that mainstream minimum (5,000 sales per month) simply won't happen if you don't appeal to a wide audience. So, it continues: Who is the market for Volt? That was the question asked prior to and following the rollout. Focus on the nice performance & handling seemed to indicate potential buyers were those who desired more from a vehicle than the typical consumer who would otherwise purchase a Malibu, Impala, or Cruze. It was instead targeted at those wanting more from a vehicle than affordable & reliable transport. In the end, GM did indeed confirm the market was for those seeking something special. Know that, now we ask a different question. For the next Volt to be offered to a wider audience, we know cost (the amount the automaker pays to produce the vehicle) much be significantly reduced. What other improvements are necessary?
- 10-30-2014** **Nailed.** The hype leading to the recent announcement was a large build up for a non-event. It fizzled. You could sense the "Is that it?" disappointment to such a degree, no one had to say anything. The lack of excitement following spoke for itself. Thud. So, the spin that emerged today had an attentive audience yearning for something to fulfill the emptiness. I could only shake my head in dismay. I really didn't expect it to die so quickly. But witnessing it firsthand, all I could do was pass on the spin, looking for feedback. This is what I took from the Volt daily blog and shared on the big Prius forum: Here's what one of the die-hard enthusiasts had to say in response to the recent info from GM about the next-gen Volt: *"GM has made the right decision in emphasizing more EV range, more responsiveness, and a more refined ride in CS Mode. They completely nailed what is important, thankfully tuning out the demand for higher but inconsequential MPG in CS Mode."* Interesting, you bet. We were told to expect much, for the next-gen design to leap-frog the competition... which would be great, considering what was needed. Instead, we're finding out the improvements are incremental and are already seeing downplay.

- 11-02-2014** **57 MPG.** The long drive home from my future in-laws place was a pleasant one. It was a nice Fall day. The temperature was just above 50°F. There weren't bikes on the back this time, since we went there to participate in a haunted house for Halloween. The grille on the Prius was blocked. That probably provided a small aero-dynamic improvement. MPG was outstanding as a result, even without plugging in. That's so nice on weekend get-aways. Being able to escape without consuming lots of gas rather empowering. You don't feel trapped or obligated. That's especially important when the opportunities to do that are so rare. Summer is far too short. But living in Minnesota, you take advantage when you can. It will be April before I can even consider any type of favorable weather trip. Almost 6 months. Ugh. It's a good thing I can plug in around here. That makes the cold season easier to endure. Snow is nice. But temperatures well below freezing for weeks at a time get annoying... winter coat... thick gloves... heavy boots... ugly sweaters.
- 11-03-2014** **No One.** It doesn't surprise me to see this so quickly: *"Of course the Toyota big wigs will look at it and say: See, no one wants plug-ins!"* It won't take long before people have no idea what was actually said. The quote isn't included in full anymore. The context is already lost. That's a recipe for trouble. We'll end up with a generalization which will be very difficult to shake. Sad, but true, is our reality. The best I could do about it was: The statement was actually about electric-only vehicles in the current market. It doesn't surprise me at all that has already mutated into a misunderstanding being spread around. Trying to point out to others last week that would happen fell on deaf ears... even though we've seen it happen before. I clearly remember a presentation Toyota made about lithium batteries a number of years ago. Cost was sighted as the reason for not embracing them. Almost immediately afterward, some started claiming the reason was fire concern. Even though that clearly wasn't what had actually been said, many people believed it. And still all these years later, the reason of cost still doesn't get recognized by some. It's greenwashing at its best. When incorrect information is innocently shared without anyone taking the time to verify that it is accurate. Eventually most people will end up seeing the difference. Sadly though, some will believe the change they see was the result of a decision change, having no idea they had incorrect information all along. Oh well.

- 11-03-2014 *The Other Perspective.*** It irritates me to no end how Toyota will get accused of a variety of different problems. But when GM does the same thing, there's no acknowledgement of it. Realistically, it doesn't matter anyway. One automaker is striving to deliver a product for the masses, pursuing the difficult consumers. Not going after the low-hanging fruit doesn't get much attention though. No one really cares about that other perspective. It's not exciting. It's just normal, what everyone buys. Not standing out in a crowd doesn't stir interest. Hype thrives on the unusual, not the ordinary. That's why there was always so much pushback from the idea of getting a second model of Volt, one with scaled-back features to bring cost down to a competitive level. Long story short, we found out recently from GM that won't happen. They will continue with the more expensive and higher risk one-size-fits-all approach for Volt. This is how I pointed that out, including the quotes made during the LA detail release for the upcoming next-gen model: Ironically, GM just conveyed a similar message, yet none have made a big deal about that: *"We will not offer varying battery sizes for the next-generation Volt but we will provide more EV range. Specifics will be released in January."* [Does Chevrolet have any plans to offer variations (aka models) within the Volt lineup?] *"No plans at this time."* [Is there gonna be 2 kind of volt? one will more Electric miles that the other?] *"We have only plans for one Volt."* In other words, no one is asking for a high-efficiency vehicle from them without a plug or a model choice that's more affordable.
- 11-04-2014 *Battery Speculation.*** There's lots of it and many of those speculated haven't actually studied the market or even Toyota history. That allows for a very distorted view, an incomplete perspective... prime with the opportunity for assumption. Some of the guessing is reasonable. Others can be without any basis on reality. We see it all. So, I join in from time to time, giving them something else to speculate about as well as interject some history. It's a counter-intuitive way of keeping hype from emerging. This was today's contribution: We already know that the design was intended to be verification for next-gen. Toyota has been taking that approach all along. Remember how Camry-hybrid got the two-speed upgrade before Prius? Engineering can be worked out in great detail. But market response and political/competitor spin is quite unpredictable. Being able to observe a wide variety of real-world data & reaction before going all-out can payoff big-time later on. Think about this. The small pack currently being used can be squeezed even smaller as battery energy-density increases. Cost will hopefully drop quite a bit too. Eventually, it would be realistic to use in a Prius C. That's a major potential benefit of starting small.

- 11-05-2014 EV Button, why?** It's existence really stirs the under-informed. We do what we can each time a new thread about it is created on the big Prius forum, like: There is an aspect of education & confirmation from the EV button. Many have attempted to greenwash by claiming Toyota didn't ever take adding a plug into consideration. That mode demonstrates there actually is more power potential available from the electric-motor already in the vehicle. It comes down to having a larger battery to deliver the higher kW required. It's understandable how that long-term view of the design can be easily overlooked. But then again, the regular model of Prius has already taken a next step. Maximum draw from the larger battery was increased in with the plug-in from 27 to 38 kW. That resulting power increase is easy to recognize behind the wheel. On paper, it gets even better. The electric-motor still offers greater potential. It is rated for 60 kW. Someday, battery cost and physical size could shrink enough to make that EV power increase a realistic option for the smaller model Prius too.
- 11-05-2014 Generations, part 0.** The reality of what generation actually mean doesn't sit well with some people... you know, those who see the world as an either/or situation with nothing between. So, building in flexibility, the ability to adapt along the way, doesn't sit well with them. We've seen that with Volt, we it was going to game everything, rather than being a contributing factor. Anywho, I posted this... know it was a topic which had been met with fierce resistance in the past: Prius PHV was designed without dependency on subsidies. It has a lucrative non-plug model to sustain high-volume production, reducing both cost & risk. That's proving to be worthwhile already too. With the price of gas dropping below \$3 per gallon and the cost of oil expected to remain low for years to come, it makes you wonder how the one-size-fits-all offerings will be promoted. Flexibility like that is very important, yet it continues to be dismissed as unnecessary. A basic principle of good business is having product diversity. Sadly, the gamble was made by some automakers that gas would remain expensive. It didn't. This is why we must take entire market into consideration. Looking at just plug-in offerings is a form of denial. Like it or not, plugging in will continue to be a tough sell. Election results from yesterday reinforce the support for increasing domestic fuel efforts, consequently keeping gas prices down. There is very little, sadly almost non-existent, support for the rollout of public chargers. The challenge to even stir effort in interest in efficiency will remain daunting. Blah.
- 11-06-2014 Generations, part 1.** That particular individual who thrives on debate wasn't too thrilled today when I called him out on what he had done to stir participation. He had been a source of irritation for awhile, contradicting posts just for the sake of keeping that topic alive. My attempt to look forward and advance the discussion required some context. He spun it to imply that context reference was actually focus on the past. Ugh. He was quite angry too for me having pointed out his activity. Normally, most people don't notice the pattern, since many are newer to the topic. Anywho, rather than fighting back and making it personal, I simply pointed out some perspective: It was well known right from the start the tax-credits would not expire until sometime in the middle of the next-generation. We all know design won't fundamentally change when a next-generation is rolled out. It cannot, since that would make it a new design rather than the incremental improvement the term "*generation*" represents. That means it must already carry those flexibility characteristics for the next to take advantage of them.

- 11-06-2014 Generations, part 2.** The attitude comes from having discovered how anti-climatic the next generation of Volt will be. Many of the high expectations have already been confirmed as not-going-to-happen. The biggest was hope that MPG would be competitive with Prius. But instead of getting a major efficiency increased as hoped, it will only be incremental. Some have figured the rough percentage stated will translate to giving Volt a rating of roughly 42 MPG. That keeps it in the traditional category, since we frequently see advertisements touting that highway value for some. The new Prius will obviously push beyond the 50 MPG it currently delivers, from the upcoming thermal efficiency and the software controller advances. Finding out there will not be a cost-competitive second model was obviously a let down too. Appealing to a wider market was really important... and the one-size-fits-all argument was something enthusiasts were hoping to finally rid themselves of. Not understanding what incremental improvement means has obviously become a problem. That hope of "*game changer*" still lingers. The idea of "*game player*" is not appealing... when your mindset has been focused on trophies, rather than becoming ubiquitous.
- 11-07-2014 Purchase Decisions.** The market for plug-in hybrids is obviously quite a mess. Ford's major space compromise and the MPG rating has kept it from getting much sales attention. They remain flat, which is nice for collecting long-term data, but not competitive when the sales of the non-plug model continue to drop. The situation is different for GM & Toyota. That odd association persists. Fortunately, discussions are surprisingly constructive and diverse... drawing in participation from both Prius PHV and Volt owners. This was my post on that decision thread today: In the early days of Volt, there were intense comparisons to Leaf. Remember the "*range anxiety*" campaign? That feel apart when Leaf sales ended up doing far better than GM supporters expected. So, comparisons refocused on Prius instead. It was an easy target, having a much smaller battery-pack. Keeping attention off the much better efficiency following depletion and the much larger seating area in back was fairly effective. But it didn't matter in the end. Volt would ultimately be compared to other GM vehicles. So, if you ask a dealer, they'll know far more about their traditional offerings than their plug-in selling at a rate of less than 1 per dealer per month. Those interesting in purchasing a Volt should shop carefully. Leases can be a great deal still. I know a number of people who took advantage of that opportunity to drive one without being obligated to keep it after a few years. Resale value, long-term reliability, or how much GM ends up altering Volt to make it a profitable high-volume vehicle is of no concern. You just enjoy the EV driving short-term. With the plug-in Prius, its a very close match to the non-plug model. You simply have a larger battery, offering much more electric power and delivering much more engine-off driving. There is no sacrifice of the cargo-area for carrying large objects inside. You get MPG just a little bit better than the regular model when not having plugged in. It should retain a decent resale value long-term. Just look at what happened with the gen-2 after gen-3 was introduced. Value remained high, despite the next-gen being available. Look at it this way, sales of plug-in vehicles will remain soft for the next few years. The price of gas is so low, stirring up demand is a major challenge. Infrastructure continues to present resistance too. You have to fight landlords to consider allowing you to plug in, employers are very reluctant to install chargers, and there is still some animosity among owners when space is limited. So, really study the market before making a decision.

- 11-07-2014** **There's No Way.** Several people jumped into that discussion about the EV button. A newbie absolutely insisted it wasn't possible to actually know what the system was doing and why... enough though I had pointed our aftermarket gauges which would enable him to see the same behind-the-scenes detail we do. Knowing what criteria triggers what response isn't rocket science, especially with so many years of so many people do the research and sharing their findings. He got really angry... never bothering to actually consider the suggestion learning more about those gauges. It's sad when people don't understand that they really do have more resources available at their disposal. They just assume incorrectly. Oh well. We try. It's their opportunity lost.
- 11-07-2014** **Cold Temperatures.** They have arrived... and wow, that certainly has presented interesting new data to collect & share. We're just above the freezing mark, currently. I can't wait to see what happens when outside conditions take a drop quite a bit further. Having the recharge end shortly before you drive most definitely influences the battery-pack. We know that electrical resistance increases considerably when dealing with frozen roads. So for those of you who get real winters, keep an eye on this thread over the next few months. Degradation from heat clearly isn't an issue in any respect. Yesterday's drive from work to my fiancée's home certainly confirmed that. The outside temperature was 37°F. The battery started at 46°F. I was determined to push the battery. The 10-mile drive started with a stretch at 50 mph, then increased to 60 mph. That flat highway then turned into a very, very long (about 3 miles) steep climb up at 45 mph. I arrived at the top with just 0.5 EV left. The battery had warmed to 72°F. Starting the engine at that point pushed the EV to 1.0 mile estimate. I got to her house just as the EV ran out and it switched to stealth mode. The battery reached its maximum of just 79°F. That's lower than starting temperatures in the summer, and I was really pushing it. That was quite an experience to witness. It's intriguing to observe rare data like that first hand, especially when the resulting efficiency was 225 MPG. Stay tuned for updates and eventually some cold-weather videos with temperature data.

11-08-2014 **Balance.** This speaks for itself: It's interesting reading the posts on recent threads. Prior to any info about the next-gen offerings, having any type of constructive discussion was quite a challenge. True, the ultimate goal of getting the plug-in vehicles to compete against the true competition rather than each other is still not close, but progress is being made. With that said... I have driven a Volt out on a closed track. In fact, I once chased a Tesla with it there. You'll notice the handling difference doing that. With ordinary driving condition, not so much. That's why the question of WHO? is so important. If you're not going to push it, there's no benefit. It's like owning a car capable of 120 mph but never going faster than 75 mph. The same goes for 0-60 times. Unless you press the pedal hard, you'll never use that faster acceleration available. Know your audience. The same goes for the cargo area. The flat nature of the Prius makes it much more convenient for hauling very large and very heavy cargo. The drop down into Volt's rear behind the seats is less accommodating. Simply pushing & pulling cargo in & out is much easier, since the entire surface is level. I roll in mom's 3-wheel recumbent bike into the Prius with very little effort. In Volt, that wouldn't be the case. I'd have to lower it in. The height of the seat folded down might cause the chain to rub on it too. Reality is that aspects such as those are what will be selling points of the plug-in vehicles, not a push for maximums. Just look at the computer industry for confirmation. There's no contest that the SSD (solid state drive) is superior. It's dramatically faster, uses much less power, and is far more robust. But to get a competitive capacity, it is very very expensive. That's why most people still purchase traditional hard-drives instead. For those willing to pay a modest premium, they chose a SSD with small capacity. It's a balance of priorities.

11-08-2014 **Balance (more).** It was pointed out that I forgot to mention the ability to sit on the back. I have done that quite a number of times. Simple things like using that flat surface while switching from shoes to rollerblades is easy to overlook. It's so convenient, you just don't think about it. What's even less obvious is the ability to host a tail-gate party. That large area works out great, especially being able to so easily access it from 3 different doors. There's no chance of anything falling into a lower section, since it's all at the same level. I've taken advantage of that storage usefulness on road trips too. You can shove bags & boxes anywhere, just pushing them over when needed. A height difference doesn't allow for that kind of flexibility.

- 11-09-2014 Business.** It's interesting to watch history play out. Decisions made in the present seem so wrong sometimes. Some people are so hung up on the fuel-cell product diversification, they feel Toyota's current efforts are being abandoned. The next-gen Prius is a great example; we already know of a few of the improvements on the way. They actually think not investing heavily in EV offerings right now will doom them to a future without anything electric-only to sell. The short-sightedness and quick-to-forget nature of consumers in this market is completely overlooked. I chimed into the on-going discussion with: I got a "*literal*" comment from a person the other day who does that on a regular basis. There was no point in even bothering to mention that though. The point is the business. That reference to "*door*" and "*knock*" was the larger market, not the literal. Cost is a major factor. It's easy to see Toyota embracing lithium when it becomes competitive. In the meantime, we have the NiMH patents expiring. I see that as a golden opportunity to push traditional vehicles out of the spotlight with regular hybrids. That will open the door for plug-in vehicles. Think about the misconceptions that still persist. The plug-ins have all of those for hybrids, plus quite a number of their own. I still hear the "*didn't know it could go that fast*" and "*when you have to replace the battery*" comments on a regular basis. Fortunately, those are far easier to deal with than in the past and the audience is much wider, but the real-world exposure for plug-in vehicles is quite lacking. We want more than just automaker offerings. We want them to be affordable and produced in high-volume too. People tend to forget about that part. That's the bigger challenge.
- 11-10-2014 EV Button, more power.** Turns out, the secondary aspect of the EV button was not apparent. People were making the assumption its only purpose was to prevent the engine from starting. Since the power tradeoff is often mentioned for the regular model, since the screen clearly shows the difference (for those paying attention), pointing it out for the C model hadn't occurred to anyone. So, I brought that to their attention. Exchanging speed for power hadn't been discussed... or even considered. That drew a conclusion to the thread in a hurry. It simply hadn't been taken into consideration that requesting EV would do more than simply switch from hybrid to electric-only. That's often the case. You can't blame those who get all worked up about a belief either... since it can sometimes be the case that they are under-informed. Just because they lashed out with emotion doesn't mean you should as well. After all, they did purchase a Prius and are making an effort to understand it better. Finding out you were incorrect can be an uncomfortable situation too. If they feel they can say "*oops!*" without feeling ridiculed, you did well.
- 11-10-2014 Last Week.** That terrible attitude is gone. The blogs and the old forum posts are now records of hostility, serving as a reminder of what we no longer have to deal with. I'm thrilled by how much things have settled down. Volt enthusiasts have grown silent. Volt supporters have been quietly waiting. Volt antagonists have run out of ammunition. It's over. Hooray! Confirmation of that came from all the likes I got from this: Volt is a nice car, rough around the edges currently and a terrible business approach, but owners themselves have been quite happy with their lease/purchase. Prius PHV owner satisfaction has been lower simply out of not having proper expectations. If you're hoping for an EV that switches over to gas after depletion, you will be disappointed. If you're hoping for an augmented Prius, delivering much higher MPG with EV driving at times, then you'll be quite pleased.

- 11-11-2014** **Winter.** It has arrived. We got some ice and a few inches of snow here. 100 miles north, they got over a foot. That had been forecast for here. Fortunately, the storm altered course. We still have the other effects though. The temperature is now in the 20's for daytime highs. We aren't expected to see temperatures climb for awhile. In fact, we may dip into the teens for a few days. I blocked the grille 2 weeks ago, which is the only thing I do to prepare. It helps with heat-retention. That's especially useful when driving a plug-in hybrid, since you want to hold on to as much warmth for as long as possible to run the heater. It delays the engine from having to restart. Anywho, the season called Fall is gone already. It seemed so short this year.
- 11-12-2014** **Still Good, uncertain.** A newbie from the forum dedicated to Volt recently joined the big forum for Prius included this in his comment about Prius PHV: "*...it may not use much EV mode at all...*". I took him at his word about being uncertain if that was correct. It was in reference to how the system operated below freezing. Knowing the source, I was well aware of how much effort has been expended there to misrepresent & mislead. Nonetheless, giving the benefit of doubt was still a wise choice. So, I did: That's called blending, not counted as EV even though it is still using lots of plug-supplied electricity. You picked up on a greenwashing effort, more information intended to undermine being spread. Always verify source. Here in Minnesota, I have lots of freezing data. And EV is most definitely still available. I have video clearly showing my usual commute with temperatures in the negatives, below 0°F.
- 11-12-2014** **Still Good, sincere.** Turns out, he was indeed being sincere. His objective stance welcomed the input, as well as the insight. That was very reassuring. In the past, that would have been an invitation for attack. Certain individuals were naive to the greenwashing, not willing to believe such effort would be made to make Volt look better. The thought of spreading incorrect information about Prius intentionally is difficult to accept. Why would someone stoop to the level of being dishonest? Well, it happened... a lot. That's rare now. We aren't totally certain why either. But with so much real-world data available now and such easy access to it, squashing bad intent doesn't take much effort. Thankfully, we don't even see the need for that anymore. It's remarkable how things have changed.

- 11-13-2014 Public Chargers.** Want to know how well the vehicles with larger battery-packs will sell? Look no further than your closest public charger. How far away is it? Who is allowed to use it? How much does it cost? Those basic questions get people thinking. The harder ones follow, like which vehicle gets precedence when spots are limited? If you only have a small battery-pack, but you drove to that location using only electricity, isn't that the point? What would allow the larger to recharge instead, especially if there's enough capacity available to get home anyway? What about the vehicles with engines too? Is it acceptable to unplug another vehicle after it has finished recharging? Who do you contact if a non-plug vehicle is parked in the spot? Needless to say, the situation is a mess. There is no clarity, no direction, no consistency. Faster chargers could be a possible solution. But then again, how many spots will a business choose to offer? What about landlords? How is pricing even determined? Will there eventually be a wireless (no plug, induction) standard? Heck, there isn't even a standard for indicating charge-status on the vehicles. It's a confusing market, even for the well informed. When the next-gen vehicles rollout and the tax-credits expire, it's going to become even more chaotic. Realistically, you cannot even expect anything beyond a common approach. After all, look at the way people connect to the internet. There's a wide variety of choices. Roadways are already filled with variety anyway. With increased pressure from competition, seeing some type of agreement at least among plug chargers represents a major step forward. Watch for that. It's a milestone for progress. In the meantime, good luck. I'm very happy with the plug-in Prius. It strives to offer the best of both worlds, demonstrating flexibility & balance in uncertain times.
- 11-14-2014 Cheap Gas.** It's becoming a problem. With the price of a barrel of oil now down to \$75, it's taking away the pain of refilling gas tanks. That's actually good for the economy. People will spend their money elsewhere instead. Retailers are excited about the possibilities that presents for holiday shopping. Automakers are excited about the potential that means for selling their high-profit vehicles... which unfortunately, are guzzlers. That's not good. MPG averages will go the wrong way and high-efficiency vehicles will be even harder to sell. I get the impression people are jumping on the chance to drive a large vehicle again and just figure they'll sell it later if the price of gas gets out of hand again. Sadly though, the forecast is for prices staying low. In fact, the House just passed a bill to allow the pipeline to be built. That will add oil from Canada into in the world market. Increasing supply certainly won't raise prices. That means the struggle will continue.

11-15-2014 Flawed Predictions. I just read an article predicting a huge sales increase for Volt when the second-generation is released. Needless to say, it caught my attention. The reasoning behind that prediction was based on Prius history. Problem was, the data used was flawed. So even if the logic was sound, there's no way the predictions could be accurate. The first problem was the writer's assumption that the first year of sales was an entire year. In reality, it wasn't even an entire month. Sales began mid-December back in 1997. Then, the writer went on to call the Classic sales here 4 years long. From late August 2000 to early September 2003 is only 3 years. Ugh. Following that came a complete lack of supply information. The Classic model wasn't even available on dealer's lots until May 2002. For the first 1.5 years, you had to order a Prius and wait several months for delivery. How could that possibly represent actual demand? Heck, most people didn't even have a clue what a hybrid was back then. When Prius was finally available for immediate purchase, supply was limited to a strict quota. It started at 15,000 annual, then increased to 20,000. So again, there was no way to gauge demand. What irritated me more than anything though was this particular point: "*Gas prices rose suddenly and sharply in 2004, right as the 2004 Prius hit the market as a new model with record-breaking fuel-economy ratings.*" That's just plain not true. The new model was rolled out in October 2003 and the spike in gas prices didn't come until September 2005. How such blatantly incorrect information can be published like that is beyond me. My guess is that there's nothing to write about anymore. Lack of new material contributes to such behavior.

11-15-2014 Battery in Cold. Yesterday provided new & unexpected data. Clearly, Toyota has a well thought out system. I went out to plug the Prius, late in the afternoon after having sat outside all day while I was working. The temperature was 19°F outside. I had expected the temperature of the battery-pack to have fallen to below freezing. After all, it showed itself to warm up from outside influence during the Summer. Turns out though, cold apparently has less of an effect. The temperature of the battery-pack was actually 51°F. That's great news for Winter operation. It also explains why EV is so easy, even when very cold out. That made me quite curious what it would be when I left work 2 hours later, after having fully recharged. To my surprise, it had only risen to 54°F. Though the outside temperature had dropped to 14°F, I still expected the act of drawing electricity to result in more heat. Later, when cold season eventually takes an icy grip on us and highs stay below 0°F, that should be especially intriguing.

- 11-16-2014 Battery Life.** People ask about it a lot. In fact, it's probably the most frequently questioned aspect of hybrid. Not having a plug confuses matters quite a bit. Fortunately, having a plug now is making the understanding of how the system works much easier. Phew! The biggest problem is not even knowing what to ask. People just plain never paid attention. They'd use a rechargeable device until it stopped working, then plugged it in. That's the worse possible thing you could do to a battery. Yet, it was very very common behavior. Sadly, we even see that with gas tanks in cars. A surprising number of people will often drive until the low-fuel warning illuminates before even thinking about refilling the tank. Squeezing out as much as possible is in their nature. It's that "*more is better*" mentality. Anywho, we try to remain constructive. I posted this today on the big Prius forum and got a few likes from it by none other than some Volt owners: 85% is what Toyota deems "*full*", stopping there rather than going to 100% for the sake of prolonging the life of the battery. 23.5% is cutoff for EV. Below that, high draw is prevented for the sake of longevity. 18% is the limitation for HV, for the sake of the battery preservation too. It's well thought out approach, avoiding stress from charge-level extremes. There's also a timer to allow "*cold soak*" time for the battery (letting it rest before recharging).
- 11-18-2014 Toyota Attacks.** I stopped participating on the daily blog for Volt. It just turned into a venue for hate. The source of ideas, material to confirm Prius was a wise approach for the masses, dried up. No more accidental reveals of important information. Detail exposing a shortcoming on GM's part really angered certain individuals. That's how those few enthusiasts who became antagonists emerged. Finding out the approach you heavily endorsed didn't deliver is a bitter pill to swallow. Reality on that scale is difficult to accept... hence the recent growing attacks on Toyota. They lash out, hoping it will make them feel better. It's why I became such a target. My stance was vindicated. They couldn't stand that. Those not obsessed with vengeance are often innocent bystanders. They aren't familiar with the history or simply weren't involved to that level. It's how we get commented like this intermixed in the discussion: "*The more I think about it, the more I see this car being a sacrificial lamb for Toyota. Its presence is totally for the sake of image. Its mission is to keep the spotlight shining on Toyota, and distract it away from GM, BMW, Nissan, Kia, Ford, and everybody else jumping onto the electrical bandwagon...*" Unfortunately, posts like that are enabling, especially when that quote ended with: "*...they see it as a promotional item to help keep the Toyota image front and center.*" The difference between Toyota's decision to follow-thru and actually offer fuel-cell vehicles to consumers is the quantity. GM was touting mainstream volume with Volt, hoping to achieve sustained sales of 5,000 per month by the end of their second year of sales and repeatedly stated production-capacity would be up to 10,000 per month by the end of the third year. Needless to say, that didn't happen... not even close. Toyota isn't saying that. In fact, all we get here is just 200 the first year. In their domestic market, 300 will be offered. The rest of the world gets 200. That's a total of just 700. Will that boost their image? Yes, of course. But they aren't in any way promoting a "*game changer*" as GM did. In fact, the production plans for the second & third year combined only a total of 3,000 worldwide. The true purpose is to prove the technology is robust, while at the same time help establish a hydrogen refueling standard.

- 11-19-2014** **More Hate.** It got really nasty today. I sure am glad my role is nothing but silent observer now. The attacks degenerated into: "*Government subsidies for new technology are BAD! (except for Toyota). Losing money on a new car is BAD! (except for Toyota).*" That was the result of so much hate having grown from Volt's \$7,500 tax-credit dependency. We all know the low sales would be quite a bit lower without that assistance. But rather than point that out, the rebuttal was rather clever. It came in the form of a reminder about PNGV. Remember that government funded program started in 1993 with the purpose of delivering 80 MPG family vehicles by 2003? Our government only providing money for the automakers in Detroit is how Prius was born. Toyota being left out had a profound unforeseen consequence. They delivered a hybrid by the end of 1997. Toyota began selling Prius before GM, Ford, or Chrysler even had viable prototypes. It was a devastating blow, shocking to the industry, and incredibly embarrassing. None of those Detroit automakers ever delivered a final product either. That was money wasted... which explains the resentment.
- 11-20-2014** **Disgust.** Remember the end of Two-Mode? That wasn't pretty either. The antagonists are well aware that the only way Volt can survive is for it to lose some of its niche qualities. Increasing sales requires appealing to a wider audience. That's a reality they just plain didn't want to accept. They were sincerely hoping market preference would instead change, rather than GM having to adapt to consumer need. What a concept! It's that "*want verses need*" problem all over again. That's what killed Two-Mode. That's what is killing Volt now. They see the announcements coming January 12 as the end, having to compromise rather than conquer. Admitting that balance was necessary is very difficult for some to accept. Going down fighting in the final battle is how they'll retain some pride. So, expect another 7.5 weeks of rhetoric. We'll still hold some disgust for such attitude, but at least it will come to a conclusion... and an abrupt one at that. As we've seen throughout hybrid history, they'll pretend those changes announced were part of the plan all along, that we had misinterpreted intent. Again, that's for pride, to protect reputation. Why must we have to deal with such obvious desperation? Everyone knew the purchase-priorities of middle-market right from the start. Hoping for a sudden paradigm-shift wasn't constructive.

11-22-2014 **Disappointment.** The push for goals ended up causing "5/50/50" to emerge. It's been repeated over and over again over the past 14 months as a result. The consequence of that was not getting any attention to the topic anymore. It's the reason why I persisted with the "Who?" question. That "5/50/50" from Volt enthusiasts represented: 5 seats, 50 mpg, 50 miles. Knowing the problems with that, it wasn't worth pursuing. Why bother? The design was not going to be fundamentally changed to add space for a 5th person to sit in back. It was a compact car with a battery-pack running through the middle. Why they somehow believed such a goal could be realistic was beyond me. And of course, we found out today that seating count for adults wouldn't change. It will remain 4 for the next-gen Volt. That goal of 50 mpg blew my mind. With such a heavy vehicle and Ford struggling to just deliver 42, how could so much more possibly be achieved? Supposedly, the efficiency of CS (Charge Sustaining mode) isn't important, since most driving is promoted to be electric-only anyway. As for hoping for 50 miles of EV range, that supports the lack of importance for engine efficiency. But with cost-reduction a major priority, that hope is a very real problem. To make matters worse, if battery cost drops that much, it makes electric-only vehicles even more appealing. That's why keeping the pack size fairly small makes it an appealing package option for Prius. The plug-in model becomes competitively affordable. Being in the middle equates to the worst of both worlds, paying extra for features you won't fully take advantage of. Anywho, that's what enthusiasts are beginning to understand now. As GM continues to release more information, we hear more grumbles of disappointment. What they hoped would raise appeal of the next-gen for the masses isn't going to be delivered.

11-22-2014 **Online Distortion.** It happens frequently. People assume what they read online is an accurate representation of what the market feels as a whole. The "*silent satisfied*" get completely ignored, not taken into account since they are never heard from. That causes a distortion. Yet, some refuse to accept that. It fit it frustrating. This comment today emphasized that point: "*Most of us, based on the comments in this forum, just want a really fuel-efficient car while satisfying most of the normal human appetites for power, cargo room, ride comfort and reliability. I think ads like this only alienate those of us who resent the image it paints of a Prius-owner. No wonder we get the finger so often.*" It was the type of over-generalization we've seen again and again. It's quite vague too. Needless to say, I pushed for more information... knowing getting any was highly unlikely: Who? Those of us on the forum represent at the very most just 4% of the entire Prius population in the United States. We all share a bias of being outspoken too, since we are online participants, which is not an ordinary trait. Try getting feedback from an ordinary consumer who simply just went to a dealer and purchased a Prius after having a pleasing test-drive experience. You'll find they have little in common with us here. Also, who's giving the finger (which I assume you mean figuratively). The many offline people I get feedback from about Prius simply aren't interested, they're indifferent toward owners. With so many more hybrids available and plug-in vehicles starting to get attention, what image do you think still exists? The new advertisement campaign continues with the effort to point out the variety of choices available, going out of its way to distance itself from the promotion of overkill features of the past. Remember that nonsense? Watching commercials of cars & trucks doing things you would never, ever dream of doing with your own vehicle was pointless. Yet, people came to expect that anyway... and ultimately would succumb to the hype. I'm glad Toyota is adhering to principle by not giving in to the pressure to push what consumers don't actually need. What do you think they should do instead?

- 11-24-2014 60 MPH Climb.** Yesterday's commute home was at 19°F. But rather than fire up the heater, I put both seats on high. My friend was intrigued by having started in EV and wanted to know how hard I could push the system under those conditions without the engine running. Since 2 miles away was a long, steep climb out of the river valley, it was the ideal opportunity to show off. This was the on the east side of the cities, the more intense road, complete with an extra lane for slower traffic. Normally taking the west side, which isn't as demanding, I was rather curious myself. So, we set out to observe it firsthand. I handed him my phone, so he could observe the many gauges available through the OBD-II reader. I pulled out into traffic and started the climb. To stress the point of the system being capable of keeping up with traffic in EV mode, I keep the distance between my Prius and the vehicle in front only a few car lengths. I made it up two-thirds of the way without any struggle whatsoever, going 60 mph using only electricity. That opened up the opportunity to really show off. I said "*watch this*", then pulled out into the left lane and started up the engine. It was a remarkably smooth transition to EV-BOOST mode, despite the continued climb and the engine being ice cold. That was great! I'll have to film that sometime. You can see how well the design is thought out by watching the electricity being taken advantage in that situation. It's quite informative. He certainly was impressed.
- 11-25-2014 \$2.59 Gas. \$3.93 Diesel.** The per-gallon price difference between the types of fuel has become rather extreme. It was really surprising to see those values on a sign today. I can't imagine what people who purchased diesel passenger-vehicles are thinking now. Of course, not many ever expected to see the cost of oil to drop so low. But then again, the "*drill baby drill*" chatting never died. We have continued to hear that on a regular basis. Keeping the price of gas at the guzzler level has been a major priority for some people of power. That wouldn't be so bad if that was balanced with a push for improved efficiency technology. But with such weak support of things like installing charge-stations, it's hard to see how plugging in will catch on. It makes me sad to say there's a "*Why bother?*" attitude. But then again, that's what makes Prius PHV so well positioned. It's the only plug-in hybrid approach targeted at ordinary consumers. The next-gen needs to be positioned to compete directly with traditional vehicles. Thankfully, that looks realistic. How else will reaching middle-market be possible with the price of gas that cheap? Offering the plug as a package option still looks a very sensible approach.

11-25-2014 Fuel-Cell Spin. There's been a lot of it lately. Much originates from the belief the Toyota's effort to deliver a fuel-cell vehicle represents an abandonment of plug-in choices. That mindset of "one" is really a problem. The concept of diversifying products simply doesn't register. They refuse to accept the idea of multiple offerings. Growing up in a society with an expectation of the market selecting a single technology as the "winner" has made that a fundamental part of who they are. You watch a standard be selected and everything else be abandoned. They cannot deal with a co-existence market. Yet, that's exactly what Toyota is pursuing. Some consumers won't have access to a plug. Some consumers will need to refuel within just a few minutes. That alone should be a clue that diversity is a good idea. The reality of the grid not being able to store large quantities of electricity is beyond their grasp. Turns out, hydrogen is a solution for many of those particular needs. Embracing that reality is too much... for some. For me, I understand it. That's why I pointed out today the huge improvement Toyota has made over the past 8 years or so. They've made a huge effort to reduce cost and now are reaching out to consumers for real-world data. To my amusement, that antagonist on the big Prius forum provided a link to an article with the claim that Toyota hasn't made any progress at all over the years, that in fact their MPGe (mpg equivalency) has actually dropped. Taking into account the cost difference was either completely overlooked or intentionally dismissed. Whatever the case, it's clear he doesn't like fuel-cell progress. I do. I see it as a complementary technology, existing side-by-side with plug-in hybrids many years from now. Not all consumers have the same need. Expecting a single technology to serve everyone is not reasonable. For that matter, it's not practical either. Just look at how diverse the market for mobile devices has become.

11-26-2014 Rewriting History. In the past, spreading incorrect information was the big problem for those of us participating on non-Prius forums routinely had to deal with. Now, we are seeing lots of incorrect history being spread. It's really difficult to know the intent of some individuals. Whatever the case, the outcome is a rewrite, conveying a story of events which never happened that way: For example: *"Even Toyota didn't branch out the Prius family until generation 4."* How would you respond to that? Knowing that generation 4 hasn't even been rolled out yet, there's reason to believe the person doesn't have a clue. It's probably safe to assume he actually meant 3 instead. But even so, that is very very wrong regardless. Sales of wagon model began the last month of 2011. That's an error of 6.5 years. So, he certainly wasn't close. Of course, it could have been deliberate greenwashing. Pretending that only hybrids labeled "Prius" count as branch is quite misleading, but we know certain individuals will spin words like that. I broke my silence on that daily blog for Volt and posted this in response: Highlander was rolled out as a hybrid way back in July 2005. It was a SUV, using an advanced version of the system in Prius, offering AWD. The following year, another version of the system rolled out. It was the hybrid Camry. GM should have similar plans to branch out in the next few years.

- 11-26-2014 Evidence of Change.** Switching over to the big GM forum, I was delighted to have stumbled across this: *"GM is absurdly lacking in hybrids. The Prius starts at \$25K and gets 51/48mpg. The Prius C starts under \$20k and gets 53/46. The Prius V starts at \$27K and gets 44/40. The Volt starts at \$15K MORE than the cheap Prius, \$10k more than the regular one. And if you live in a city you can't plug it in b/c you live in an apartment and don't have a garage. They should offer the Volt as a "regular" hybrid at a price competitive with the Prius. Chevy should also sell a hybrid Equinox. Buick should sell a hybrid Encore. It's ridiculous that they think they can get by with a two electric cars that barely sell."* It was a great summary pointing out the continuing product-gap GM faces. Ironically, it was in a thread about the future of ELR. With sales of that Cadillac version of Volt so poor, it does make you wonder what next steps will be taken. What is the overall plan? We still have no idea. Not being able to achieve the low sales goal set of just 200 per month, how can it be improved for growth? As much as they hate Prius, reality is that it sustains itself. Profit is being made. The platform is proving to worthwhile to build upon the plug offering too... as a package option, rather than requiring the business risk of needing an entirely separate design. It's good to see some understanding of the market sinking in. That engineer-only perspective was doomed from the start; yet, some hoped for a miracle anyway. Now, priorities are changing. Evidence of that is becoming easier and easier to find.
- 11-28-2014 Diversification.** Having to point out the importance of long-term and business-need over and over again gets old. But knowing how the market operates is the only way to overcome barriers. You cannot just hope for the best. Certain enthusiasts have overwhelmingly proven that's a dreadful idea. We're watching the earliest days of hydrogen play out, which serves as a nice example. It's an effort to reach those with needs a plug-in cannot serve. You wouldn't think that would be an issue. But coming from the mindset where only a single solution is acceptable... because that's all they've ever known... it's basically wasted effort. I find the unwillingness to consider a world with options quite frustrating, but understanding. Many desire simplicity. The idea of diversity is too much. So, they attempt to dance around reason and only accept the basics. That presents lots of problem; however, you can sometimes actually reach a few. Here's an attempt: Advanced Economics points out that market penetration cannot progress beyond a plateau if only a single manufacturer offers a fundamentally new product. The reason why is simple; there will be strong competition favoring the older choice instead. In this case, without the cooperation of other automakers, it isn't possible. They are necessary to increase sales for the original manufacturer. That means the others have to finally get in the game. It doesn't matter what they offer either, just as long as they aren't supporting only the old product anymore. It's that embracement of diversity, the act of joining with a new product of their own, is what allows the progress to occur.

11-29-2014 **Careful Reading.** It became quite clear many years ago that certain individuals outside of the big Prius forum responding to my posts weren't actually reading them. They'd just spin rhetoric for self-validation and their own entertainment. After all, when you're supporting a design struggling to achieve sales, lashing out at the person who was correct about some predictions right from the start is to be expected. What I didn't expect was to recently discover that some simply don't bother reading for detail from any source. On that daily blog, which rarely ever has anything about Volt anymore, there was a first-encounter report of the upcoming Toyota fuel-cell vehicle called Mirai. Even though the article clearly listed a driving-range of 300 miles and a price set at \$57,400 for this market, those were posted about incorrectly. One person complained about it only delivering 150 miles of range. Where the heck did that come from? One person said he had to hunt and finally just quoted \$60,000 as the assumed price. They were never corrected by their peers either. Everyone just silently agrees. Ugh. What gets me though is when it happens on the big Prius forum. Some people clearly don't read the posts there either. Even though you clearly & repeatedly mention the words "*competitive*" and "*choice*", there are complaints about you not having said that. I can understand a misread, where the word was overlooked. But when the same message is posted over and over again each time the topic comes up and the same people are participating in those discussions, there's no possible way to miss it. What excuse is there? Needless to say, it's annoying and obvious evidence of not making an effort to be constructive.

11-30-2014 **Why Bother?** That's a perspective we never encounter from an actual owner. Naturally, this made me quite curious: "*When I purchased my PiP, I calculated my costs and it was some \$0.33 per kWh. This is like paying >\$4 gallon gas. Might as well not plug it in.*" Whether or not I get a constructive reply is a mystery. Owners who made comments of that nature about the regular Prius already had made up their mind. So, it was pointless trying to present aspects of ownership they had probably overlooked. I gave it a try anyway: Fortunately, that isn't how our PLUG-IN HYBRID actually operates. Unfortunately, that is a very common assumption to think the benefit only comes from EV miles. Sadly, we unknowingly contribute to it too. In reality, you get a gain from the plug-supplied electricity that is very difficult to quantify... and for that matter, even to explain. For example, being able to take advantage of engine coolant heat while driving in EV is something many researching PiP don't think of or have any idea how to calculate the value of. Another example is simply not being aware of how quickly the engine shuts off after using it for a hard acceleration. It's too easy to assume it runs more than just a few seconds after warmed up. It's too difficult to determine how much gain you get from allowing the engine to join in to provide that extra power too.

- 12-01-2014** **Not Liking Answers.** Those certain individuals I keep mentioning share a trait. They don't like the answers. So, they keep asking the question over and over again. Sadly, that behavior rubs off on those who really are making an effort to be constructive. This particular comment today feel into that category: "*Clean air aside, what is the benefit of a hydrogen car to Joe Public? None.*" That meant it was worth the effort on my part to contribute something, hopefully, helpful to the discussion: Directly for Joe is the ability to rapidly refuel. Indirectly for Joe is the ability to store electricity. Remember that the grid doesn't actually have any batteries. That means renewable energy generated during the day from solar & wind needs to be held by some means. Think about how important that is over in Japan, where nuclear (their primary source of electricity) has become a very real concern. It's too bad here we aren't taking renewables as serious.
- 12-02-2014** **Needs & Goals.** More of the not liking answers. It's annoying. Oh well. The discussion continues: "*Letting other automakers expand the PHV market is part of the reason that the majority don't understand what Toyota's idea of plug in hybrid is.*" At least the active dialog is civil and somewhat thoughtful. Too bad some don't what to accept the reality of the situation. Like I said, oh well. I'll just keep asking: The true situation is not competition among other plug-in vehicles. As much as many hope that will be, it simply isn't. Traditional vehicles will continue to put intense pressure on the plug-in market. No matter how impressive those vehicles taking advantage of batteries and plug-supplied electricity are, the reality is that gas is dirt cheap. So, the majority just plain aren't interested. Reality bites. Dealing with it first requires acknowledgement of the actual problem. Start by identifying needs & goals. What are we trying to accomplish?
- 12-02-2014** **Acknowledging Facts.** Some people just plain don't like them. I kept my added contribution to the on-going discussion brief: What's comforting is FCV use the same propulsion system (motor & controllers) as EV. So offering a battery-pack instead of a fuel-stack isn't a big deal.
- 12-03-2014** **November Sales.** There's not much to say. They were pretty much all flat. Virtually no growth with gas prices so low was the expectation. Nissan stood out with Leaf though. But being the only competitive EV available, that was expected too. Even so, the amount was modest. That was enough to infuriate certain enthusiasts though. Leaf sales (2,687) were not supposed to be double that of Volt (1,336). Remember all that "*range anxiety*" nonsense? That marketing strategy completely fell apart. Seeing how uncertain the market can be is good reason for Toyota to wait. It's too bad antagonists love to spin the delay as a failure. That's quite hypocritical considering Volt enthusiasts said the very same thing. However, the difference is Toyota still has something competitive to sell in the meantime. They're fairly respectable too. 2,493 for Prius V and 2,975 for Prius C last month. The 8,038 for the regular model is well above the mainstream minimum of 5,000 per month, but we've obviously seen higher in the past. But then again, gas has dropped below \$3 per gallon and continue to fall. There isn't any tax-credit assistance for regular hybrids either. Anywho, weren't in a time of no little to no growth. That fear of the "Osborne" effect is a very real concern too. So, we continue to limp along with the current situation for now.

12-04-2014 Semantics & Quotes. When nothing constructive is left to say, the enthusiasts become antagonists. For example, last week I made an "*infrastructure*" comment. He knew my reference was to the market as a whole, not just the literal hardware-only perspective. I even pointed that out with a follow-up post. Yet, he went on and on about it anyway. Finally I had it and told him off about by saying to actually read what I post rather than fixate on literal. Those particular individuals like to dominate discussions without actually providing anything useful. The same thing has been happening with the comment from a Toyota executive about EV offerings. The people all worked up, believing Toyota is abandoning them in favor of fuel-cell vehicles haven't been listening to the comments about cost. Heck, they haven't even acknowledged the reality that a FCV uses the very same propulsion & comfort systems as EV. The difference being just a fuel-cell stack for power rather than a battery-pack is totally disregarded. It's a dead giveaway that they are responding due to emotion rather than actually thinking through the situation. Nonetheless, it is still frustrating. Toyota is responding appropriately to the market. They had flexibility built into their design. No one expected gas to actually drop to \$2.54 per gallon like it is now, but at least that isn't harming Toyota's profitability. They held back on further rollout of PHV and delayed the next-gen upgrade. Like it or not, it's proving to be a wise business decision... which is what the arguing of semantics and quibbles over quotes don't address. Find what was actually meant. Terms & Phrases are so easy to misinterpret without context, especially when there are some who don't want mainstream success. It's much more satisfying to have a standout vehicle rather than one that everyone else has. Change brings out the worse in some people.

12-05-2014 Repeating History, taunt. Watching the big GM forum distance itself from Volt certainly was an interesting chapter in its history. Two-Mode had become a hype nightmare. Allowing that to happen again was a terrible embarrassment. So, those most troubled by having made the same mistake twice lashed out, doing all they could to assign blame rather than accept what happened. Toyota & Prius were the obvious targets. Bait would be dropped. Sometimes that worked. But attracted little known contributors wasn't satisfying. That led to outright taunting, desperate attempts to provoke. Eventually, they satisfied their need and moved on. Now, Volt rarely ever gets mentioned there anymore. What was intended to be GM's premiere vehicle turned into a disaster. Knowing that history, it was only a matter of time the same sequence of events would play out on the daily blog for Volt too... especially since there were so few blogs actually about Volt anymore. On a regular basis, something about Toyota would be featured. After all, those articles are just republishes from the parent website... which has a very different audience. Anywho, with the exception of that solitary post at the very end of the thread at the end of the day, I haven't participated on the blog in weeks. Today's topic was too good to resist. I got called out by name... just like on the forum, it was a taunt to get me to sound off.

- 12-05-2014 Repeating History, comeback.** I posted a reply. It was immediately followed by insults, some outright lies, and confirmation of the very refusal response I had pointed out. Having read their posts over the past few weeks without participation, their hate for the situation Volt was now in had become obvious. That meant their reaction to my post was very much expected. No surprises there. Back in January, they had very high hopes for Cadillac ELR, anticipating a mid-cycle upgrade that would propel Volt into the mainstream. That fell apart. The technology didn't advance and sales were disappointing. Recent reveals about the next-gen upgrade to Volt have made that bad situation worse. With only a modest increase in engine efficiency and the much hoped for fifth seat not being delivered, there's been a subdued feeling. The improvements will be incremental... exactly what the word "generation" indicates. Cost will be reduced, performance will be refined, appeal will grow. Unfortunately, that also means having to deal with put-down comments about the model they currently own and constant questioning about the spreading of the technology. In other words, it puts them at a distinct disadvantage and they face having to post comebacks of their own.
- 12-05-2014 Repeating History, reply.** This is what I actually posted on that thread today: There are 2 realities some people continue to refuse to acknowledge. One is that a FCV is really just an EV with a fuel-cell instead of a battery-pack. So by taking on FCV so seriously, they're delivering technology for both. The propulsion system is totally electric, sharing the same traction-motor and controllers. The comfort system is totally electric, delivering both heating & cooling for the vehicle interior. There's a fuel-cell stack instead of a battery-pack. The other is that there is no way to actually store electricity on the grid. That means solar & wind, both of which are daytime intensive, cannot be used for overnight recharging. Being able to store that electricity in the form of hydrogen is a effective mean of taking advantage of renewable energy. Those are attempts to reach wide audiences, delivering a variety of solutions. Remember, they're still actively developing improved batteries too. They just aren't rolling them out yet.
- 12-05-2014 Repeating History, thoughts.** They didn't have any. The usual hungry until the message was suppressed happened. Again, it was refusal to acknowledge. The fact that a fuel-cell vehicle is really an enhanced battery-pack vehicle absolutely infuriates them. By focusing on FCV, they are also delivering a viable EV platform at the same time. Refinements in design, production, and cost to the electrical system will benefit both. As for the storage of electricity, that angers some to such a degree, I don't expect that to be taken seriously for years. We keep hearing that the plug infrastructure is already well established. That just plain is not true. Apartment renters and condo owners have major obstacles to overcome still. Those who actually own their garage don't necessarily have the electrical capacity to plug in. How many garages are you aware of that can handle two 12-amp draws at the same time? If you've got 2 cars you want to recharge overnight, how will you accomplish that? There's the obvious problem of speed too. Countless vehicles require refueling in 5 minutes or less. How the electricity is going to be delivered is a big deal. That's why EV alone isn't enough. We require a variety of solutions. Since GM abandoned fuel-cell efforts, it only makes sense that their supporters lash out at anyone endorsing a portfolio of choices which includes fuel-cells.

12-06-2014 **Repeating History, cheap gas.** Talking about repeating history. The price of gas here has dropped to \$2.49 per gallon. Plans for production numbers are getting revised. We expect interest in hybrids to drop. People will turn back to guzzling. It's a sad reality. That causes problems for plug-in advancement. Attention will be lost. It's a simple matter of priorities. Efficiency falls off the list. That "*good enough*" mindset is a barrier we'll have to overcome, yet again. The cycle is maddening... especially for those who gambled everything on the hope that gas prices would remain high. We saw \$4 gas. The missed opportunity Volt had to capitalize on that now burns more than ever... which why those enthusiasts get so angry at people like me... who endorsed a flexible platform instead. They sincerely believed it was unnecessary, that the ability to cope with a changing market was a waste. They were clearly wrong. The market is unpredictable & unforgiving. Being told that before is made no difference. Hearing it now won't either. They're lost & desperate... just like we saw happen with the forum. People will just move on. Leaf is obvious evidence of that. Sales are stronger and growing. The lesson to be learned is a plug-in hybrid much be have both competitive production-cost and competitive depleted-efficiency is a painful one. You'd think the first time with Two-Mode would have been enough. This second with Volt should make it obvious. Not being competitive means major challenges.

12-07-2014 **MPGe Issues.** It's not with this method of quantifying efficiency. That works fine. The issue is that it doesn't fit into the perception of green verses its reality. More EV miles is thought of as better, period. How much electricity is actually consumed is disregarded; instead, there is a stigma made from an engine running. It's basic greenwashing. Disregard true performance in favor of large numbers. Needless to say, that comes up a lot when discussing Volt. Today, it was a woman getting attacked for pointing out the first one to reach 200,000 miles only delivered 49.64 MPGe. That's a devastating blow for a vehicle a rating of 94 MPGe. Right away, the enthusiasts pounced, attempting to discredit any value in that equivalency measure. Fortunately, the responses on the big Prius forum were more constructive than that on the EV website. I do wonder what my post will stir in response to this comment though: *"I don't like to confuse things with that horrible MPGe garbage. It's more accurate to calculate actual costs using the current prices for electricity and gasoline. So as you can see the actual economics are very dependent on the specific owner. Some people pay for all of their electricity, some pay for none and others pay for only some."* It started as a constructive discussion. But leaving out detail is rather frustrating for me, hence: LOCATION does far more to spread "*garbage*" in reality. At least with MPGe, there's a clear understanding that it is just a standardized measurement taking all fuel energies into account. When a tread like this is starting, it provides a great source of real-world data for readers to analyze and comment about, but it is so far off from reality for those living in the north, there's no benefit from it. In fact, without a disclaimer of it only be representative of mild-climate driving, the data can be very misleading. That's why comparisons being the regular model Prius and the plug-in still don't have any generalizations associated with them. You just plain cannot. It doesn't set an appropriate expectation. The fluctuations in temperature make are far too much of an influence. So comparing to a totally different approach, like Volt, skews outcome even more. Sorry, but that's the reality of the situation.

12-07-2014 New Technology. The mentality of "*ready*" is an interesting one these days. I remember my neighbor about 12 years ago making comments about not wanting to purchase a hybrid until they were "*ready*" for everyone. He had absolutely no idea what that actually meant though. He couldn't quantify any measure to confirm when that milestone had been reached or even describe how it would be accomplished and by who. It was the classic "*not me*" perspective. People simply didn't care about something until it affected. But nowadays with the internet such a part of our lives, we hear about those things far in advance. Notice how virtually no one cared about E85 until that craziness in 2006. Back in the late 90's, that was a normal part of our lives here. 100% of the Ford Rangers, which were produced just miles up the road from where I live, were flex-fuel. It was no big deal. We already saw it as ready... even though the future of ethanol wasn't clear. So, this comment today stirred me: "*Totally new technology should be adopted when it is clearly a winner. Hydrogen fuel cells for everyday passenger cars (or as range extenders in ordinary plug-in hybrids) just don't have a compelling case that makes it worth the effort to adopt them.*" What was the purpose of that? For that matter, who will be adopting? Why does he even care? I remember the generation-zero data-collection here for Prius back in 1999, prior to the rollout of "*first*" generation. How is this any different? Anywho, the response was: Drawing a conclusion about new technology shouldn't be made until it is ready for that stage either. Hydrogen fuel-cells are still only at the "*try it in real-world conditions*" stage. There is no effort whatsoever being made to reach anything representing the everyday market yet, not even remotely close. 200 of them will be offered for purchase here the first year. That's not even enough to qualify as a compliance quantity. It's nothing but a "*collect data from random people*" step. That's what you do to progress forward with development. Long story short, the "*compelling case*" consideration is many years away still.

12-07-2014 That Petition. The number of people who have signed it is close to reaching the goal of 100,000; yet, its purpose still remains unclear. Remember all the signatures for Volt? They got 50,000 and that was loaded with uncertainty. It didn't end up accomplishing anything either. So, with this one, I had to say: I keep wondering what the petition is actually for. We know they are still working to improve batteries. We know that motor & controller improvements for the fuel-cell will be a direct benefit to future battery-powered vehicles. We also know that Toyota doesn't bet the farm on any single technology. Who else has had success in the EV market so far? Sustainable quantities have only been achieved by Nissan & Tesla. Both of which depend upon tax-credits and have uncertain targets though. The long-term potential is fantastic. But looking at the other automakers (Ford, GM, VW, Honda, Mitsubishi, Smart, Kia, Fiat) all struggling right now, it seems odds to push for rollout from Toyota. Changing the way the EV is promoted makes far more sense. I can see that as a worthwhile effort. We already know any low-volume attempt will just be spun as a compliance move anyway. What will adding another choice accomplish? I see the real gain coming from greater market penetration of hybrids. Finally letting go of traditional vehicles is an extraordinarily difficult bridge to cross. So many pressures pushing back make it a daunting challenge to try to achieve a paradigm shift quickly... hence striving to diversify instead. We'll see the fuel-cell & hydrogen progress slowly in the meantime. We'll also see uncertainty faced by the other automakers. What will their next move be? The next-gen plug for Prius will tell us much about what true change is coming. It will be the major influence as to what degree other plug-in offerings from Toyota will be, not a vague petition without any clear message on what's actually wanted.

- 12-07-2014 Repeat Purchase Survey.** What do they tell us under normal circumstances for major purchases? Heck, how much it cost for a gallon of gas has much more of a impact than anything even the most resourceful of us can do to influence a hybrid purchase. So when it comes to plugging in, what can we learn about first-generation offerings? Know the second will be quite different anyway, what's the point? There probably isn't one, but at least there's an effort to see if any type of pattern or majority emerges. That's at least better than nothing... or is it? At what point is it better to start fresh? After all, when most owners of a Prius PHV made their purchase, how many plug-in vehicles were even offered then? Did then even know what it meant to be a plug-in hybrid? How accurate were their assumptions? After all, the availability of real-world data is still rather scarce. Anywho, this is what I contributed to the thread about this topic on the big Prius forum today: Expectations for the plug-in were all over the place. There was a major greenwashing effort underway in the early days too, taking advantage of people's lack of understanding of what batteries can and cannot deliver. Combine with the assumptions people are now making about what the next may or may not deliver, how could anyone get an accurate depiction of what future purchase choices may be? Heck, just price alone has a major influence... and we have no idea what it will be.
- 12-08-2014 Conspiracy.** Wanting some level of closure prior to the gen-2 reveal of Volt, the topic of fuel-cell advancement has been helpful. It's a flushing out those who aren't constructive, those who just like to debate or have some type of vendetta... or this case, wish to stir up trouble. I start by addressing there posts indirectly. If they still lash out and don't even try to meet in the middle, they'll end up getting ignored. That forum feature is very handy. This was one such flush: How is fuel-cell advancement any different from other "*alternates*" with the same long-term ambitions of eventually becoming a common choice? It takes decades and there are very real barriers to overcome. One big one everyone seems to overlook is the reality of patents. If you're first to pounce, you stand a greater chance of capitalizing on the opportunity. It's a simple formula to success we've seen play out many times. The costs & risks are traded off with that leadership potential. There's obvious upset from the EV crowd for Toyota not delivering something competitive in the electric-only arena, but there aren't any bridges actually being burned. Look at all the "anti" advertising of the past for proof. We all know that battery advancement can & will change automaker stance on their offerings. We also know that reputation is not built upon offerings alone. I personally get annoyed by the effort to push a conspiracy belief, especially what all the history we've witnessed with hybrids. Remember all the anti-hybrid nonsense from GM, followed by an intense anti-EV campaign? All that effort resulted in a vehicle which didn't take the market by storm as promised. Heck, sales are just barely squeaking along, even with a generous tax-credit. Take a close look at Ford, who really did try to deliver something competitive. Sales have been adequate, but next steps are a bit of a mystery. Is keeping silent on plans better? The double-standards and lack of big-picture consideration is frustrating. Not taking into account history adds to it. But what I find most interesting is the complete disregard for the existing energy distribution system. It seems as though there are some so naïve that they think the oil, gas, transport, and reseller network will just abandon their business? Hydrogen will become the take-over product. They can continue their business as usual, but with that instead. We'll be able to produce locally too, without having to drill or frack. Somehow, all the players involved must find a way to get along. Without a major effort to cooperate, how much change do we actually think we can achieve?

12-08-2014 **Hypocritical.** The look-back afterward is absolutely fascinating. Some people say the outcome was so obvious, it was ridiculous to assume any other choice would have been supported. Yet, when in the mist of that choice, they cannot see it. That's playing out again. Certain people believe the long-term effort to offer hydrogen as a fuel option is really an effort to not deliver EV instead. It's not taking all the factors at play into account which often causes that, another is the mindset of only a single type winning. The thought of a world with multiple choices is beyond their grasp or desire. The reality of both using electricity for propulsion and not everyone being able to plug in to recharge is too much. Ugh. Oh well, they'll just fade away like all the others we've had to deal with in the past. They'll look back and finally see what we had been saying all along. I put it this way: Reality is, batteries still cost too much... hence the current stance. Spreading of the belief that electric-only vehicles are actually competitive isn't helpful. Traditional vehicles are absolutely crushing the high-efficiency market still. Why is that so difficult to accept? I'm amazed by the continued double-standard. I could just as well call it hypocritical. My blogs are loaded with quotes about how absurd it was to believe Volt hype years ago, that the posts of enthusiasts and articles from media shouldn't have been taken seriously. Yet, that's exactly what's happening now with FCV. Looking at attempts to diversify for long-term well-being as an anti-plug-in war is rather amusing. We all know how easy it is to spin comments, take them out of context, and blow them out of proportion. No amount of replies will change the minds of some though.

12-09-2014 **\$2.44 Per Gallon.** The price of gas is remarkable. It's the result of oil barrels dropping to the low 60's. With prices cut that significant, the outlook is rather grim. What incentive is there anymore? Cost is a very real problem. Not much can be done due to the over-supply though. We'll end up watching the fuel-economy average revert. Going in the wrong direction like that is the very thing those watching MPG feared. Remember the "*boil a frog*" analogy? Interestingly, the upswing will likely happen around the time the next-gen Prius is rolled out. In the meantime, our lowered standards will continue to cause harm. That's sad. Maybe this is a good thing, an opportunity to automakers to discreetly catch up... or at least try to develop something actually competitive. We've seen the emphasis on speed & power result in efficiency sacrifice. Maybe this time that tradeoff won't be as severe. After all, that excess speed & power increased cost. Making the vehicle affordable was the lesson learned. Perhaps they'd finally acknowledge the importance of what's actually needed rather than catering to want. But then again, perhaps not.

- 12-10-2014** **Misrepresentation.** This is quite common: *"We are continuously contrasting and projecting the sales performance of the Prius with the Volt on this site. Especially those who shall remain nameless. The Prius is a fourth generation product with 17 years incubation in the product pipeline, the volt barely has 4 years on generation one."* On that big GM forum, I become the lightning-rod. Everyone upset with Volt's struggle associated comments made in favor of Prius or Toyota as things I said. It got pretty bad too. There were quotes used in retaliation to mine that I just plain didn't say, not even close. Posting nameless messages like this contributed to the false belief. They'd refuse to link back to the source too. Also, note the intentional misspelling of Prius. That daily blog is trouble; thankful, it is far from representative of most Volt owners. These are just enthusiasts attempting to rekindle lost hope by keeping focus off the actual problem. Having someone else to blame can be healing. I find the blatant misrepresentation annoying. But then again, there are interesting ways to respond: Would you like me to provide the topic link from this website explaining in great detail how Volt inherited experience & expertise from GM's prior high-efficiency offerings? Note how both EV1 and Two-Mode played major roles and contributed a great deal to what's in Volt now. As for the comparisons to Prius, I too wonder why some people still do that. In fact, they often don't even refer to the plug-in model. How does that make sense? Anywho, my compares have been in reference to GM's other offerings, since that's the true competition. Cars like Malibu, Impala, and Cruze continue to draw GM customers away from Volt. Also, the precedent of 5,000 sales per month, was established well over a decade ago by the industry and was embraced by GM as the target they too would strive for with Volt. So, there's no need to compare to Prius anyway. Whatever the case, Volt must become sustainably profitable without tax-credit help. Seeing how much the plug-in category is both growing & diversifying, that's a tall order. With the price of gas so low now and *"range anxiety"* proving not to be a major concern, the challenge is even more difficult. GM must find a way to increase sales of the platform within the next few years for it to continue.
- 12-11-2014** **Desperation Growing.** The article published today was so reminiscent of 10 years ago, I was beside myself. It was an outright attack on owners titled: *"With \$2 Gas, the Toyota Prius Is for Drivers Who Stink at Math"*. It was stunning to see such blatant greenwashing. This was caught my attention, resulting in anger I wasn't sure where to direct: *"The Cruze gets a respectable 30 miles per gallon of combined highway and city driving, but its real strength is relative affordability. Without a second engine and a massive battery, the average Cruze had a \$21,322 sticker price last month, compared with almost \$31,973 for a Prius..."* Having lowered our standards to the point where a compact car delivering a combined efficiency of 30 MPG is considered acceptable is embarrassing. But to mislead on price to that extreme is terrible. The base price for the Prius larger than Cruze is \$25,025 (msrp + dest). The base price for the Prius the same size as Cruze is \$19,905 (msrp + dest). The decided to use fully loaded models for comparing instead, but without disclosing that or pointing out the features Prius delivers which Cruze does not. Leaving out detail to make people assume incorrectly is desperation... definitely not anything we'd consider journalism.

12-12-2014 **Bigger Big Picture.** That was the spin today. You guessed it, those Volt enthusiasts are in a state of panic at this point. Gas is down to \$2.34 per gallon here (even lower in some places) and the news is filled with expectations of prices continuing to drop. The problem comes from supply. It's cheap to continue pumping oil. Stopping costs money, even with oil having fallen below \$60 per barrel. The system is getting flooded with excess. That will be a boost to the economy, so there isn't much concern about stopping the events now playing out. In other words, we're seeing signs of consumption encouragement emerge. That's troubling in the long run. Small SUVs will likely see a rise in popularity. Imagine the kind of pressure that puts on the forthcoming next-gen rollout for Volt. Some areas of the country will be selling \$2 gas. How will it stir demand? Needless to say, when I pointed out the true competition, the reaction was extreme. They want someone to take their frustration out on. Knowing a hybrid like the next-gen Prius stands a much better chance of competing in a market with cheap gas, that was to be expected. I'd love to hear what Leaf supporters have to say about the situation. For that matter, even Volt supporters will have my interest. Their comments are usually quite constructive. The childish insults, name calling, and dismissals as "*stupid*" from enthusiasts certainly isn't worth wasting time on. I still can't believe we're witnessing that type of behavior still, but it does explain why the supporters don't want any part of the nonsense they stir. Long story short, this lead into the new year sure is building up. 2015 will be a pivotal time in high-efficiency, clean-emission vehicle history.

12-13-2014 **4.5 Years Ago.** There was an interesting outlook on the potential for plugging in back then. Volt enthusiasts who had been pushing the "*vastly superior*" hype were beginning to learn that something was wrong. Details being revealed prior to rollout weren't meeting expectations. That left those of us hoping for the potential from Nissan, Toyota, and Ford to not reveal similar concerns. That seemed unlikely, since they didn't leave fundamental questions unanswered. GM was touting "*transparency*" but leaving some of us scratching our heads. That meant asking the questions again ourselves would inevitably result in explosive reaction. That same hostility is alive & well again now. They focus on engineering, claiming that was the better approach, but not wanting to look at all the data to confirm it. Getting caught cherry-picking obviously stirs post activity. They're well aware they're being selective, but just plain don't care... hence the difference between an enthusiast and a supporter. Even at the minimum mainstream sales volume of 60,000 annually, making a real difference will be a challenge. The quantity of guzzlers (traditional vehicles) will easily overwhelm. That's not enough to offset the wasted consumption... and they know it. That's why there is so much resentment for Toyota. Selling 1 million hybrids worldwide within just the first 9 months of 2014 is what's really making an impact to oil-dependency reduction, as well as both less carbon-dioxide and smog-related emissions. The approach of offering a larger capacity battery as cost & density improve is clearly proving to be the better choice. The hope for cheap-batteries & expensive-gas approach clearly didn't work out well. There's still that matter of tax-credit dependency too. Now, 4.5 years later, what are consumers purchasing?

- 12-13-2014 Automaker Production.** That's been at the heart of the issues with high-efficiency, low-emission vehicles all along. The reveal 2 months ago that Volt would remain a single model obviously stirred the market-growth issue. That made the issue of traditional-vehicle sales sting even more. What I didn't realize though was to what degree. I was unaware that GM had just announced another \$3.6 Billion investment for production increases in Mexico. That brings expectation of job generation up to 5,600. Knowing there have been plant closures here and that the federal government lost over \$10 Billion in the stock purchase, the abrupt increase in terse posting makes sense. Supporters aren't happy either. It's unfortunate that newer technologies get dragged into political & economic strife, but that's reality. Those issues will always exist. Either face them to overcome or pretend they aren't a problem. Which seems the sensible tactic?
- 12-13-2014 One Month From Now.** We'll have the long-awaited details for the next-gen Volt then. That's been holding up the rest of industry mainstream rollout announcements. Other automakers are delaying until GM takes the stage, though we have been getting hints from Nissan. Nothing has come from Ford. Their heavy anti-Prius campaign claiming C-Max efficiency was better than Prius-V has turned into a major setback. There's a lot of disappointment from having discovered it wasn't. Fortunately, they still have the plug-in models to draw upon. Toyota has done as the usually do, waiting until the fallout before making announcements of their own. Expectations for GM have already been lowered from colossal to incremental. Hope of major engine MPG improvement is gone, as is the hope for a fifth seat. No word on legroom in back already has some worried too. Capacity from the battery is expected to fulfill the hope of many; however, that is presenting concern about vehicle cost remaining high as a result. That's a very big deal for a vehicle needing to sustain high-volume sales without subsidies. There's wonder who the audience will be as well. With gas prices continuing to drop, it's very reasonable to see the spotlight cast on small SUVs and Pickups instead.
- 12-14-2014 Avoiding Detail.** This is a favorite recent greenwashing quote I had to deal with: "*To rebut such statements unfortunately gives them some measurable status and so I don't even feel it otherwise needs to be rebutted, as it should be evident as meaningless to most everyone here following this greater discussion.*" When they don't like what you have to say, the typical response is to shot the messenger. They do everything they can to discredit the person, rather than actually address whatever statement had been made. That's typical it though. Rarely ever is there any type of acknowledgement of claim itself. That's why I liked that one so much. The matter would have been over with a simple provision of detail. But it wasn't. The greenwashing comes about from the effort to avoid detail. Even with trolling, at response with detail is what brings that to an end. He didn't, since he'd knew it would reveal his true intentions. Aren't these online games fun? What a pain. I found it amusing how lengthy his response was. That in itself served to provide some measurable status. Ironic, eh?

12-14-2014 **Old Arguments.** We've heard the same old nonsense over and over and over again. Each ends with a statement similar to this one yesterday: "*Yet, plugins are being adopted at a much faster rate than hybrid ICE's were.*" Back then, each automaker wasn't striving to deliver a hybrid of some sort as we see with the plug-in choices now. That sense of collaboration simply didn't exist, in any fashion. The market was very anti-efficiency. Remember the wide variety of SUVs being offered and the push to consume cheap gas for the betterment of our economy? That in itself makes such statements disingenuous. The fact that there was only a \$2,000 tax DEDUCTION available back then (which amounted to between \$300 to \$400 back on your taxes) was nowhere near as generous as the \$7,500 tax CREDIT available now makes any claim of being the same a desperate effort to mislead. That's one of those bits of detail they very much try to avoid. It never ceases to amaze me how some people believe that deception is acceptable. Whatever the case, it's now an old argument. By the end of the 4th year of sales, which is what Volt enthusiasts are comparing to now, Prius was rapidly approaching the mainstream minimum of 5,000 sales per month. The total for the year was 53,991 here in North America... which is amazing considering Camry was at 426,990 and Corolla 331,161. Volt is only at 17,315 for the year, so far through November. Add in 27,098 for Leaf and 14,650 for Tesla Model S, you get a number not big enough to call "*much faster*". That's with a tax CREDIT and not taking into account that Prius was profitable at that point too. The fifth year really made things interesting. When the price of oil & gas shot up, so did the sales of Prius. The expected low prices for next year certainly won't boost plug-in sales.

12-14-2014 **Tax Credits.** With the count of Leaf sales now exceeding 70,000 and 200,000 being the expiration trigger for the credit, talk of the "*imperfect*" nature of how the money was allocated is becoming a popular topic. Each of the next-gen offerings will have to deal with that loss of incentives. Without that subsidy available, competing will be quite a challenge. Just imagine how Nissan will have to deal with that when GM still has a large amount still. That imbalance will be a very real problem. There's always been the complaint about the amount itself too. Setting the value based on capacity disincentive a push to reach more consumers. There was no choice about how the money could be allocated. The big issue I've been focused on though is the lack of any time duration limit. When assigning homework, there's always a due date. Why wasn't there one with this? After all, there was a quantity goal of 1,000,000 by the end of 2015 set for the country as a whole. Why didn't the credit coincide with that? I find it quite reasonable to specify a time-period, allowing it to expire for everyone on the same day. After all, the other incentives (like home charging-stations) had a specific ending. Otherwise, automakers will just drag on for years and years, milking their niche offering for sake of a green image without actually needing to sell many. There's less to encourage competition otherwise. Having set an across-the-board expiration would achieve that.

- 12-14-2014 Long-Term.** My issue with Volt, besides the obvious cost problem, has always been the self-deprecating nature of its approach. There was a huge campaign promoting the importance of offering a "40-mile" range. Now, 4 years after rollout, absolutely everyone has abandoned that. Even the enthusiasts are clamoring for more. But as the increase becomes affordable, the point of also including an engine drops. That's why Toyota's modest approach still worked. It was small enough to augment the hybrid without requiring a huge premium. That's great for short-term and reaching the masses. Long-Term, we're looking at EV and FCV offerings as the solution. Both work for the age when oil is extremely expensive and when smog-related emissions are terrible. Ever notice how the only shortcoming fuel-cell opponents can come up with is carbon-emissions and cost? The reduction of cost seems realistic, especially since we are well over a decade away still before any significant infrastructure will be in place for distribution anyway. As for carbon, that's where the renewable sources for electricity come into play. They also contribute heavily to no longer needing centralized production. All that is a big deal for Japan too, a country without any natural resources. Sadly, we feel it isn't an priority due to the abundance of oil & natural-gas. The dual benefit from pursuing fuel-cell advancement is a win as well, but share propulsion & comfort components.
- 12-14-2014 Air Quality Advisory.** It's been unusually warm here lately. The result has been thick fog overnight and dense wet air during the day. As a result, we've been seeing air quality advisory notices on the flexible-text highway signs. While driving home today, I saw "Reduce Trips" and "Avoid Idling" notices. It makes you wonder how effective advice like that really is. For me, driving a plug-in hybrid, it made no difference at all... since my contributions to emissions are much, much lower than just about everyone I see on the roads everyday. The idling aspect brings up an interesting thought. Hybrids like Prius keep that to a minimum, especially in stop & slow conditions. What to people do when in a drive-thru with a traditional vehicle on a day like today? Do they shut off there engine manually in the meantime? Do they go inside instead? Do they even give a thought about their emissions?
- 12-15-2014 Mirai Sales.** They began today. That's why there was so much of an outcry. Rather than hype for years and years, Toyota simply showed the world and said they'd begin offering it for sales shortly. That's exactly what happened with Prius many years ago too. Of course, back then (in 1997), the Big 3 were scrambling to deliver high-efficiency vehicles of their own. In this case, there is no race. However, there are 16 other hydrogen vehicle which have all be revealed in some fashion by the others over the years. It's just that this is a more ambitious plan than just limited quantity leases. An interesting point though is that the "anti" crowd made such big deal out of the situation, attempting to amply expectations to such an extreme, the outcome has been attention which otherwise wouldn't have happened. Negative publicity having a positive effect is nothing new. The worse that can happen with a rollout is no one caring. To go completely unnoticed is worse than backlash. Of course, there won't be much backlash anyway. Toyota clearly stated this is a long-term effort with very limited quantities for the next few years. It's been a multi-generation effort, where major improvements are delivered along the way. They made major progress since the previous generation in 2008. Refinement will continue. The next will bring more improvements. Point being, this isn't one isn't targeted for mainstream consumers. It is for the niche buyers though, those who are willing to pay for premiere technology.

- 12-16-2014 Know Your Audience.** Invited to participate, I went back to that blog to post this: 4 years ago, GM rolled out Volt. The design focused on want, following the "*if you build it, they will buy it*" approach. Consumers were purchasing cars based on need though. The result was far fewer sales than planned. That's why asking the "*who?*" question about gen-2 stirs such responses now. There's concern that the same priority mismatch could happen again. In one month, we'll get the answer, we'll find out about the audience. Will out be ordinary mainstream consumers, those set a high priority on vehicle price and interior space? Or will there be an emphasis on performance instead?
- 12-16-2014 Engine-Braking On Ice.** Talk to someone who's driven a vehicle with a manual transmission. Down-Shifting when you have the need to slow down but don't want to use the brakes for risk of them slipping from pressing the pedal too hard. It's what they naturally do. It's no big deal. Mention doing that same thing with a Prius, some owners go nuts. They're passionate expressions of how terrible of a choice that is makes you wonder if they've ever had any training on how to drive on slippery roads. I still cannot figure out if they don't understand the concept or simply haven't ever actually tried it. Needless to say, with 14 Winters of driving a Prius in Minnesota, I have... and think it's a great idea. Today's experience provided a wonderful example of the behavior too. I was doing 65 mph in the left lane of a 3-lane highway. The temperature was just a little above freezing. There much have been a wind funneling through a tight area, since all of a sudden there was ice and brake-lights. Someone had an accident there too, so the backup was widespread. I pawed the dashboard. Toyota's well thought out design allows you to shift to "B" mode for engine-braking without having to look. All you have to do is make contact with the shifter in a downward motion. It's position makes that simple. The Prius quickly slowed... without ever having to touch the brake pedal. That was great! It's a smoooooth deceleration, not harsh like hard braking, especially if you overdo and the anti-locks having to compensate after slip has been detected. Remember, you don't want to contribute to panic in the vehicle behind you. Being able to prevent potential slipping helps. It's as simple as using the hybrid version of down-shifting.
- 12-17-2014 \$2.25 Per Gallon.** I remember how traumatic that was over 9 years ago, when it first climbed to that height. No one ever imagined it would drop back down to that level once we hit the end-of-the-world price of \$4 per gallon. That's where we find ourselves now though. What a bizarre situation. The growing expectation is a big step backward in terms of vehicle efficiency. There will undoubtedly be lots of great year-end sales to dump guzzlers. I can't imagine what that will mean for hybrid & plug-in vehicles. We'll likely find out within just a month. The debut of ELR back in January hit the market with a thud. The disappointment was so obvious, it faded away from interest almost overnight. Price was the major deterrent. With gas being at such a low price now, how will the next-gen Volt fair? If the "*who*" is ordinary consumers, what would compel them to purchase? There will be obvious cost-reductions helping out, but that appeal factor is a tough one even when gas is expensive. At least with Toyota, there hasn't been a dependency on tax-credits to sell Prius. There hasn't been as lofty of a cost-reduction goal either. Think about all those EV supporters who anxiously awaited rollout, now faced successful technology not stirring much interest. Needless to say, this is an interesting time in automotive history. No one knows how the market will actually react as the next year progresses.

12-17-2014 **Often Overlooked.** People tend to forget about charging-loss. They often convey the message that capacity of the battery-pack is only electricity used to replenish the charge-level to full. The extra electricity consumed as part of the conversion process isn't mentioned. For the lithium batteries currently being used, that comes to roughly 15% additional. To make matters worse, there's also a self-discharge loss. When discussed, it is referred to as "*vampire drain*". With Tesla, that can be as high as 4 kWh per day... which is well over the entire recharge usage (2.75 kWh) for Prius PHV. Now that fuel-cell energy consumption has become a hot topic, things like that are important bits of information. Knowing that the compression energy required to refill the 10,000 psi tanks takes less than 5% and there is virtually no drain afterward is a big deal. How often do you think that will actually be brought up in discussions though? Sadly, it will likely be quite infrequent. It's just another fact often overlooked.

12-18-2014 **Fuel Saved, part 1.** Tired of the continuing nonsense, I let them have it tonight: When will the misleading finally end? The fact that the "*fuel saved*" value is so vague tells the story in itself. Rather than stand up to the true competition... similar size & shape vehicles... it resorts to an overall average. Following that same percent, overall sales for GM should be used for compares then. How do the 17,315 Volts and 1,192 ELRs measure up against the other 2,642,018 GM vehicles sold here so far this year? Making excuses. Placing blame. Criticizing automakers. None of that will change those sales results. Reality hurts. Want some perspective? Take the claimed 36,367,716 gallons of fuel saved (total for all 4 years) and compare it to those others. If each new GM drove the industry standard of 15,000 miles per year, for just 1 year using that 19.2 MPG average, would come to 2,064,076,562 gallons. That reveals Volt's portion is tiny compared to how much is actually consumed. In short, 36 million sounds impressive. But in reality, it's a small amount. Using a single-year approach for Toyota, we see that their 1,965,756 non-Prius sales would come to 1,535,746,875 gallons consumed. The 192,958 Prius (using a weighted-average of 48 MPG for the Liftback, Plug-In, V, and C combined) would have saved 100,498,958. Still, not that much. However, that 6.5% is quite a bit more than the 1.8%. And if the goal is indeed to have a greater impact on consumption, the winner is clear to see. It's too bad the "*fuel saved*" promotion doesn't inform people about what really makes a difference. EV purity sounds better. But a combination of battery & engine is what truly saves more.

- 12-18-2014 Fuel Saved, part 2.** Between the hypocrisy and the superiority, I had it. With all those years of comparing Prius to Corolla, not doing the equivalent for Volt was maddening. GM continues to use greenwashing value. How is 19.2 MPG representative of anything even remotely comparable? It's not even as high as the industry average back when Volt was first rolled out and certainly not as high as the 23.9 MPG average now. Shouldn't it at least be 30 MPG, like the Cruze delivers? After all, that is the same size-class as Volt. With Prius, compares to Corolla were never appropriate, since Prius was larger. As for the superiority, that group of enthusiasts keep hanging on to GM's promotion of EV miles, not giving any care whatsoever to blended miles... since then, they can simply dismiss all the other plug-in hybrids. Well, no matter. Even without a plug, we know that the regular Prius saves more fuel. The math to verify that is easy. All you have to do is look at how many are sold. As a whole, even being less efficiency, the fleet average is improved overall... way higher than 19.2 MPG. I could have added in the Camry & Highlander hybrids along with the ones from Lexus, to stress the point even further. But what would that have accomplished? The problem with their trophy-mentally has not been overcome after all these years... which means my post only served to upset... if it wasn't for the sake of doing the calculations myself to confirm true impact. They don't like the reality that a smaller battery can actually make a larger difference. They don't like that EV purity isn't necessary. They just plain don't like anyone who points that out.
- 12-19-2014 Fuel Saved, part 3.** I posted this as follow up: Some people still haven't learned that personal attacks aren't effective. Ugh. What I find telling is how posts get voted down to hide them. If there was incorrect info, someone would simply provide debunk detail and we'd move on. Ignoring it instead is confirmation of that being a fact. Ironically, the vote provides acknowledgement, which serves as a confirm. The idea of Voltec becoming a platform and diversifying throughout the fleet continues to be a topic of disinterest. Why? I find that truly amazing. This very thread shows the resulting increase in sales would increase the amount of fuel saved. The announcement last month which included this quote, "*We have only plans for one Volt.*", ended hope of a second more affordable model targeted at mainstream consumers. So, it is understandable that the position of supporters is a difficult one now. But unconstructive behavior like we've been seeing certainly isn't helping the situation. Volt alone has not been able to achieve its own goal of "*leap frogging*" the competition. Whether you call the competition other battery/engine choices or GM's own traditional inventory, the numbers clearly confirm that outcome. Something needs to be done. What will it be?

12-20-2014 Explosive Topic. I don't participate on the big GM forum anymore, but do drop in from time to time to see what the new threads are discussing. Today, it was a topic about an Impala owner being excited about his decision to purchase a Volt soon. The reaction was truly astonishing. Within a few posts, this was added: *"Amazing what infinite taxpayer money can build."* That certainly caught my attention. Then came: *"That's a pretty irrelevant statement, considering the car was mostly baked before the bankruptcy was completed."* I took that as blatant denial. That's like saying all the holiday shopping is done and showing no care whatsoever about how to pay for all those gifts when the bill is due. It went downhill in response: *"That's a pretty short sighted statement. The car had most of its engineering and design completed before bankruptcy."* They just piled on the group-think, without any care: *"The Volt took years to develop, the bankruptcy was something like 43 days in 2009."* True, the legal proceedings took only 43 days, but the cause of it took years. We watched GM make poor decision after poor decision. Just in the efficiency category alone, they had both Two-Mode and BAS to confirm money had been poorly spent. From there, it got nasty: *"It was smart of GM to invest all that capital into the Volt and then go bankrupt and need us to bail them out."* I was surprised by the attitude. I never posted anything even close to that level of cynicism. Oddly, it was rather effective: *"I must admit as the price of gasoline quickly drops it is much more fun & rewarding to drive my V8's as the mileage penalty now seems moot."* The concern about tank-filling expense is gone. So, even when there is a constructive observation, it falls on deaf ears: *"GM needs a couple really good hybrids, but I think they are afraid it'll eat into the very, very small niche that the Volt has carved out."* This is the market GM is about to reveal the next-gen Volt to. This is why I'm spending so much effort to document the moment. Looking back afterward, the perspective will be lost. We'll see both defensive & offensive statements emerge immediately following. Then, we'll get the spin & parroting. This is the very reason I push for goal ahead of time. Knowing what the expectations were before is how you know if they were truly met after. Falling short, way short, was the outcome 4 years ago. Enthusiasts moved the goal posts back as a result; they lowered expectations. Supporters grew silent with disappointment. What will happen this time? What does that mean for Nissan & Toyota, who are both striving for deep penetration into the mainstream. What about Tesla & Ford with the opportunity they hope to capitalize on? This moment we're approaching marks a pivotal time.

12-21-2014 Peak Oil. It's fascinating how people don't recognize the very time they are in. That often comes from definition shift due to lack of understanding. Well over a decade ago, especially among Prius owners, the view of *"peak oil"* was the time when it became very expensive. Most people simply took that to mean the price of gas alone, without taking any other factors into account. It was unfortunate they didn't consider impact to the environment or political shake-up. Look at the mess tar-sands and fracking have contributed. Combined with the volatile drilling regimes, the result is an oil market turned upside-down. There's also the reality of climate-change. Needless to say, we're dealing with new circumstances and greater pressure. That's peak oil. It has nothing to do with how much is actually still available underground. We've reached the summit, when no more stable growth is expected. It will be a mix of solutions and compromise on a variety of levels. That's a paradigm shift... the result of a pinnacle having been reached.

- 12-24-2014** **\$2.09 Per Gallon.** That's the price I saw here this evening. In a few other parts of the country, it's even lower. How does that position the high-efficiency market? What will be done to draw attention to those vehicles? We have a bizarre situation with oil-supply. The economy is seeing record highs with the stock-market and reaching normal lows for employment. It's an interesting & unexpected set of circumstances. Overall, this can be good, but it certainly feels like a big step backward. Seeing MPG standards fall shows how volatile the market actually is. That huge risk GM took with the hope gas prices would remain high and technology costs drop quickly didn't payoff. It's really a problem promoting "saves gas" when the price of gas is so low. At least with Prius, you still have the comfort & convenience of it being a midsize vehicle. The appeal of "*fun to drive*" falls apart with "*cheap to fill*" prices, since that's what contributes heavily to small SUV purchases... and large pickups. Ugh. That market is booming now. Of course, it does reinforce what I've been saying all along about what we need. We're back to the days when Volt was first revealed. Remember late 2006? The circumstances feel quite similar. The upcoming next-gen reveal of Volt certainly will be noteworthy.
- 12-26-2014** **Uncertain Goals.** Remember what happened last time? Some people do: "*As a long time GM fan, I'm like others when I say: 'Hoping for great things, but bracing myself for disappointment.'*" We know what Toyota plans with Prius. It will take on a competitive look as well as deliver higher MPG and without a cost increase. We have been told about the effort being made to improve thermal-efficiency of the engine. We've been told the PHV model will stand out from the regular too. There's also the expectation of PHV an increase in battery capacity and more power. There aren't solid numbers, but that isn't really necessary for generational upgrades. It's an incremental process. We already know what the purpose is. The next simply delivers improvements. But with Volt, purpose is uncertain. What are the goals? Even though there have been droves of supporters pointing out the importance of greatly improved engine efficiency, the feeling now is that it will only be modest. Although being quite vague, the impression is focus has been put on battery improvement instead. Problem is, the purpose of a EREV was supposedly to deliver only what was truly needed for capacity: 40 miles. More exceeds that, which aims the target away from mainstream consumers. Remember how cost was the biggest concern? That increase represents a step in the wrong direction... and they know it. So, hope is fading. GM's desire to produce a stand out vehicle instead is getting confirmed in bits from comments about speed & performance, rather than any talk of something competitive with mainstream vehicles.

- 12-27-2014** **Anti-EV Sentiment.** The frustration is growing and the want for Toyota to become a major participant right away is contributing to that. Focusing on long-term makes it worse. But with the challenges fourth-generation Prius rollout presents and trying to establish some type of approach for fuel-cell choices, it's easy to feel that way. I understand, but don't appreciate the lack of acknowledgement. So, today it was: It's telling how the short-sighted statements are selective. Notice how Ford's actions & claims aren't getting attention? What about GM not targeting mainstream consumers? There aren't even any expectations from Chrysler anymore. And what happened to Honda? Toyota carefully studied the market and prepared by focusing on long-term. Yet, even in the face of \$2 gas, they get grief for some delay. It's not like they don't have other high-efficiency choices available in the meantime. That's good business. They continue to sustain profit, even though the market isn't favorable. As much as we'd all like to see more offerings like Leaf, that just plain isn't realistic. The other EV choices have come even remotely close to its success. Not rushing to market and delivering something for the masses is what Toyota strives for with Prius. That's a big reason why PHV wasn't rolled out to the other states. They're well aware of the tradeoffs involved and the opportunities available. The short-sightedness is a matter of patience. Don't fall into the group-think trap. Focus on goals. Prius became a success by being attentive to mainstream priorities and not giving into pressure from enthusiasts.
- 12-27-2014** **Incentives.** I couldn't resist responding to this: "*However. Hybrids were originally incentivized also.*" That concluding note to a summary of the market situation now with plug-ins certainly got my attention. I posted: I take issue with that comment and see this as an opportunity to clarify assumptions. (So, thanks!) The tax deduction working out to \$300 to \$400 on your return hardly qualified as an incentive. It was basically a nice "thank you" for purchasing. Prius exceeded mainstream minimum (60,000 annual) prior to any credit being offered and it certainly wasn't comparable. The quantity limit back then was 60,000 tax-credits per automaker before phaseout began. That's a far cry from the 200,000 available now and even smaller when you can consider the market sold 17 Million new vehicle purchased per year in this country. That has since fallen to around 12 Million. The maximum amount was \$3,150 per purchase, starting in 2006, well after Prius had already become well established. The purpose was to push hybrids deeper into the mainstream. The \$7,500 available now is more than double and with the intent of introduction instead. It's unfortunate that history isn't clear. But finding out explains why there are so many misunderstandings about automaker decisions. The economic factors are quite complex. Not having the whole story and dealing with audiences expecting to-the-point responses miss out on important detail... then spread that vague to others. Hopefully, this post was helpful.

12-27-2014 **Frustrated.** This comment today was quite understandable: *"I am just frustrated with the absence of information. To me, the reading, studying, and analyzing, must precede the purchasing. Toyota has thus far, denied me of that pleasure."* But at the same time, not reasonable. It all comes down to the "Who?" question. That's absolutely vital. I responded with: Know your audience! That point cannot be stressed enough. You want Toyota to provide information now, well ahead of rollout. That's what enthusiasts want, not mainstream consumers. The audience they're targeting Prius at is those who research shortly before purchasing, sometimes at the dealer itself. Those are ordinary people who would otherwise purchase a Camry or Corolla. The masses who buy high-volume profitable vehicles are the audience, those who often simply aren't paying attention to the automotive market until they are ready to replace their current vehicle. It presents many challenges for sustainable sales. That's an extremely fickle group to deal with. They do little online. Just look at Prius owners for perspective. There are over 3 Million here, yet membership of this forum is just 112,567 right now... and not all of them even own a Prius. That's about 3.5% representation, hardly any sort of majority. And how many of them joined the forum to learn more about their purchase, after the fact? As much as we'd like more, it's just plain not realistic. The competition, both within and from others, is too great. There is much at risk. The very fact that Toyota has been willing to alter plans along the way is something we should be thankful for. Having that flexibility and the willingness to acknowledge change is very important. Want some more perspective? Just look at GM. Enthusiasts still have very little detail about the next Volt, even though the rollout is about 6 months away. For that matter, they don't even know who the audience will be.

12-27-2014 **Power Steering.** I've kept quiet about the special coverage adjustment for Volt, campaign #14232. There's no benefit in focusing on a mechanical issue, since those can be resolved. After all, Prius wasn't perfect. Though with the way GM people reacted to Prius, telling us that owners and those nearby were at great risk, it is reasonable to at least say something. It was a *"we're all going to die"* campaign that proved to be an intentional effort to undermine, but I really don't want to stir that pot. My purpose, as stated on my website for a decade, has been: *"To significantly reduce emissions & consumption in a reliable & cost-effective manner."* That means providing support to vehicles which are actually affordable and targeted at the masses. Anywho, this changes the situation a bit. Rather than just expanding the update campaign (it's listed as a reprogramming of the power-steering-control module, though there have been reports of rack & gear replacement too), there's been a proposal for a class-action lawsuit. A claim has been filed stating 100 plaintiffs requesting \$5 Million for an: *"alleged defect in the steering system of its Chevrolet Volts which causes the steering wheel to freeze intermittently while driving"*. What should the reaction to that be? Reading this makes you wonder: *"Complaints that consumers filed with National Highway Traffic Safety Administration and posted in discussion forums demonstrate that the defect is widespread and dangerous and that it manifests without warning."* Is this another circumstance where the situation is just being blown way out of proportion? And what about the timing? I'm hoping focus will be on the fix. Get it done for owners quickly, then it's over. No need to drag this out.

- 12-29-2014 IIHS Award.** It was nice to here that the V model of Prius earned such high praise today. The award gives it a top safety rating. Being the larger wagon version makes it appealing to families already. Seeing that Toyota worked to improve it will help sales grow. Of course, the reality that Ford's advertising of C-Max drew so much attention to the V model has becomes an interesting twist... as people discover Toyota's hybrid was actually more efficient than the television commercials claimed. Ford really blew it with that campaign. Safety is obviously unrelated to fuel-efficiency too. Adding safety to the primary draws is a big win. For far too long, many assumed hybrids made many sacrifices for the sake of saving gas. This highlights how that isn't actually the case. Remember all that nonsense from certain automakers a decade back who claimed we'd all have to give up being safe? Thank goodness we're finally able to move beyond that. Even the most desperate will have trouble raising doubt now.
- 12-31-2014 \$1.99 Per Gallon.** Finding out how consumers have been reacting to the low gas prices will be interesting. December sales results will be the big clue as to what 2015 holds. The expectation is oil cost will remain low for quite some time to come. That makes marketing high-efficiency vehicles extremely difficult. In the meantime, it is nice for those of us who already own them. I myself took full advantage yesterday evening. It was my final opportunity to take photos of Christmas Lights. With the temperature at -2°F and a steady breeze, it was far from ideal conditions. But we finally got snow to cover up the dormant grass. So, I bundled up and headed out. Knowing my hands would be entirely exposed to the extreme cold meant running the engine at times just for the sake of generating heat. After 2 hours of that on & off, along with a commute back and forth for work and recharging 3 times (morning, afternoon, evening), results were surprisingly good. The 57 miles ended up averaging 64 MPG. That was totally worth it. I got great photos. It sure was cold though, especially when grabbing the frozen tripod with bare hands. Of course, with gas so cheap...
- 12-31-2014 Game Changer, part 1.** It wasn't. Knowing the potential of the next means understanding audience. Clearly, some still don't: *"May 2015 be the year that GM kicks it's old advertising agency handling the Volt account the door and learns that it's target for Volt are current Prius owners and people who are open and interested in shopping Prius against it's rivals."* I was beside myself reading that from such an active supporter who really works to be constructive. I tried: Who is the market for Volt? That targeting would mean nothing was learned still. The true competition is GM own vehicles, the traditional offering their own customers continue to buy in very high volume. Malibu, Impala, Cruze, Equinox, and even Sonic are all absolutely crushing Volt. What difference do the other automakers make? Of course, if GM did choose to disregard losing Volt sales internally, they should be targeting Leaf not Prius. Notice how much less Nissan advertised and how many more sales they achieved? If the goal of Volt is to become a mainstream vehicle, it needs to achieve minimum sustainable sales. That's 5,000 per month... which means focus on the big picture, acknowledging the true issues. Reality is, the generous tax-credit help will expire and gas prices will remain unsupportive of high-efficiency vehicles.

- 1-01-2015 Game Changer, part 2.** Just 11 days from now, the second-generation Volt will be revealed. Some long-awaited details will be provided. Reading online speculation, it's still a mystery what GM is trying to achieve. Years back when the first-generation began to fall well short of goals, the response was delay. They told us to be patience, that the game-changer will come from the next instead. Now, that's less than 2 weeks away. Will it? Should we really be expecting those same goals to now be delivered? The answer is an overwhelming no. The huge success of EV offerings ended up changing the game. So now we again ask, who? Knowing what consumers the new Volt is attempting to lure is absolutely vital. Will it focus on the priorities of family transportation? Or will it appeal wanting to tradeoff that balance in favor of performance? Recently, it's all been extremely vague. Obviously, the rest of the industry is waiting for the reaction before taking a step forward themselves. It's simply made no sense not knowing what GM deemed important... know what their goals are now... knowing what they think the game is.
- 1-02-2015 Questions Remain.** The topic of the day on that daily blog was about a Forbes article asking the very same questions I have all along. Some comments right away reflected a not-so-happy outlook. This is the one which stated an expectation I wouldn't have ever been able to post myself: *"If you are like me, and wanted the Volt to be less expensive and go mainstream, then I predict we will be disappointed."* But now, others are chiming in with similar sentiment. I posted: Yes, questions remain. The biggest one continues to be: Who is the market for Volt? The most influential is still: When with the *"nicely under \$30,000"* be achieved? Having not reached the goal of 5,000 sales per month yet and now having to deal with gas that's only \$2 per gallon makes the upcoming reveal in less than 2 weeks a very big deal. Specifically, answers need to be provided. Investors, both business and consumer, are looking for direction from GM about what the plan is for Volt. Is this next step a clear effort to break into the mainstream and make the technology a high-volume profitable seller?

1-02-2015 **It's Happening Already.** The lack of any clear message with the first-generation Volt turned it into a mess. Then when rollout began, chaos. A complete lack of any particular goal is dooming the second-generation to the same fate. I had no idea what started out as a constructive discussion this morning would degenerate into a Prius bashing session like that. Not mentioning it or Toyota was what other attempted. But when the posts become more and more worrisome, they revert to attacking a scapegoat rather than actually addressing the issue. I was astonished that they'd turn to loyalty attacks and spinning history like that. When that group of enthusiasts recognizes the significance of cost-reduction and the importance of high-volume sales, it's a good sign. Falling apart so quickly is a sign of trouble ahead though. That most devoted group doesn't see that being realistic. What does that mean? Can we finally move on? Having Volt constantly clamoring for attention and not delivering was hard enough to deal with. But now that specific need has not been met, how will the fallout affect the rest of the industry? That's been the concern all along. If GM wants to focus on want instead, is that going to be a problem for the other automakers who are actually targeting middle-market? Remember how Volt was promoted as a mainstream solution even though it didn't satisfy purchase priorities of ordinary buyers of high-volume cars? Are customers who consider the purchase of a traditional car really going to be disregarded again? We're certainly seeing an indication of that happening already. I sure hope Nissan, Ford, Toyota, and the other automakers who are striving to breakout beyond niche aren't pulled into the mess. It's really unfortunate to witness this. It's sad that talented engineers will deliver technology advance that won't reach the masses. This is why adhering to those original goals has been so important. Who? When?

1-03-2015 **Enablers, part 1.** Remember why I joined discussions on that daily-blog for Volt all those years ago? It came from the hope of building an ally. The first step was getting cooperation from correcting posts with incorrect information. Much of that started from misconceptions which originate from assumptions. The process should be simple. You provide detail explaining how the system actually operates, they acknowledge the misunderstanding, then we move on as partners. Instead, there was outright hostility from the belief that no partnership could ever exist across automakers. Those enthusiasts sincerely believed a joined effort to promote plug-in would ever be possible... hence the "*vastly superior*" exclamations. They took advantage of those misconceptions for the sake of greenwashing. That ended up becoming a disastrous choice, creating chaos among supporters. First-Generation Volt fell apart from mixed messages and lots of uncertainty. Will the second suffer the same self-deprecation? Who knows. At least the rest of us are looking at the big picture. Today, it was specifically the enablers on the forum dedicated to Leaf. Someone on the big Prius forum pointed out an active thread there which was disparaging to Prius PHV owners. That didn't upset me. Behavior like that is to be expected. In fact, friendly rivalries can sometimes emerge. We'd like that. The problem was seeing a few high-posting participants on the big Prius forum also participating there very often but not making any effort to counter the greenwashing. They are enabling that activity with intent to undermine by not speaking up and providing corrections. Irritated, I called them out on it.

1-03-2015 **Enablers, part 2.** Here's what I posted on the big Prius forum after reading that long thread on the Leaf forum: What gets me is how they make blanket statements about minimum capacity without taking into account how far the person actually drives. If you have a 12-mile capacity and only drive 12 miles to the destination, that's an excellent use of capacity. Recharging before driving back makes perfect sense. Why in the world should you be required to have more in that case? For that matter, why would you plug in if you already have the capacity to return without? What really gets me though is how members here who participate there serve as enablers. For example: *"Yes, slower, because any faster than 61 MPH and they're blowing through gas at the rate of 1 gallon for every 50 miles, lol. But seriously, the first 5-6 miles of my freeway commute leaving downtown is always behind a PiP doing 60 MPH. After that 6 miles or so at freeway speeds they are out of battery and the gas engine fires up, then I think they finally speed up."* Failing to respond with the correction information not only allows the misconception to continue to be spread, it also provides a bit of legitimacy to it. The belief that benefit from plug-supplied electricity is lost entirely at speeds faster than 61 mph is successful greenwashing, where certain individuals intentionally misled about how the system actually works. The reality that it is allowed to continue is just plain wrong. Same goes with the "6 mile" range. Here, we know that is an exploited misunderstanding of the EPA rating. But the effort to make people assume that is the entire capacity available has been very successful. It's quite irritating to read misleading statements. It's even more so when you know there are those who can stop them. How much effort would it take to point out the system delivers +100 MPG at 65 mph? Come on! Someone needs to make an effort. The same goes for pointing out the EV capacity. We all know here that the charge is far from used up entirely at just 6 miles.

1-04-2015 **Aggressive Look.** A factor contributing to the delay of the next-generation Prius which didn't get much attention at first but now is has been stirring new discussions. I was annoyed that the obvious stay-away and expiring-patent factors weren't acknowledged. People mostly focused on fabricated conspiracy theories, rather than actually looking at the detail presented and studying past history. A big part of it is likely not actually having paid attention until recently and even now only looking at Prius. Stepping back though, we see Toyota is taking on quite an effort to add visual excitement to their product-line. Camry & Corolla very recently just went through significant aesthetic changes, really big ones. You can see that with the newest Lexus rollouts as well. Long story short, the body design for Prius was rejected. Having achieved a unique look, which competitors attempted to stigmatize over the years, brought about the late decision. Back when it was introduced in 2003, Prius was the only midsize hatchback offered in this market. That made it an easy target for greenwashing. Underminers would claim the visual aspect was the reason for strong sales, claiming it made a green statement only with no other appeal. The fact that the shape also offered an extremely practical cargo-area was outright dismissed. Well, all these years later, other automakers have caught up. They too offer larger hatchbacks and even wagons. So in the spirit of self-fulfilling fantasies, the ultimate backfire is for Toyota to take advantage of the supposed green appeal. Why not? After all, it was the competition who set that precedent. So, Toyota has set out to make the next Prius take on an aggressive look.

1-04-2015 **Showing Votes.** That daily-blog for Volt is like that old forum with the obtuse "*up to the chore*" discussion all those years ago. The structure of the forum contributed profoundly to the unending nature of that thread, which ironically was what contributed to the ultimate end of the forum itself. Elsewhere on the internet where hybrid & plug-in discussions take place, the likes are displayed with the names of who submitted those votes. On this one though, you don't even have to log on. In other words, there's no accountability. That prevents constructive discussions from ever really taking hold. If someone doesn't like what was posted, they just keep voting until the post disappears. Of course, we know one of the people responsible for that. His posts are nothing but personal attacks, never responding to any of the actual content. It's such blatant bad behavior, I'm amazed the moderator hasn't done anything to stop it. After all, the moderators of the big GM forum eventually ended up needing to do that to restore the credibility lost as a result of that enabling. Of course, the daily-blog wouldn't attract much participation then. After all, many of the same topics are also published on the parent-site before there and very few comments are posted... yet another indicator of what's to come for Volt. Allowing that behavior shouldn't be necessary to get people to post. Needless to say, I'm thrilled by the progress elsewhere on other forums.

1-04-2015 **Structurally Deficient.** Of the 20,000 bridges in Minnesota, there are 1,200 of them which are structurally deficient. In other words, we are still struggling with the same problem as when the one fell here 7 years ago. How many other states do you think are in similar situations? Having to closely monitor the safety of those bridges shouldn't be necessary. We should have been replacing them over time, budgeting to cover the cost along the way. Instead, the resistance to using tax money for that continues. To make matters worse, that disregard for the future is reflected by the roads too. There's 12,000 miles of state highways alone. Funding for infrastructure still isn't getting the attention it should. With gas prices so low now, it's hard to believe raising funds how would be a problem. Yet, we know it will. Currently, the tax-rate is 28.5 cent-per-gallon. Trouble is coming and many people are strongly opposed to actually paying for what's needed. It's really sad. Notice how there's still a heavy dependence on tax-credit money for plug-in vehicles, yet none of those in favor of that want to address funding? How things are paid for is really nasty. Reading the online-comments from today's article published in the Sunday newspaper on this topic make that overwhelmingly clear. I find it so hypocritical how the "*no free lunch*" argument is often used, but the cost part not addressed. It's quite frustrating.

1-05-2015 **Not Knowing Yet.** We won't have details about the next-gen Volt until a week from now; however, we did get more of a look at the vehicle exterior. GM revealed all but the back end of the upcoming model. These were some of the comments which caught my attention: *"I'll reserve judgment until I see better pics of the whole car, but so far, it appears that Volt 2.0 has taken a step towards being more ordinary."* and *"They are trying to go mainstream with the looks and I think that's a mistake."* and *"I'm disappointed, looks pretty boring!"* There's an obvious effort to make the new Volt stand out less, to make it blend into the crowd now. I see it more as GM recognizing how futile it was to concentrate effort on conquest sales. They and enthusiasts worked that angle to death, neglecting their own customers in the meantime. The showroom floor experience was totally disregarded. That's where Volt varied dramatically from Prius. Toyota made sure that Prius was presented along with their other vehicles, making it seemingly ordinary from observing it up close at the time of first-hand research. People know the Prius name, but for many, it wasn't until being at the dealer that they ever actually considered one. They wanted to capitalize on the opportunity of someone interested in purchasing a Toyota vehicle but never having considered a Prius. Many, many, many owners were captured that way. In the past 4 years, I haven't heard a single story of a Volt owner having discovered Volt on the showroom floor like that. Now we know, GM is shifting over to the same type of buyer. Yeah! Of course, the "not knowing yet" part of the equation is making both enthusiast & support quite crazy at the moment. They want to know detail about how this more ordinary looking version of Volt will actually perform.

1-06-2015 **Doing The Math.** One of the supporters of Volt tried to help out the enthusiasts with: *"If sales go up to 50,000 Volts sold per year, that would still be 2.5 years of Gen II sales to exhaust the credit. The full credit wouldn't expire until the beginning of 2018, which is a long time from now. Plus, then there would be 6 months of sales with a \$3,750 credit, and after that 6 months of sales with a credit of \$1,875."* My dose of reality was obviously not going to make him happy. But all the poking now for goals is to make sure expectations are properly set. If you don't, the spin afterward will get out of control. Fallout happens from not preventing. We should have a clear understanding prior to the reveal of Volt next week of what GM is truly attempting to deliver. And yes, that includes knowing who the audience is. Do they expect to produce a lot of them? Will it be profitable enough to compel dealers to stock many and for salespeople to take the time to sell them? Are they intended to diversify offerings in the few years? What the heck are they trying to accomplish? With the limitations of the tax-credit money, that's important to know. Needless to say, there are many questions. I responded to that post with: Gen-2 won't be mainstream either, despite all the hype telling us it would easily hit that mainstream minimum of 60,000 annual? It is good to be realistic. Since Nissan will run out of tax-credits earlier, it is quite reasonable to expect them to ramp up competition pressure prior to that happening. Already, we know that's happening with Tesla. We can see that plan clearly being formed by both Ford & Toyota too. Then of course, there's the bitter reality of growing GM sales among their traditional fleet. Notice the December sales of 16,817 Malibu, 17,800 Cruze, 13,088 Impala, and 21,298 Equinox? Heck, even the 5,456 Sonic clearly shows that. The competition will be from all directions. It's essential that Volt achieve the 5,000 per month prior to tax-credit money being reduced. Because when that reduction starts, sales will become even more of a challenge.

1-07-2015 **5,000 Per Month.** Certain individuals really get riled up when sales are discussed. Well, too bad. That's the reality of business. As much as they like to show off trophies, the bills still need to be paid and supposedly, this was to be a high-volume profitable vehicles. It's a simple equation. Many need to be produced & sold. Anywho, I sounded off about that this way: Notice how the original goal of Volt becoming a top-seller among GM's popular car offerings still isn't being discussed, despite being on the verge of next-gen reveal? We've been told for years that patiently waiting for this upgraded design would get Volt back on track to becoming the game-changer which had been promised. Fine. The delay was an admission of not having understood all the market needs & pressures, that the next would address them. That standard industry sales watermark of 60,000 annual has been in place for well over a decade. It helps to identify the profit-earners in this time of increased competition. Big automakers require those high-volume self-sustaining vehicles to survive. We've been expecting Volt to join in, to fulfill that role. The purpose of the tax-credit is to accelerate the acceptance process. So by the time it begins the phase-out process, monthly sales would have reached a rate where less assistance wouldn't have any impact. In other words, sales would be comparable with the other profit-earners. Not even having reached the watermark at that point of phase-out means struggle ahead. This is why that "*Who?*" question continues to be asked. Lots of buyers are needed to achieve the goal. Like it or not, gas is cheap and the clock is ticking. The reveal coming up in just a few days is a really big deal. There's much at stake. Ask yourself what's truly necessary for sales to increase significantly, to a minimum of 5,000 per month.

1-07-2015 **Mission Accomplished.** When goals aren't actually met, but you want to call it good enough and move on, you make the declaration of "*mission accomplished*". That's the ironic expectation nowadays... which is what the fans of the first-gen Volt have been doing. Unfortunately, GM's executive chief engineer of electrified vehicles, said the Volt in 2010 had two goals: 40 miles all-electric range and 300 miles in charge sustaining mode. I wasn't surprised to see it. Pretending other goals weren't set is nothing new. Lowering the bar for the upgrade isn't either. It sets up an environment for mixed expectations, the very thing that caused the original fallout. Next week's debut certainly will be interesting. In the meantime, this is what I ended up posting in response to the mission accomplished discussion: We know there were other goals. The big ones were getting MSRP below \$30,000 and hitting that 60,000 annual milestone. Neither was achieved with the first-gen Volt. They choose to say "*mission accomplished*" and move on. That's fine. The question now is: Will those same goals apply to the second-gen Volt? If not, what is the mission? Watching sales numbers like we saw for December (16,817 Malibu, 17,800 Cruze, 13,088 Impala, 21,298 Equinox, and even Sonic at 5,456) leaves you wondering. Shouldn't a goal be to attract those customers to Volt? Shouldn't we have an expectation of seeing Volt included in the list of GM top-sellers?

- 1-07-2015** **Major Concern.** The response to that mission accomplish was explosive. I sat back and watched the posts & voting go wild throughout the day. Eventually, I ended up posting this later in the evening: "*The extreme reaction to asking that is confirmation of having identified a major concern. Only a few more days until we finally have some answers.*" That was it. Nothing more needed to be said. I clearly had identified a major concern. They're so hypocritical, I don't know where to begin. For years, those enthusiasts were telling us how sales would dramatically increase when the next-generation model was rolled out. Now, there's a message being sent that it will remain a niche, that the fiercely defending mainstream delay really never was a goal, that the market will experience only minimal growth. There's no expectation for fuel-efficiency leadership anymore. Sales of the traditional vehicles will continue to grossly overwhelm Volt. Wow! While Toyota strives to deliver a choice that's competitive, GM continue to focus on want instead. Ugh.
- 1-09-2015** **Engineering Triumph.** Based on the information people have been able to glean so far, it appears as though GM did some rather major redesigning to the second-generation system for Volt. Looking back at Toyota, that really didn't happen for Prius. The approach was already well thought out for the wide variety of operational conditions the vehicle would have to deal with. We saw an increase in voltage and an increase in both teeth & carrier count for the PSD. There was the replacement of the reduction-gear with a second PSD. The motors could run at a higher RPM than previously too. It sounds like Volt underwent more significant changes... which begs the question of cost. The word is that the new system will deliver quite a bit more power. Why? Enthusiasts have been gloating for years about how "*vastly superior*" the performance actually was. What is the point of adding to that? It's an engineering triumph we'll hear about to no end, but there wasn't a need for it in the first place. The system already fulfilled power requires. Perhaps if that was a side-benefit of the improved depleted efficiency, then it would make sense. But since that CS-mode expectation isn't anticipated to be a major improvement, there is good reason to question intent. For that matter, we have to wonder about overall purpose. Mainstream consumers couldn't care less. As long as the technology is efficient, reliable, and affordable, details of the engineering are meaningless to them. Even when it comes to generalized goals, there's no point. Notice how the enthusiasts changed the goal from delivering a "*game changer*" to just "*proving it could be done*"? We already knew it was possible. The question was whether or not the cost could be realistic for profitable sales. The answer to that is an overwhelming no; yet, that aspect of engineering isn't given much... if any... attention. That's a lose-lose situation. Both business & consumer losing isn't a triumph.

- 1-10-2015** **Cheap Gas.** It's really strange watching it drop. We never imagined prices ever being so low again. True, it's only temporary and it does put a new twist on boiling the frog. But even so, this is uncharted territory. Seeing \$2 per gallon along with plug-in vehicles adds an element of the surreal. The situation makes you wonder what comes next. How will the EV be marketed? Getting it thought of as anything but a niche was already challenging. We cannot talk about the new "normal" when we are back to cheap gas. This is definitely a head-scratcher. With the market for trucks already ramping up competitiveness, how will the lower price of gas influence purchase decisions? For those who actually use their trucks as trucks, it's nice. For those who want a truck but clearly don't need one, will they jump on the opportunity anyway? That is how the SUV market got so crazy. In fact, that's why the small ones are so popular now. Let's not forget the underlying reason the big ones became so popular in the first place: Profit. Rather than invest in the future, there was the quest for quarterly-returns for stockholders instead. That's sad. Trucks continue to be high-profitable. Cheap gas will likely help them a lot.
- 1-11-2015** **New Location.** My data, ever since my first Prius 14 years and 4 months ago, has been consistent. Having the same driver and same routes made endorsing the technology easy. It was very clear to see the influences of factors like temperature & traffic. That's about to change. In roughly 6 weeks, if all goes well, I'll be moving. We found a home to settle down in. The location is fantastic. There's no need to drive to either of my favorite small lakes to rollerblade around. All 3 are just a few blocks away, rather than miles. The one is our favorite to kayak on too. So, the journey with the Prius to bring them over will be a very short one, perfect for the plug-in. The location is scenic as well. Sunsets during this time of year can be spectacular. It will be quite convenient being able to just back the Prius out of the driveway to capture it with the colors. I may be able to do the same across the street with sunrises. In other words, we got really lucky with that particular house. Being in the right place at the right time has to happen to someone. Why not us? Making the situation even more exciting is the fact that this garage should make the installation of a 240-volt charger really easy. Everything is right there and I believe the input is enough to offer a dedicated high-amp line. However it plays out, this is a great opportunity. We have a lot to look forward to. I feel quite fortunate.

1-12-2015 **OMG!** The reveal happened. The following details stirred far more than even I imagined: *"The front-wheel-drive compact hatchback's new 1.5-liter Ecotec generator now runs on regular gas instead of needing premium, and combined fuel efficiency on gas is expected to be 41 mpg – up from 37 mpg for the present Volt."* and *"...with rear legroom increased by 0.6 inches and rear headroom decreased by 0.2 inches."* and *"Its new top speed is 98 mph and while the battery is charged the gas engine does not come on even if the accelerator is pressed to the floor. This differentiates it from every other plug-in hybrid and makes it its own unique type of vehicle."* and *"Its new 0-60 time is quicker by a half second at 8.4 seconds estimated, and the 0-30 time has been cut by 30 percent to 2.6 seconds."* I posted the following on the big Prius forum in response to such revelations: Even without knowing MSRP yet, it's clear that the audience didn't shift. Offering 1.3 inches less legroom in back is a big letdown. We saw lots of posts just last week saying people were hoping the headroom in back would increase; instead, it shrunk a tiny bit. As for the performance increase, why? We certainly weren't hearing anything related to the current model under-performing. In fact, we've had to deal with quite a bit of gloating over the years about how quick & powerful the system already was. What do those same people have to say about the new one? With what was just revealed, it's going to be a difficult argument claiming the next-generation was designed to appeal to ordinary consumers, those who would have just purchased some other GM car.

1-12-2015 **Niche.** Now we know. I got a kick out of reading this particular comment: *"This can still be an excellent commuter car & occasional small family car for many people. It occupies a unique and important niche for a 50 mile EV roundtrip commuter car (plus range extender) that only requires overnight charging or a 100 mile EV roundtrip commuter (plus range extender) with workplace charging. That's a very large niche."* It's among the very first damage-control posts on the big Prius forum about the new Volt. When expectations aren't met, posts like that are what happens. Hey, at least they are being sincere. That's a huge improvement over some of the nonsense we had to deal with in the past. This was my remark to that: The hope was this generation would become the one to take on ordinary competition, winning people over on showroom floors and dealer lots. Watching traditional vehicle sales absolutely crush the plug-in segment is obviously unappealing for everyone involved. A win anywhere from any automaker is what's needed. We need something for the masses. I'm glad Toyota has always remained true to their pursuit of affordability. The Original Prius strived to keep costs in check, rolled out with an attractive sticker-price right from the start. When the Classic, Iconic, and +2010 all rolled out, the temptation to shift priority was avoided. The power & capacity increases were modest as a tradeoff to keeping it affordable. Toyota obviously could have delivered more. The hybrid Camry clearly demonstrated more power was easily available. So, we've been led to believe GM would keep performance (speed, power, capacity) as is and instead focus heavily on cost-reduction instead. True, everyone likes more EV range, but we've seen how effective blending can be. Why not taken advantage of the hybrid system? That way, a competitive model with more leg & head room in back could also be offered. This design approach doesn't address the reality of traditional vehicle sales. What do you think the MSRP will actually be?

1-12-2015 Underwhelming. That's the best way to describe the overall response. Of course, with a generation improvement, that would be the anticipated outcome... since incremental is the proper expectation. The problem was, both enthusiast & supporter were hoping for a major redesign. They essentially wanted a complete redesign. Since the first-generation of Volt was written off as an "*early adopter*" rollout, rather than the "*game changer*" it had been promoted, that made sense. In other words, they had convinced themselves this wouldn't happen. Well, it did. The second-generation will likely be trapped as a vehicle not for the masses. With the long-term future hope of \$275 per kWh for the battery, cost will still be uncompetitive. Nissan will continue to push for a less expensive platform... no engine, no liquid cooling. And with Leaf using up tax-credit money at a faster rate, there's obviously going to be pressure building on Volt. In the meantime, Toyota hasn't played its hand yet. Those cards they are holding continue to remain unknown. What we do know though is the audience for Prius. It's the masses. That's why keeping battery-capacity small and battery-cooling air is what PHV has pursued. It's how to keep competitive, without dependency on tax-credit money. We know that the typical consumer will be thrilled with modest EV. That's just basic automotive study. You can see examples of the trickle-down effect from a wide variety of vehicle technologies of the decades. This isn't anything new. Don't let the enthusiasts convince you of that. Do your own homework. See how components now considered ordinary had their start. Look at what happened to those technologies as they were adopted by the masses. Then, think about this particular instance of being underwhelmed. What should they have expected?

1-12-2015 Distraction. In the very predictable style of GM, when an "*over promise, under deliver*" situation occurs, they make an announcement to distract. Well, sure enough. Exactly as anticipated, Volt's reveal was preceded by that very thing. GM introduced us to Bolt. It's nothing but a concept vehicle with a bold promise. They presented it as a 200-mile range EV with a price of \$30,000. Right away, there were those of us seeking out detail. The first big undercover was the fact that the price included a \$7,500 tax-credit. The second was that the vehicle wouldn't be available until at least 2017. That meant it was really more expensive and that the expectation of Volt sales will continue to be so low that the tax-credit wouldn't have been used up by then. GM is obviously desperate to compete directly with Tesla & Nissan; they've clearly given up trying to compete with Toyota... who continues to seek out solutions to replace traditional vehicles. We hope, of course, that Model X and Leaf really do attract ordinary consumers. But not everyone has the same need. The masses aren't ready for exclusive electric-only choices yet... which is why GM started with Volt in the first place. Oh well. It's not like we haven't pointed out the mixed messages. Perhaps this will ultimately turn into a diversity outcome. That would be great. Right now though, it is clearly a distraction.

1-13-2015 **How?** I waited 2 days before posting anything on that daily blog for Volt. It was a large thread that went no where. The title was: "*2016 Volt seats five, promises 50 miles electric range.*" Discussion points were all over the place. It was a chaotic mess. Opinions were all over the place. Not knowing price for at least another 5 months means the posts will likely fizzle to almost nothing, since that's such a massive factor and no other detail is expected in the meantime. I climbed up on the soapbox for a quick sound-off: 5 seats? Not if you have legs! Any child old enough to not need a booster-seat won't fit. No one older will fit either. Last week, there were many posts stating the hope of having a headroom increase in back. Instead, there was a minor decrease. Also, the modest increase in legroom wasn't enough to reach midsize class. Strangely, the rear window still lacks a wiper. And whether you feel MPG in CS-mode is important or not, that depleted efficiency being much higher is an expectation not fulfilled. Appealing to mainstream consumers didn't happen. Fine. Appealing to the car enthusiast is the focus of this newly revealed generation. Having that clarity of purpose early on is great! However, the fact that high-speed charging won't be offered does leave you wondering... especially with GM now embracing the EV, something they heavily campaigned against in the past with their "*range anxiety*" promotion. Whatever the case, we move on. It feels good knowing clashes of the past are over. We finally have an answer to the "*Who?*" question. Low gas prices and the growing demand for trucks and small SUVs will continue to increase pressure though. That reality cannot be avoided. It changes the question now to "*How?*"

- 1-14-2015** **Different Animals.** It has been fascinating to witness the reaction to the Volt reveal. There was no "*over promise, under deliver*" this time. It was simply hoping for the best... which clearly didn't happen. Instead, there was a change in direction. Last time, Volt enthusiasts became Prius antagonists with "*vastly superior*" taunts. It's a chapter in their history they attempted to distance themselves from by shifting focus over to Leaf instead. Ironically, that was what Volt was intended to compete with. Remember all the "*range anxiety*" campaigning? Well, when people started purchasing more Leaf that Volt anyway, enthusiasts changed goals. It was an act of desperation... making the purpose of Volt questionable. Things went downhill from there. The situation was a mess. GM made choices with the next-gen Volt to get them back on track. The decision was to compete with EV offerings. Prius PHV, Fusion, Energi, and C-Max Energi would now be recognized as plug-in hybrids without the contradictory EREV definition confusing matters. GM made Volt more of a EV, even though it still would be forced to run the engine in extreme cold conditions (what we call a normal Winter here in Minnesota) and would use direct-drive more following depletion. The next Leaf is expected to deliver quite a bit more of a range increase from the current 84-mile rating. That makes the new Volt's expected 50-mile rating a head-scratcher. True, it should do a better job of covering EV travel needs. But at the same time sours the engine-running experience even more. Whatever the case, it is GM who will have to deal with that. Toyota, Ford, Honda, and Hyundai will all be trying to deliver a well-balanced solution for the masses. That means a small enough battery to keep it affordable and not impair passenger/cargo space, yet still deliver much improved emissions & consumption over traditional vehicles. It summed the comparison outlook on the very active thread about it with: Yup, the business purposes of Volt and Prius PHV are simply far too different. The consumer audiences are not the same either, which GM clearly just confirmed. Toyota's quest to keep it affordable (traditionally competitive without tax-credits) means expectations for the Gen-4 are no cross-shopping. There will be plug-ins offering speed, power, and distance, then there will be Prius offering a balance of traits with the intent to appeal to a wide array of potential buyers. You calling them "*different animals*" is an excellent way of stating it.
- 1-15-2015** **Didn't Happen.** Curious as ever how that daily blog for Volt will change, I've been refraining from saying much. Posting thoughts isn't needed anyway. There are many others already doing that, making the very same observations I have. It's no secret what had been hoped for verses what was actually unveiled differed quite a bit. That leaves the past vulnerable to spin. A lot of misleading has come about as a result. It's not a big deal. Lack of substance causes most of the rhetoric to pass quickly. I did take issue with misrepresentation of goals though. So, I did end up chimed into a discussion with: The vaporware comments were based upon GM's claim of delivering a 40-mile all-condition range plug-in hybrid for "*nicely under \$30,000*". It didn't end up happening. MSRP was well above that price and range was well below. People assumed, without taking the time to consider detail, like production-cost or heater-impact. They also believed the "*leap-frogging*" Prius meant a vehicle of equal size with similar efficiency following depletion. That didn't happen either.

- 1-15-2015** **Advice.** Now that Volt has vanished from the picture, no longer undermining Prius with bold promises it couldn't keep, we are seeing a shift in posting activity. We are seeing more of the new owner posts. Yeah! Getting drown out by rhetoric was horrible. I'm sure glad that's over. That nonsense of the past was very frustrating. I enjoy sharing advice. Of course, it's even more rewarding seeing others share the same wisdom without me. But today, I did some by answering a series of commutes about Winter cabin heating: If you want to warm-up the system for heat, turn on the heater. If you want it to warm-up faster, turn on the defrost (since it increases engine RPM, on the plug-in model anyway, not sure about the C model). Low blower and low temperature (like 65) will keep you from feeling much for cold air in the meantime. You need that to keep the window clear anyway. If there's no concern about humidity, you can change the vent to recirculate. Having an aftermarket gauge will allow you to know exactly when the air goes from warmish to hot, by monitoring the coolant temp. Blocking the grille to increase heat-retention and reduce cold air-flow is helpful too.
- 1-15-2015** **Normal?** Some operational aspects of the hybrid system are counter-intuitive. New owners often ask what the heck is happening. They sometimes even wonder if something wrong. Active members of the big Prius forum help out by responding with detail. Today, it was my turn: That's quite normal. Since your Prius doesn't have a plug, it seeks out the most efficient opportunities to recharge the pack. It will start the engine when the power load is at a balance, where some of the resulting output can be used to generate electricity. Note the at the plug-in model does the very same thing when in HV mode. It takes advantage of the engine. Also, keep in mind that some of the generated electricity will be consumed immediately and the fact that the energy-flow from the system will change rapidly & often. Watching the screen, you can see it happening anywhere from 10 to 20 times per minute. That's the result of having a PSD (Power-Split Device) connecting a gas-engine with 2 electric-motors. The dynamic nature of that design is often not realized by new owners... who question why the heck the engine started. You're not alone. That is indeed what's suppose to happen. If that makes sense, now consider the other goal of reducing emissions. It seems counter-intuitive to run the engine without having first exhausted the battery. Keeping the emissions from engine exhaust low requires heat. That heat is used by the catalytic-converter to cleanse the exhaust. When the engine runs, its own heat that it creates is used for the cleansing. The heat is retained by the coolant. It's an interesting cycle of one feature taking advantage of another.

- 1-15-2015** **\$1.85 to \$2.09 per Gallon.** What a strange thing to be writing about. But when the President makes a statement about trying to be realistic, to properly set expectations about the price of gas, and it results in hostile rhetoric, you have to respond. I was dumbfounded by how un-understanding some people were. The posted comments on the article I read were amazing. People were blaming him for not allowing them to "*catch a break*". It was very clear that many has absolutely no clue why the price was so low. For the first time in over 30 years, the United States is actually exporting more oil than it is importing. That's a bizarre switch. The surplus from the increase interferes with the delicate balance of cost. Normally, the oil-producing nations would reduce their pumping rate to balance out supply. But this isn't a temporary situation, as in the past with surplus issues. The volume change is permanent. The United States is drilling more. They continued as usual anyway. It pushed price down. Obviously, that cannot continue for too long... hence the warning not to rush out and purchase a guzzler. Being realistic means recognition of the problem. The market simply cannot be flooded with excess inventory like that. Those oil-producing nations depend upon money from the sales of their oil. Low prices hurts them significantly. We're seeing the price increase begin already. Where it will stop is anyone's guess.
- 1-16-2015** **Semantics.** Having been pulled deep into those arguments years ago, there is now a strong effort to avoid dealing with that again. It's a waste of time. Nothing is accomplished anymore from any type of labeling. In the past, the point was to simply point out that the systems were not the same. That goal has been achieved, so no need to dwell. Unfortunately, there are a few antagonists who thrive on debate exchanges. One such attempt to stir was: "*It is a full or strong hybrid for being able to propel the car at 75mph on electric alone.*" He's well know for getting into intense pointless points. Being constructive means working toward a goal. The quote certainly didn't pursue that. I choose my words carefully, responding with this hoping to direct the thread off the obvious tangent: The definition of FULL has always (for 15 years now) been any system with the flexibility to deliver propulsion & generating both with the engine and without, as well as blending & separating through the use of some sort of power-split device. That's why IMA was always identified as a different type. Since it only had a single electric-motor and it was connected directly to the engine, it lacked some of those abilities... hence it being just an ASSIST hybrid. At no time has there ever been any MPH or even KW criteria. And without the flexibility, is not a FULL hybrid. That's why we are trying to get away from labels... especially since they are so much less clear now with the variety. People will looks at whatever claims are made and validate. No more taking things at face value. Yeah!

1-16-2015 Quick & Painful. It's late Friday evening. Details of the new Volt were revealed very early Monday morning. Discussions have died already. The big GM forum had literally nothing. I'm amazed at how quickly the disappointment spread. Expectations were much higher... and clearly were not met. It was a painful outcome. Too bad. The PEV Owners meeting was yesterday. I got to chat with a number of Volt & Leaf owners... as well as Tesla and even a Mercedes B-Class. We had a blast getting to share stories and discuss the future. There, we were told 7 high-speed DC chargers had just been made available throughout the metro area. That puts Minnesota on the map for super-fast charging opportunities. It's great for traveling further with your EV. What a fantastic debut! Minnesota is already the #10 state in the country for EV ownership per-capita in the United States. Anywho, the point is GM's choice to focus on more EV competition and abandon traditional competition puts Volt in an awkward category instead. With ranges & capacities increasing and more & faster chargers becoming available, that's going to be a tough sale. Look at how well Leaf is already doing. Speaking with those owners last night, range-anxiety is non-existent for some. Nissan knows that and is targetting those consumers now. In 2 or 3 years, we'll see the big improvements several automakers are striving to offer. How Volt will compete with that, especially without a tax-credit, remains a serious concern. Whatever the case, I'm glad Toyota's focus is the masses who would otherwise just buy a traditional vehicle. It's an odd sense of balance having market diversity in that fashion. It comes with quite a bit of risk too. Screwed gas prices and fickle consumers are a challenge to plan business around. If this week's discussions are any indication of Volt interest, GM is in trouble. Remember what happened when final production details of the first-generation Volt were revealed?

1-16-2015 Argument Sparring. I got a big kick out of reading this series of posts. It started with: *"GM is still by far the leader in Hydrogen Technology... They forced Toyota's hand since the Volt has virtually spelled the death knell for the Prius as a hybrid technology."* That was on the big GM forum. So naturally, I was quite intrigued what kind of response that would generate, especially since the thread was about a Toyota Mirai driving report. (That's the new fuel-cell vehicle which recently sales recently began in Japan.) The respond post started with: *"What do you mean by leader? Better technology? Where are they keeping it? Did they forget it under a table somewhere?"* Rather than something actually constructive, the thread got lively with this: *"I really like the Volt, but it is in no way a threat to Toyota hybrids yet."* I was obviously captivated at that point, very interested in what would be posted next. It was: *"A 50 electric mile volt, plus 41 mpg on generator with over 400 miles total range that can sit 5 is and costs around the current volt is not going to affect prius sales?"* That deserved a LOL reply. Prius is currently aimed at buyers looking for something not requiring a plug. Volt isn't even in the same category. Talking about not understanding audience! Of course, what I found hysterical wasn't that blatant disregard for who. It was the claim of being able to sit 5. That fifth seat is a joke. There's no legroom whatsoever. It's a battery-pack mound covered by 2 cupholders. Nothing but a small child could actually be seated there. Ugh. Thankfully, that nonsense same to a sensible end: *"I really love Voltec, and a Volt would suit me just fine, but it made nowhere near the splash it could have. I was expecting it to be a rival for HSD right out of the gate, but somehow GM sold fewer this year than last."*

1-17-2015 **Too Little, Too Slowly.** Remember that concern? Remember why it came about? There's a massive need to deliver clean & efficient choices for the masses. Ordinary people have to purchase something. Business profit must come from something. Remember how the second-generation Volt was to fulfill the need? It's an uncomfortable position not having any particular goal to look forward to. There are even any mixed messages this time. The outlook is grim. Oddly, you'd think there would be cries for patience to wait for the price reveal. But then again, having learned the lesson of silence is possible. Who knows? What we are certain of is that depleted efficiency was only modestly improved, that the legroom & headroom in back is still cramped, and that there is no fifth seat. That makes us all wonder what comes next. GM's focus away from mainstream consumers is a welcome sign for Ford & Toyota, the automakers who wish to target the high-volume profitable audience. I had really hoped the next Volt would somehow change to address the same goals... instead of remaining in the niche category. Oh well. There isn't much that can be done anymore. Buyers will be pleased. The vehicle itself should perform well. In fact, I suspect we'll get lots of excited reports from new owners. Unfortunately, the problem will remain. GM customers will continue to purchase traditional vehicles in large numbers. We will be left waiting, again. Wouldn't it be amazing though if cost could have somehow been reduced to such an extreme that the new Volt could be delivered in massive quantity? Sadly, that doesn't look realistic yet.

1-18-2015 **Engineering Choices.** The big ones are made by management executives, not the actual engineers. Their choices dictate what happens with the engineering. This is why the next-gen Volt and its tie to Prius have been getting so much attention. Would GM stand true to their original goal of delivering a 40-mile range? If so, the cost of the vehicle would be reduced simply through their advancements related to battery energy-density. The side-benefit of that would be reduced size, resulting in increased cabin-area... as well as reduced weight and reduced support hardware. It was an opportunity we didn't know if GM actually would take, but hoped they would. GM didn't. Instead, the choice was to increase range and increase performance. The executive decision was to compete with EV offerings, rather than go after ordinary consumers interested in a high-efficiency hybrid. In other words, the answer to whether or not the new Volt would compete with Toyota PHV and Ford Energi is clear. It wouldn't. We went from a flurry of mixed messages over the years to extreme clarity. At the same time, we just got a unveiling from Hyundai. The upcoming next-gen hybrid system for Sonata would deliver increased passenger space and an estimate 39 MPG city / 44 MPG highway rating. That will likely work out to a combined rating of 42 MPG. The smaller Volt is expected to deliver 41 MPG following depletion. That seems close enough for competing... until a Volt supporter points this out: *"I am pretty disappointed with the 2016 gas mileage given that the less aerodynamic Accord Hybrid which weighs a similar amount and largely copied the Volt's drivetrain gets 50 city and 45 highway."* Then when you consider the improvement the next-gen Prius is expected to deliver, it becomes more and more clear why GM gave up mainstream aspirations. That hoped for high-volume sales soon has been abandoned. Hey, at least we know now. Makes you wonder what next step Honda will take with the plug-in Accord-Hybrid, eh?

1-18-2015 **PHV Heating.** It's so refreshing getting back to questions about Prius operation, providing answers to ordinary consumers trying to figure out how the system works. Hearing from those asking, without any engineering background, is great. It's reward to provide responses too. Today, it was about what happens when you request heat. That knowledge of how heating occurs isn't easy to undercover and it often ends with assumptions based on anecdotal evidence. So, I posted: The influence of the fan on the EV range is nothing but a reminder that the heater will cause the engine to run more often. That's it. The battery-charge level doesn't change. Confirming that is just a simple matter of watching SOC (battery charge-level) on an aftermarket gauge, like Torque or ScanGauge. PiP does offer an advantage over the regular Prius as to when the engine starts back up. The tolerance based on coolant temperature is variable rather than fixed. That means a lower setting on the heater will keep the engine off longer. You can clearly confirm that using an aftermarket gauge. And yes, the A/C does indeed come on while the heater is running. That's how dehumidifying is achieved when you press the DEFROST button for the front windshield. It's a normal operation on vehicles most people aren't aware of until they wonder why MPG drops as the temperature drops. For those who experience true Winter (that's when daily high temperatures remain below freezing), you can get the most out of the heater by monitoring coolant temperature. There's no reason at all not to run the heater if the coolant is has been warmed. Taking advantage of that waste engine heat is as simple as looking at a number on a gauge. You'll know exactly when the engine is about to restart too. In the meantime, you can cruise along in EV without freezing.

1-18-2015 **Media Substance.** We get a lot of hype articles. It's annoying. Today's was especially bad. I kept hoping for substance of some sort. The writer went on and on about how battery costs have been dropping, but never actually stated a cost. There were only vague references to percent changes. Upon re-reading the article, I noticed there was nothing about capacities or expected market penetration. It was nothing but a fluff piece written to tell us that someday we'll be driving without oil. It's amazing how you get the impression of journalism, but then later discover you didn't actually learn anything. It was just a waste of time. What I especially like though was the picture it painted at the ending: *"But ground transportation still makes up the bulk of our oil use. So when batteries advance to the point where oil is no longer used for cars and trucks, the Saudis, Russians and Iranians will find themselves selling what is suddenly a niche product. And simultaneously, the U.S., Japan, Europe and other energy importers will find themselves free from the yo-yo of global oil prices. In other words, it's less than two decades until we are free from the yoke of the petrostates and their nasty, backward regimes."* I couldn't resist posting that entire quotes. The average vehicle remains in service for 11 years now. That means just 9 years from now we'll be replacing all new vehicle production with electric-only vehicles. That's amazing... and a crock! It isn't even the slightest bit realistic for that to happen. Want to know more? I certainly did. Notice how the *"when batteries advance"* point isn't actually defined? That complete lack of criteria is what angers me. That's why I got on the Volt enthusiasts so hard about stating goals. They didn't. Expectations were always horribly vague, yet outcome would somehow be a miraculous success. No detail is reason for concern. Popular media often isn't interested. They just want your attention for a few minutes. Sadly, I got sucked into that with this particular article.

- 1-20-2015** **Unprofitable.** The disappointment from the reveal of the 2016 Volt was made undeniably clear. We went from great anticipation to silence in just a week. Since there's nothing else to discuss with respect to operational/configuration hope, the focus has shifted to production cost. Yesterday, it was this rhetoric: *"Although GM has added value to the 2016 Volt (more AER, improved interior, smoother transmission), almost every effort I see has been focused on reducing cost."* That was followed by a detail list of improvements. I couldn't get past the blatant contradiction/disregard though. That *"almost"* reference is a problem. If GM had really been attempting to make a car for the masses and wanted to keep cost-reduction the top priority, that AER (All Electric Range) wouldn't have increased. Keeping it fixed at the current 38-mile estimate would have allowed for a battery-pack savings. How is adding 12 miles a way of cutting cost? Supposedly, making Volt profitable was key. What justified the increase then? Of course, these recent executive words are a hint of what's to come for the MSRP: *"in line with the current generation Volt"*. Each new bit of evidence shows us intent with the next-gen is quite different from that of Prius. GM will offer a vehicle for the enthusiast. Toyota will offer a vehicle for the masses. The price will make that obvious. Taking on the true competition... traditional vehicles... requires a similar MSRP. The hope that tax-credit dependency wouldn't be an issue for the second-generation has faded, leaving it higher priced. It would be unprofitable otherwise. That's sad.
- 1-21-2015** **Uncompetitive.** The nightmare of the past is over. Yeah! These personal logs are filled with quotes of absolutely desperate Volt enthusiasts attempting to undermine Prius. By misrepresenting it, the hope was their vehicle would attract more sales. That's back when leap-frogging and vastly-superior and game-changing nonsense was chanted on the regular basis. Not anymore. Some were rather clever with their greenwashing, others would outright lie. It was unbelievable... which is why I documented so much of that while it was happening. Thankfully, it's an ugly chapter in automotive history now closed. Change rarely comes easy. That was a prime example. Looking forward, this apparently is what the future holds: *"As Chevrolet formulates marketing plans for the 2016 Volt launching the second half of this year, it has a head start over generation one, but if there ever were a vision of the Volt surpassing Toyota Prius sales, that's a premise Chevrolet doesn't even want to entertain."* It was the opening line to today's daily blog. Coming up with topics now is a challenge. That blog has become more of a curiosity than anything constructive. Reading through today's topic on pricing was pointless. There's such a heavy dependence on the tax-credit still, it's quite obvious the next-gen offering is uncompetitive. Cost is still too high. GM chose to deliver what they want to see, not what they need. It happened again. Third time is a charm, eh? First was Two-Mode. Second came Volt. Now this. Ugh. What in the world are they going to sell that actually is competitive? Are they really going to ignore the mainstream for another generation?

- 1-22-2015** **Unsuccessful.** Isn't the point of any new technology to reduce emissions & consumption to sell lots of it? Watching the second-generation remain low-volume and be dependent upon tax-credit for sales was the concern right from the very start. Remember what came about in the bankruptcy recovery plan? Concern was explicitly expressed about the process taking a long time. Remember "*too little, too slowly*" and the harsh response to that reality? That group of enthusiasts just plain didn't care. They saw Volt as a great technological achievement, based on engineering accomplishment alone. Whether or not it was even remotely capable of surviving on its own as a viable business product to generate profit-sustaining sales was meaningless to them. Anyone who expressed that need for well-being or pointed out the rest of the GM product-line was attacked. It was a great example of group-think, where they completely lost sight of the true goal and just lashed out at those attempting to get things back on track. That level of disregard was quite astonishing... which is why I was so compelled to observe the outcome firsthand, rather than watching the group from a distance. It's over now. The next-gen design has been revealed. Just 10 days later and it is already quite clear their are major shortcomings with respect to being able to compete on its own. No leap-frog. No vastly-superior. No game-changing. Traditional vehicles will continue to dominate. Aspirations of mainstream penetration have been abandoned. It will be sad to see the guzzlers sold in such great numbers without a low-emission, high-efficiency choice that's competitive.
- 1-23-2015** **Not Plugging In.** It's a good sign when owners ask questions about non-issues. That means the technology is attracting newbies who simply don't the background to figure out the answers, but are aware that battery-pack is equivalent to the power-supply found in other plug-in devices. This is what I posted to one such question about Prius PHV: The system in the plug-in Prius protects itself. It won't allow you to exceed the charge limits, since a primary benefit of the gas engine is to ensure longevity of the battery-pack. So, even if you aren't able to recharge for a very long time, there's no harm done. It will continue to age, since all chemical-based batteries will anyway, just not as fast as when you charge & discharge the usable capacity on a regular basis. When you do find yourself in the position of not being able to recharge, it's best to allow the system to deplete all the EV range and just drive around with only HV capacity. Don't attempt to preserve any of the plug-supplied electricity. Driving it around as a regular hybrid in the meantime is fine.

1-24-2015 For the Masses, sales. Now that the storm has passed, I unignored those who were clearly antagonists. Some simply like to debate. Others have something against Toyota. Whatever the case, the opportunity to be heard has been opened. The new outlook started with this: *"How come Toyota is selling only 400 something Prius Plugin per month in the US? I Thought PiP was supposed to compete with Volt. PiP is getting whupped."* That wasn't the most constructive approach. But it was a question worth addressing... yet again... hoping for a different response now: Both intent and purpose has always been very, very different. Long before PiP was rolled out, there was a major effort to determine what a sensible price would be, something actually competitive in the traditional market. That meant careful design consideration to keep cost low. Toyota worked hard to deliver an option complimentary to the Prius offerings. Rolling out a low-volume choice mid-cycle fit into that goal well. HSD would be getting an upgrade in a few years, delivering even higher HV efficiency along with new opportunity as a result of NiMH patents expiring. That left the door wide open for greater battery augmentation with the plug-in model, especially with the knowledge gained from initial PHV rollout. The business approach for Volt was entirely different. There was no plan for any type of second model. There wouldn't be one with a smaller battery-pack or one without a plug. It was always a vehicle with very high production-cost. GM was targeting an entirely different audience. As for the sales themselves, Volt gets triple the tax-credit and is offered in over triple the number of states. It certainly should sell better with such an advantage.

1-24-2015 For the Masses, leadership. Certain individuals have been blinded by engineering. They sincerely believe the only approach to change is by pushing the high-end, that somehow the masses will naturally just embrace change as a result. There are many business classes a person could take to learn that is an incomplete picture of what's actually needed. There's no arguing with the uninformed though. They've already made up their mind and will outright dismiss any evidence to the contrary. They've never really taken a look at what appeals to a consumer with a lower budget and little interest in performance or technology. It posted: It's sad how *"technical leadership"* continues to be represented only in terms of racing to market. Blatant disregard of the goal for profitable high-volume sales, competing on the showroom floor without tax-credit dependency, speaks volumes. As for the drawing of conclusions of *"hurt"* and *"damage control"*, that's called not understanding audience. The debates of the past are over. It's not worth posting unless there is clear acknowledgement of who the customer for Prius PHV will be. And now that gas prices are so low, it's more important than ever to finally address the sensible business choices Toyota has made. Whether they make those who want *"technical leadership"*, you have to admit the decision to not push has worked out well. You don't become the top-seller of vehicles in the world by not planning well.... which includes the flexibility to adjust as the market changes. Personally, it is no surprise to me that the trophy-mentality makes it difficult to be constructive about business approach. The accounting part of automotive sales rarely gets the attention it should. People don't find the high-volume cars exciting. Being common isn't what stirs discussion. But that ultimately is what pays the bills.

1-24-2015 **For the Masses, nonsensical.** When someone isn't following what you've been saying for months, they end up attempting to discredit. This was such an attempt today: "*You use the same vague, nonsensical terms such as "understanding audience".*" That type of denial is quite common, but rarely actually gets posted. Most online participants simply don't bother to say anything. But for a few, their frustration manifests itself. I find the lack of effort on their part to understand remarkable. Why post if you don't want to achieve some type of clarity? Perhaps he views my statements as the means to end the debate. After all, some thrive on the attention. Of course, some see non-EV choices as a threat. My endorsement of a choice for the masses presents a barrier for some, rather than support for change over the long-term. I wanted to make the message crystal clear, before returning him to ignore: We've been through this countless times already. The never ending repetition in each new thread is counter-productive. So, one last time, but in bold & caps with the hope it won't be forgotten and is easy to refer back to later: **THE AUDIENCE IS CONSUMERS SHOPPING FOR OTHER VEHICLES ON THE SAME SHOWROOM FLOOR. THAT MAINSTREAM MARKET IS WHAT EACH AUTOMAKER MUST OVERCOME TO ACHIEVE GROWTH. NO AMOUNT OF "WHAT OTHER AUTOMAKERS ARE DOING" BANTER WILL CHANGE THAT REALITY.** It's very clear that much of the nonsense we have to deal with comes from the unwillingness to see beyond enthusiast interest. The amount of time wasted not recognizing that is real problem. The disregard for economic well-being and the disconnect between want & need makes it worse. Not understanding "*who*" means being unsuccessful.

1-25-2015 **For the Masses, cost.** It's good to that some are thinking clearly: *"If Toyota could get their cost for a 10-15 mile range EV plug-in down to \$1-3K, they could make that standard on trim levels 4-5. Granted, some will not be able to plug-in routinely if they live in an apartment. A plug-in that can stay nearly all EV for in-town driving and commuting, then get the best mpg on road trips, is a significant market Toyota can lead in."* I was delighted by the constructive view. For far too long, the voices of a few who clearly only cared about engineering achievement dominated discussions. That's changing, especially now that the next-gen Volt reveal didn't meet expectations. Moving on to offerings for the masses is great! I responded to that with: \$3,000 has been the ultimate target for many, many years. Having that as a feature on the nicer packages makes sense. It emphasizes the simplicity of the approach too. Getting cost down low enough to earn a modest profit at that price would indeed make Toyota the leader. Ford is clearly attempting to offer a plug-in hybrid option for the masses too. It will happen. As was just revealed by GM with the re-categorization of Volt, the segment for higher-capacity dedicated plug-in hybrids is taking shape. That makes it far easier to convey the purpose of the hybrids with a plug option, like Prius, Fusion, and C-Max. No more mixed messages is great. The problem many haven't understood is purpose. Granted, some of that was intentional greenwashing, but there was quite a bit of simply not knowing too. The augmentation of the hybrid system with a plug and larger battery had been clear, prior to the chaotic rollouts a few years ago. The automotive market was in a mess to begin with. Now, the situation is different. There are enough choices to allow consumers to see how the various approaches differ and why. I'm thankful the effort to appeal to the masses continues, even if some have already given up hope. Penetrating the mainstream is a painfully slow process with very little excitement. It's easy to lose sight of what's really important. Introducing a product is much easier than getting people to move on beyond what they already feel comfortable with.

1-25-2015 **For the Masses, category.** The lack of any clarity of purpose & audience for Volt did quite a bit of harm to the market. It started as a *"range anxiety"* solution. A hybrid offering a plug would supposedly be far more appealing than an EV with a finite range. Leaf was far more successful than GM ever imagined though. But rather than accept that mistaken understanding of the market and refocus, the response was to attack Prius instead. It was brutal. There was greenwashing and outright lies. I was amazed how bad things got (which I documented heavily in these personal logs). The next-gen reveal of Volt 2 weeks ago by GM and detail which followed will help make up for the problems it caused. The rest of the industry can breath a sign of relief. We now know who. There is an emerging category of higher-capacity plug-in hybrids. Volt fell short offering only 38 miles. The increase to 50 is still low compared to the BMW i3 which delivers 81 miles. But at least the intent is easier to see. There will be a category for *"entire day"* capacity and another for *"mpg boosting"*. True, some will be able to run errands in Prius PHV entirely using electricity. Some will be able to commute that way too. But the purpose of significantly reducing emissions & consumptions in an reliable & cost-effective way won't be lost. That category remains. Some owners will have the package with a plug, others will not. The goal of reaching the masses will be achieved.

- 1-25-2015** **For the Masses, now.** That unwillingness or inability to wait is the norm. We heard about the *"hybrid premium"* from the very beginning. There will always be some degree of higher upfront cost. But with gas prices at \$4, that issue became a wash. It's much easier to finance purchase payments than to empty the wallet each time you fill the tank. But with cheap gas back, we must acknowledge this: *"Customers want the best for their money NOW, and most aren't into EVing, plugging in and such..."* I was quite pleased to have read that in a post today. I chimed in with: A great deal of the hate from Volt supporters came from that reality. Pointing out losses on the showroom floor resulted in hostile responses sometimes. The thought of GM customers choosing a traditional cars instead was too much to accept.
- 1-25-2015** **For the Masses, reality.** That same original post I originally responded to also had this: *"Prius needs to come down at least \$2k in price."* That was very clear recognition of who the audience actually is. Yeah! My references to showroom loss is getting the message through. So much attention had been placed on emerging plug-in choices, the ultimate goal of replacing traditional vehicles was lost. It's that not-seeing-the-forest problem. Some would get so fixated on just the tree in front of them, all else wasn't noticed. That was both naive and careless. So, I was happy to add this to what was becoming a very constructive discussion: Pointing out the same showroom issue existed with Toyota fell on deaf ears. Some refused to acknowledge just how strong sales of traditional cars continue to be. Leadership will come from being able to overcome those barriers. Cost reduction to compete directly with traditional cars is a very, very big deal. Fortunately, the patents on NiMH batteries just recently expired. The next-gen Prius could exploit the new found opportunity that presents.
- 1-25-2015** **For the Masses, pricing.** I wasn't sure exactly how to respond to this: *"Well, it appears GM has Toyota / PiP on the ropes with their newly unveiled Volt 2.0: It's good looking inside and out, improved range, now seats 5, runs on 87 octane and more. What about price though?"* I suspect it was just a matter of not having all the information now available. We'll see. Perhaps this will keep useful posts flowing: No. Even GM has stated they aren't competing with Prius anymore. Toyota is on a quest for affordability, attempting to take on the mainstream directly. Even supporters of Volt say that isn't the case for gen-2 of Volt. It will instead take on the EV competition, hoping it to be well positioned in that growing market. As for seating 5, take a look at recent photos. That spot is for nothing but a small child. There's no legroom whatsoever in the middle. Price will be interesting. GM's big worry will be Nissan, not Toyota. Leaf will burn through the tax-credit money much sooner than Volt. That means aggressive promotion after expiration to keep sales going. Is GM prepared to deal with ramping up of pressure like that?

1-27-2015

How It Happened. My participation on the big GM forum was a result of Prius misrepresentation combined with curiosity of the unrealistic expectations. I witnessed greenwashing & denial by many. It was fascinating. Two-Mode started it all. Even way back in that beginning time, there were the words of "*over promise, under deliver*" haunting GM supporters. And sure enough, that's exactly what happened. It was a remarkable process to witness... something you wouldn't expect to actually be repeated. The technology fell well short of the goals. Enthusiasm for it faded. Misplaced hope returned. Volt became the salvation. The same cycle would play out again. I was astonished by the parallels, especially when such obvious signs were so recklessly dismissed. It didn't end the same way though. That was an interesting twist. When Ford rolled out their first Energi vehicle (C-Max plug-in hybrid), that big forum turned hostile. Rather than a foreign automaker highlighting GM's shortcomings, it was a fellow automaker from Detroit. That ended discussions about Volt there. For the following 2 years, it was the daily blog which took over, becoming more and more desperate as time rolled on. Sales never improved, even with a drastic price-reduction. The enthusiasm there became ended up becoming hostile too. What had once been blind hope turned into looking for someone to blame. ELR presented a glimmer of change, a chance at redemption... which fell apart almost immediately after the reveal. The signs of that same thing happening with the next-gen Volt were there, in abundance. On a regular basis, they'd be pointed out... with terrible consequences. The resulting personal attacks were unbelievable. But it didn't matter. When things don't add up like that, simply sticking to facts and ignoring the rhetoric is a wise choice. The day finally arrived... 2 weeks ago... that long-awaited about the next-gen Volt was revealed. Disappointment was swift & painful; so bad, we aren't even witnessing any fallout. It's just an abrupt end. There's nothing to argue about. People are moving on to other offerings from other automakers. GM's lack of interest toward delivering a vehicle for the masses is so obvious, discussions have ceased. Even that daily blog is winding down. The silence is becoming very easy to notice... if that makes any sense. I'm writing summaries now to retain the feelings & views at this moment. Looking back years from later, reading this, thoughts about what actually happened will make some wonder how so many mistakes could be repeated. Lessons most certainly were not learned.

- 1-30-2015** **Really?** It has been extremely quiet now that the big reveal has passed. Most of the automakers had little to show, which is why GM got so much attention with Volt. That brings emphasis to what's happening at this point. The thought was that going forward there would only be attention on price, since basically everything else has been told at this point. Hype about it was to be expected, in fact. But this turn of events is rather astonishing. We're instead starting to see posts about the hope for conquest sales, going after Prius buyers with the new Volt. This demonstration of still not recognizing audience tells us much about what is to come. Apparently, little was learned. GM didn't increase size from compact to midsize to make it competitive. They also withheld an obvious convenience to make it look more like a sedan rather than a hatchback. Notice the lack of a wiper in back? The size and the hatch were major selling points for Prius. What will they do to entice customers on the showroom floor? The newest television commercial (available online already, expected be shown to the world during this weekend's Super Bowl) makes no reference whatsoever about plugging in. There is only a one-second glimpse of the battery-pack. That's it! With supporters disappointed about the leg & head room in the back seats, what will make this next-gen offering stand out? Who will the increased range and increased MPG appeal to? 50 miles is quite a bit less than what the EV competition offers. 41 MPG is quite a bit less than what the hybrid competition offers. Wasn't the point to appeal to their own customer base? Is that really what that audience wanted? Really?
- 2-01-2015** **Speculation & Rumor.** We encounter this from time to time: *"A fellow who works for Toyota told me last year that a bigger battery wasn't going to happen because it would change the classification of the plug-in due to the weight and size of a bigger battery and Toyota didn't want to do that."* Usually, that kind of vague-yet-definitive claim come from the GM enthusiasts. Reading that on the big Prius forum from a regular poster was a big odd. In fact, it gave the impression of trolling. Sure enough, a newer member took the supposed bait too: *"In that case, I've bought my last PiP."* I was somewhat perturbed at that point. Vague contributes to assumptions & misunderstandings. Detail should have been provided to prevent that. After all, we've seen lots of undermining over the years. Oh well. I tried to intercept with some insight right away: You're overlooking what should be obvious: No one wants size & weight to increase. Sacrificing cargo & seating capacity, as well as reducing HV efficiency, for the sake of farther EV range would be a step backward. The whole point of advancing lithium battery chemistry is to squeeze more out of less. In other words, more capacity is wanted... which is commonly referred to as increasing energy density. That's often achieved without cost increase too.
- 2-02-2015** **\$50 Per Barrel.** We never thought that price for oil would ever return. Sadly, even though it has, the fuel-surcharge many service-providers added when oil was much more expensive has not been removed. People are still seeing the charge on their bills. It has turned into an arbitrary increase without justification or clarity. That's become a concern for some, since it's an extra not part of the regularly advertised pricing for services. Lack for full disclosure can be a problem. Why shouldn't it be discontinued? We are seeing much lower expenses related to gas & diesel consumption now. Still having to pay as if that wasn't the case isn't right. Oil costs less now. In fact, some are now back to guzzling.

2-03-2015 **Climate Change - Acceptance.** Somehow, we abruptly went from denial to acceptance here... locally, anyway. The all of a sudden shift to "*what are we going to do?*" question is getting a lot of attention. Stepping back to look at what just happened in our country which could have influenced the attitude change, 2 things become abundantly clear. There's a rapidly growing interest in truck sales and the Republican party just took control of Congress. Both had been outspoken deniers of climate change. But with so much evidence now confirming things are different, denying it makes no sense. Instead, the posture of accepting it has been embraced. Unfortunately, rather than acknowledge contributing factors, talk is of how we are going to deal with the change. In other words, keep drilling & guzzling as usual, we'll just improve infrastructure to deal with the drought, snow, and floods. That's quite disturbing. Those who opposed improved emissions & efficiency found a new way to continue to hold back the technology. This is yet another reason why the "*too little, too slowly*" concern should have been taken seriously. It was opportunity lost, intentionally! That good enough stance has consequences. Here's a great example of that. Those wanting to undermine found a way to keep doing exactly what they want. Why bother when you can just come up with new ways to fight? Ugh.

2-04-2015 **Sales.** For the Prius family, there was a teeny tiny bit of growth. Remaining basically flat in a time of weak sales (Winter) and cheap gas (\$2 per gallon) that's a nice outcome. Seeing a little more than that is even better. Everyone was obviously focused on Volt though. Unlikely with Toyota who reveals then rolls out fairly quick (5 months for the current generation Prius), there's going to be a lag by GM. Originally we heard June. Now, it's sometime in the Fall. What does that mean for sales between now & then? Anywho, it dropped from the 1,600 per month we've seen for years to just 542. That obviously meant a rather moot discussion yesterday on the blog. I chose not to participate. There's nothing else to say. In the forum section, there was this summary: "*The Volt really is a hard sell! \$35-40K OTD for a compact car with cramped rear quarters and small cargo space is a deal-breaker for most. While tax incentives help to level the playing field, not everyone qualifies for the full amount and the benefits are not realized until the next tax year.*" That said it all. And coming from a Volt owner, there was little else to contribute. It makes you wonder how much will actually change with the next-gen. Needless to say, neither the enthusiasts nor the supporters wanted to address the big picture sales numbers... 18,693 Cruze... 11,878 Malibu... 9,214 Impala... 3,521 Sonic... 3,170 Spark. Each of those mainstream cars sharing the showroom floor with Volt are absolutely crushing it. Supposedly though, the next-gen will appeal more to the fun-to-drive buyers. But looking at the 4,991 Camaro and the 2,127 Corvette sales, that doesn't work either. It should be absolutely crystal-clear at this point why Toyota chose to delay the next-gen Prius. That true competition (traditional vehicles) presents a daunting challenge to overcome.

- 2-05-2015** **Apartment Plugging.** I took care of a friend's dog over the past 5 days, while they were out of town. That required stopping by the apartment several times per day to take the dog out for a walk (and other stuff). All those trips over there gave me a close firsthand look at the prospects of being able to plug in a car there. Put simply, the opportunity is pretty much non-existent. It just plan won't happen for many, many years to come. Sadly, that solidified the talks I've had with other apartment dwellers. You're extraordinarily lucky if you actually can. That means the odds of enough spots for multiple parking-spot to plug in at the same location are totally unrealistic. See why Toyota is choosing to offer fuel-cell vehicles as an alternative for those who need to "recharge" elsewhere or need to "recharge" within just a few minutes? The infrastructure simply isn't going to be able to accommodate a single "*recharge*" approach. Options will be necessary. Direct electricity for batteries will worked great for some. Indirect electricity from hydrogen for fuel-cells will work for others. Think about how expensive & complicated the request is for installing charging stations.
- 2-07-2015** **Looking Back.** It has been almost 4 weeks. The fuel-cell rhetoric has finally ended. Geez! No matter how much information is shared, there were a few individuals who absolutely insisted the technology was intended to replace that in Prius. Pointing out how it is mutually exclusive and designed to fulfill a different purpose feel on deaf ears. That's why the nonsense around Volt is now in a death spiral... spinning out of control now. The excitement about Bolt has squashed it. No one talks about "*range anxiety*" anymore. The next-gen batteries are looking to offer great potential. That makes a so-called EREV competing directly against an EV the type of clash to make you wonder. Why? In the meantime, talk of the refreshed look for GM's Equinox is stirring interest. Last month, that 19,555 of that small SUV was sold. It is clearly a threat to be taken seriously on the showroom floor. That puts Toyota in a position of independence. Yeah! No more senseless attacks. Phew! That chapter in history where the "*Who?*" question could be disregarded is over. The intent to deliver an affordable hybrid able to compete directly on the showroom floor cannot be denied. It's quite obvious to see that, as well as the need. We can actually look back at this point. Change is coming. The market will be filled with a wide variety of choices... which is great, since there is such a diverse consumer market. Expect new approaches. Heck, even the way plug-in "*range*" is measured will be getting a re-evaluation. Acknowledgement of traditional vehicle competition is finally happening.
- 2-10-2015** **176 MPG.** This morning's commute to work was one I really, really I would have filmed. My assumption was that with fresh snow falling, it would be difficult to keep the windshield clear. Turns out, it wasn't too bad. The part that made this commute special was only reaching a top speed of 48 mph. The slippery conditions prevented going any faster. That worked out nice though. The traffic was slow & steady as a result. The end result for the 17.4 mile drive was an overall average of 176 MPG. Bummer. That's absolutely incredible for Winter temperatures. That was my only chance to record it too. I'll be moving in less than 2 weeks. My commute will change. It will become 2 miles further and that river route will change to large rolling hills. It will be great for gathering mass quantities of different real-world data. But the memory of today's drive will never be relived. Oh well. It was nice to experience... especially knowing that just about everyone else on that same drive weren't getting anywhere near that level of efficiency.

2-11-2015 **Short Sighted.** When a cherry-picker, one who pushed very specific data for years while dismissing most else, it's good to pay close attention. This conclusion really irked me: *"I really believe super charging is a dead end. The mass market won't accept 30-minute charge times every couple hundred miles. That's not competitive with today's solution."* Lately, he's been making lots of generalizations is strongly outspoken against EVs. So, that comment wasn't much of a surprise. What got me though was the opportunity to point out how short-sighted that really was. Needless to say, there was no response afterward. Lack of any rebuttal whatsoever is a sign of acceptance. Normally, there's some type of denial or spin. The nothing was a nice change. Here's how I replied: You're overlooking a fundamental. The chargers are not just for those who travel long distances. They are for local travel too. One just installed here is among the first in the area to encourage retail purchases while you recharge. Think of it as the 21st gas station, but you don't necessarily need to refill the tank entirely. It makes lots of errand running around more practical. In other words, it's an alternative solution to *"range anxiety"*. Why carry around an engine when you rarely ever will need it and can just plug-in for a few minutes instead?

2-12-2015 **Crash Prevention.** Remember all the emphasis on crash tests? People obsessed over their favorite vehicle's ability to survive a crash with complete disregard for being able to prevent crashing in the first place. It was quite disturbing. Why in the world wouldn't you want to just avoid it instead? Sadly, the answer to that question was simple... the large powerful vehicles they preferred had terrible maneuverability. Crashing was the only option. Thankfully, technology is coming to the rescue. Unfortunately, those vehicles typically still lack the ability to stir clear of an accident, but they do offer something new... well, new for some. Prius has offered it for a number of years. With mine in particular, I've had it for 3 years. Telling Mr. Vastly Superior that though wouldn't have been constructive. So instead, I took the avoidance approach responding to this: *"I really do hope that GM at least offers adaptive cruise on the Volt 2.0. It's a perfect companion to a quiet smooth electric ride."* He was quite nasty with his superiority flaunting over the years, declaring Volt 1.0 to be so much better... even though it lacked some standard features... like midsize legroom in back and a rear wiper. Sadly, the next Volt still won't offer either. It may offer this though, as an upgrade feature like Prius already does, as I posted: It also doubles as a safety feature... which I'm seeing more advertisements for on television lately... crash prevention. Since adaptive-cruise requires radar for sensing vehicles in front and it has the ability to apply brakes, it will detect a collision and take action before you even have a chance to react. The first time I experienced it was when a turkey jumped out in front of the car. The system sounded an audio alarm, flashed a danger message on the screen, ratcheted the seatbelts tight, and hit the brakes incredibly quick. It was an impressive demonstration of new technology.

2-13-2015 Promises. Watching history repeat for a third time is remarkable. Two-Mode was a major endeavor, which never did result in many sales. Volt struggled along for 4 years, even with a \$5,000 price-reduction and a \$7,500 tax-credit. With years of hype prior to rollout and that undeniable failure to reach the masses, you'd think those following GM would have learned. Breaking out beyond niche takes far more than bold promises. The lack of substance should be a dead giveaway. But then again, it wasn't the first to times. What will make this third attempt to achieve mainstream sales work? Needless to say, we're hearing a lot about Bolt now. The North American President for GM is really feeding the hype. We have absolutely no clue what his "*shake up*" or "*status quo*" references actually mean. It's that same misleading expectation setting as in the past. Both Two-Mode and Volt started the very same way. Ugh. I asked: How is what we're now hearing about Bolt different from the past? GM hyped Two-Mode for years, attempting to avoid their "*over promise, under deliver*" reputation by being a little ambiguous. Each announcement was just vague enough to not be something which they could be held accountable for later. We watched the very same thing happen with Volt. Heck, even the term "*game changer*" is being used again. What does "*to completely shake up the status quo for electric vehicles*" mean anyway? Wasn't that the purpose of Volt? Who will Bolt be marketed to? What should we expect?

2-14-2015 Domestic Production. There is still a strong flag-waving presence in the market. Examples are common, but surprisingly easy to overlook. The latest is a television commercial for the new Chevy Colorado pickup. They super-impose a photo of the pickup onto a scenic background with a man standing in front. Then they exchange it with a photo of a car, asking something about which is more manly. Problem is, the car used was a Toyota, not a Chevy. Why? Unfortunately, that obvious act of bias is something most people likely wouldn't even notice. I could understand the comparison if a Cruze has been the car, but not a Corolla. Far too often we had Volt promoted as "*American*" as the highest factor of importance... even though it was made up of mostly Korean parts and powered by Canadian electricity for several northern states. That's sad, especially when you consider the fact that Corolla is looked upon as foreign... even though it is produced in Mississippi. Ugh. It does make sense, since over 40 million have been sold worldwide since its rollout back in 1968. Only a half million have come out of that plant here, the one which Prius was originally intended for. That's still a lot, but tiny overall quantity. Heck, when you consider the reality at 21 million Toyota vehicles have actually been produced in the United States over the decades, it really should be thought of as domestic. That level of production has generated 365,000 jobs here. Again, why... unless this commercial is actually a subtle way of finally acknowledging that. Of course, no objective analysis would ever intentionally include a factor which could so easily negate findings. Another Chevy should have been used for unbiased comparison.

- 2-15-2015** **Excuses.** I knew this would stir the pot. But it was my first ever post on a Bolt blog topic and figured it would also be my last. So, there was no reason to hold back. This is what caught my attention: *"If the perceptions are so bad, why are most Volt sales conquest sales?"* It was from a Volt owner who obviously hasn't considered the entire GM product-line yet. That selective vision makes constructive discussion quite a challenge. So, I included this other quote from a frustrated Volt enthusiast in my response: *"Your post reveals that GM may have part of the blame, but their dealers (who have a different mindset) are the real culprits for low EV sales."* It ultimately comes down to a series of excuses... every time. After over 4 years of struggling sales and an underwhelming next-gen reveal, you'd think that pattern would finally get noticed. Oh well. Bolt is their latest hype vehicle. As long as it doesn't undermine the market as both Two-Mode and Volt did, we'll probably be fine. After all, the resulting sales struggle speaks for itself. So, I posted: Conquest sales being a high percentage is because GM is unable to sell Volt to its own customers. You can't blame the dealers for people seeing Malibu, Cruze, Sonic, and Equinox as better choices. LOSING SALES ON THE SHOWROOM FLOOR is something GM only now is beginning to see as a major problem. That's a been a shortcoming some of us have been harping about even before the first Volt was rolled out. It's why the "Who?" question was asked over and over and over again. Those traditional vehicles offer a better balance of features, what the masses prefer. A vehicle optimized for efficiency that isn't cost-competitive won't sell well, which has overwhelmingly been confirmed. It is absolutely vital for GM to address the proper audience. This comment about Bolt should be reason for question: *"We are moving quickly because of its potential to completely shake up the status quo for electric vehicles."* Who will GM be attempting to attract? Will they really only go after the current EV market as a whole rather than actually going to appeal to those who are shopping on the showroom floor? Traditional vehicles will continue to absolutely crush sales as a result. That would be yet another opportunity to change mainstream purchases being missed. Remember the *"too little, too slowly"* concern?
- 2-17-2015** **Still Trying.** There are a select few who are still absolutely desperate to undermine Prius PHV. I find it truly remarkable such blatantly dishonest attempts continue to take place. But then again, it's a Volt enthusiast who got burned. He has a score to settle. The Volt owners I associate with are totally different, the opposite extreme just happy to share stories with other plug-in owners. Anywho, this was what he posted today: *"The next plug-in needs to quadruple it's all electric EPA 6 mile all electric range. Yes, you can drive 11 EPA electric miles but that's with using gas due to having to press the peddle during the EPA test."* After posting details as follow-ups many times already over the years, I really struggled how to respond this time. He simply doesn't care. And on a open green blog, he was hoping to mislead newbies. I ended up going with this: It only takes a moment to confirm that claim is misleading. EPA lists "29 kWh per 100 miles" on the sticker as the electric efficiency. So to travel 11 miles, you only need 3.19 kWh of electricity. We know that the total capacity of the battery is 4.4 kWh. The misleading about the EPA test the engine running is getting really old. At this point, pretty much everyone knows the engine shuts back off after that hard acceleration and you still have the remaining capacity available for EV travel. If you don't have a hard acceleration, which suburb driving typically doesn't, the engine won't start. For me in the summer, I have routinely seen 13 miles of consecutive EV driving.

2-22-2015 **Questions.** There are some who simply enjoy the discussions. They'll ask constructive questions... over and over and over again. These are the individuals who's time has come to be ignored. Repeating the question & answer exchange has proven a waste of time. If there were newbies participating, drawn into the thread, that would be different. But in the cases recently, it's become clear the outcome is undermining... holding back, rather than taking a step forward. It's too bad. Some of the questions were worthwhile. Providing the answers hasn't. It's the same old thing. Each new thread, they pretend that information has never been conveyed. I was stumped at first, wondering if somehow the detail hadn't been shared effected. After awhile though, it become obvious that wasn't the situation. Any of these sound familiar: *So the 5,000/month, is that an average over a year? What happened if 6,000 are sold eleven months, and 4,900 the twelfth? If you have spelled this out, either in an earlier post or your blog, perhaps a link would be easier? Again, is this U.S. Sales or worldwide? And again, why the mention of two years?*

2-22-2015 **Answers.** It's almost to the point of madness. Why in the world would a person keep asking the same questions over and over and over again if they were truly trying to understand & advance? Realistically, I'll never find out. There are motives we'll always wonder about. With this situation though, it's clear the effort to find out won't accomplish anything. We saw this years ago when expectations weren't met. Disenchantment makes people do illogical things. Actions surprisingly unexpected are part of the acceptance process. But it sure is annoying for those of us who only feel finding out answers should only happen once. As politely as I could, this was my final post to end that endless questioning: No more agains. Remember the all BOLD CAPITAL response a few weeks back that I told you to bookmark? It was because I was tired of having to re-answer those same questions in each new thread. You may thrive on repeating discussions, but the pattern shows that isn't productive.

2-23-2015 **Fallout.** It's so redeeming to encounter more and more posts like this: *"I guess that's good for city dwellers that only go on short trips, but can obviously go farther when the ice kicks in. I'm kinda ignorant to the whole plug in scene as I never considered one."* Everyone is relieved that the new chapter is being written so quickly. It's pretty easy to see the situation now. That's quite normal, after the fact. But in the mist of the hype, no. I joined in with: That's fallout from Volt, which is making itself more apparent as time goes on. Prior to its rollout, everyone clearly understood the purpose of a PLUG-IN HYBRID. The act of augmenting the system in Prius would result in more battery use. It was that simple. There was nothing discussed about EV range. It was always seen as plugging in would deliver higher MPG. Then came the hype. Volt would be an EV until the battery was depleted and the engine would never contribute any power directly to the wheels. Well, that obviously fell apart. Enthusiasts disregarded information about thermal limitations and efficiency considerations. They only cared about the purity of EV, even though it meant sacrifices. GM was happy to deliver their want. Toyota chose to focus on need instead, placing a very high-priority on cost-containment. They didn't want to compromise on seating or cargo space either. The result was a configuration capable of actually taking on the true competition: traditional vehicles. MPG is boosted significantly over the regular hybrid, regardless of how far you drive, without the need for a massive battery-pack. It's too bad so much emphasis on EV range has made that effort by Toyota so difficult to see. Think about the complications that causes for the other automakers attempting to offer plugs with their hybrids. People won't have a clue how it actually operates and will likely draw incorrect conclusions based solely on EV range. That's really unfortunate.

2-23-2015 **Unsupported.** Sorting through the mess to identify those who purposely misrepresent is a challenge. You have to patiently wait and carefully observe. Eventually, the pattern makes itself apparent. This individual continues to confirm his intent. Unfortunately, it's not good. Even when pointing out lack of detail, the vague persists. When pushed, he'll change the topic. That's how you know. The evade & switch behavior is difficult to deny and easy to verify. This time, it was: *"In a 2016 Volt, 50+ miles."* And sure enough, when I called him on that, the behavior continued. That means another addition to the ignore list. Why waste time on someone who simply doesn't care. There are many, many others on the big Prius forum who actually want to have productive discussions. I ended it with: Based on what supporting evidence? You may not remember the conjecture we had to deal with prior to the first Volt rollout, but some of us do. Unsupported claims would be posted. They'd end up becoming self-validating after being reposted enough. When those of us who did our homework questioned for detail, the response was anything but constructive. It was really sad watching false expectations rise. The inevitable disenchantment which followed could have been avoided... simply by providing the requested detail. Not having any doesn't mean comments cannot be posted; it only means they need to be identified as speculative and educated guesses rather than fact.

- 2-25-2015** **New Commute.** I moved into the new house last weekend. Yesterday, was the first commute from it. The location is 6.5 miles from the old house. That meant quite a few trips with the Prius to transport everything except the large furniture. It's amazing how much cargo the Prius can carry. Too bad the temperatures were averaging 30 degrees below the freezing point. The morning we closed, it was -13°F. That's nasty. Anywho, the temperature had warmed up to 12°F for this particular drive. I was quite curious how it would go. Rather than being just 2 blocks from the highway, I was now several miles but would enter it quite a bit closer with respect to work. It turned out to be a 15-minute drive to that point. With lots of stops and lots of hills, it was nice route for having a plug-in hybrid. And sure enough, the end efficiency reflected that. Overall distance was only 1 mile further, delivering a very respectable 85 MPG. Today was the next time to do the same commute. 96 MPG was the result, despite only being a few degrees warmer. I can't wait to see what happens when Spring finally arrives.
- 2-27-2015** **Progress.** It comes from learning what works and what doesn't, then applying that knowledge to take the next step. Interest in Bolt has grown so much, Volt has already faded away into memory. No one is talking about it anymore, even on that blog which was once-upon-a-time dedicated to Volt. Too small and too expensive makes Volt unable to compete. Why bother with an engine when you have battery-capacity in the 200-mile range coming to market? The 50-mile range simply isn't competitive. It's that simple. This is the very reason why Toyota chose to go with a much smaller plug-in capacity instead. By not sacrificing cost, seating/cargo space, or depleted efficiency, the plug-in Prius would stand a chance at being able to compete directly. That goal continues to demonstrate a winning balance for business & customer. We know the "Who?" answer. The showroom floor is absolutely vital. That is the battleground. Toyota is striving to make a choice able to draw interest from those customers... who are quite different from those seeking an EV... which supposedly Volt will attempt to entice. Knowing your audience is the lesson learned, which is playing out right before our eyes. We can clearly see the potential and the lost opportunity. Progress is tapping that potential. Failure is not being able to take that next step... which in this case, means market growth... increased sales from those who would otherwise just purchase a traditional vehicle.

- 3-01-2015** **That Is Why.** That daily blog for Volt has taken an odd turn since the reveal of the next-gen. They know that new Volt falls well short of both expectations & need, so even they have moved on. Unfortunately, the move hasn't been much of an improvement. In fact, the discussions there have become so non-constructive, participation is pointless. That is why I don't waste time on it anymore. The big discussion there 2 days ago showed a glimmer of hope with this: "*Most of your negative points on hydrogen for emissions hold for BEV as well.*" But the result was so many negative votes so quickly, without any attempt to actually discuss that point, it was clear the bother wouldn't accomplish anything. This was my favorite quote: "*Let's list all the Pros of a hydrogen fuel cell vehicle: 1. Fast refueling time. . um . . ah.. . That's it. That's currently the ONLY advantage they have over plug-in vehicles. Considering the mountain of negatives, is it really worth to build a whole new infrastructure (at the taxpayer's expense)...*" Having just pointed out that the reality of range for fuel-cell vehicles can now match that of traditional vehicles didn't matter. He's one of those few outspoken Volt enthusiasts who simply doesn't care still. Vote down facts you don't like and dismiss data showing unfavorable results continues to be his stance. The fact that infrastructure at taxpayer's expense is a major problem with oil right now doesn't matter to him. He doesn't care. That's sad. We won't need extensive cross-country pipelines for hydrogen. The existing infrastructure can be converted. Why not reuse? Solar/Wind/Hydro can be taken advantage of too. It makes far more sense than continuing to increase drilling & excavation of dirty, non-renewable energy sources. Not everyone will be able to own a BEV (battery electric vehicle) either. Some won't have a plug available. Some will need rapid refueling and long-distance capability. One size does not fit all. Of course, that fact that Volt falls short and discussions have moved on is a bit of an indirect recognition of that. Though, the negative votes don't confirm it. Oh well. They'll figure it out, but not with my contributions. That venue has proven quite unproductive.
- 3-12-2015** **Spring Has Arrived.** Yeah! Blessed with warm weather, finishing up the move to the new house has been quite pleasant. Temperatures above freezing were not the expectation. Watching them reach the 60's was quite a surprise. My round-trip commute, starting with a fully recharged better at both ends, resulted in an overall average of 126 MPG. That's great for a total of 37 miles driving in Spring-like weather. It has been odd in the Prius over the past 3 weeks. The car has been a 1-seater nearly the entire time. With both back seats down and the front passenger, you can fit a lot of cargo inside... and I sure did. It made our move easier. We could pack and pack has many boxes and loose items without any effort. That was really nice. Spring made it even better.

- 3-13-2015** **It's Gone.** The abrupt disappearance of Volt certainly was well timed. With all the craziness of moving into a new house, that was rather fortunate. Rhetoric from the enthusiasts was always quite informative. Topics they got defensive about were vulnerabilities they worked hard to conceal. That was a relatively effective approach, until the reveal of details for the next-gen Volt. Their standing depended upon uncertainty. With answers finally having been provided, the discussions ended. There's nothing to draw interest anymore... hence nothing to write about. Volt will continue to be a specialty vehicle, supposedly intended to compete directly with EV offerings, but clearly not able. Just yesterday, a 300-mile announcement was made. As expected, the automakers unable to deliver a competitive hybrid will focus on electric-only. So, that announcement from Audi about a SUV on the way with an expected 311 miles of range wasn't a surprise. Instead, it's yet another audience problem for Volt. Who's going to want a 50-mile range when there are competitive EV offerings instead? Even GM with Bolt is making that issue clearer to see. That's why Toyota and Ford's approach with smaller, no-compromise, affordable plug-in hybrids still make sense. That's what will threaten traditional vehicles. Their price and high-volume potential will end guzzler appeal and compliment the EV. It's a win-win. Think about how appealing the next-gen Prius will be with the improved thermal-efficiency along with upgraded hardware & software. Add the option of a plug, why wouldn't that be able to attract new buyers? Market expansion is vital. We need to end the guzzling now. Asking everyone to quickly switch from gas to electricity just plain is not realistic. That's still decades away for the masses. Hybrids can archive the next level of green now, while at the same time usher a generation of buyers who will gladly upgrade... ones who won't fight, claiming MPG in the 30's is good enough. That resistance is far too often, overlooked & dismissed. And with Volt gone from the spotlight, we stand a chance of the real issues actually getting attention.
- 3-14-2015** **Recall.** The intentional stigma created toward recalls is an interesting topic to ponder. Rather than preventative-updates being considered a post-purchase expectation, any after-the-fact change is bad. The thought of getting upgrades, like we routinely witness for software, there's an attitude of negative. It was taken to extremes back when Toyota had the spotlight. Lately, it's been GM. They tried to deal with it the best they could. But under the circumstances, along with the precedent they helped to set, what good can come from so many years of promoting the opposite. Anywho, the recall of 50,249 Volts makes a person wonder. What will the response be? The report is that 2 people have been injured as a result of carbon-monoxide exposure from the car running inside garages. With the pre-warm-up approach GM took, some of us wondered if that would ever happen. Of course, we were accused of spreading FUD, trying to undermine Volt as a troll. In reality, it was constructive consideration. But the enthusiasts became hostile if you ever questioned anything. That's why supporters did everything they could to keep a distance from enthusiasts. Long story short, this will likely pass almost completely unnoticed by many. Downplay has been the response for most problems lately.

3-14-2015 Gas & Stock. It's unfortunate that our market is heavily tied to gas & stock prices. But in better news, GM will be buying back 2 Billion worth of their stock to help boost the remaining stocks value. The United States government lost a massive amount of taxpayer money from that very problem. It didn't go up that entire time of ownership. Finally, when those shares were sold at a loss, the value went up a little. Not much happened since then though. And because this market relies so much on that, this step to improve became necessary. It makes you wonder what will happen with gas. The drilling & refining of oil isn't anywhere near as profitable as it had been. That's put some investors in a difficult position. Planned growth, especially from the sources more difficult to reach and dirtier to process, is impaired. Low gas prices don't do much to encourage the appeal of plugging in either. That's why the next-gen hybrids, most significantly Prius, is such a big deal. People find \$2.39 per gallon quite acceptable. The pain from filling the tank has subsided. Even more opportunity will be lost too, if there isn't a truly compelling choice offered. That's why Volt was such a mismatch. Who was going to actually buy it? The end of this year will be a big one, giving us a indication of what's to come. There's much to be lost or gained.

3-15-2015 Peak Oil. When a long-standing definition changes, you know a milestone has been reached. For decades, the term "*peak oil*" has meant arriving at a tipping point. Supposedly, it now means when supplies run low and prices skyrocket. The other day, that now dead (since Volt is no longer discussed) daily blog claimed experts were predicting that stage would be reached about 20 years in the future, sending gas to a price of about \$10 per gallon. I wondered where the heck he got that information. For those of us who have studied economics, we know that the pressure from rising prices stirs innovation and increases the willingness to take risk. In other words, some alternative means of fulfilling demand emerges... which is exactly what's happening now. And when you consider the fact that "*peak*" actually represents change (like the loss of stability), it's difficult to argue that we aren't already witnessing that. Looking back afterward, from a historical perspective, that's much easier to see & accept. But while those events are taking place, there's often quite a bit of denial... and this case, excuses disguised as reasoning. That's why I stopped participating there. The opportunity for constructive discussion fell apart as the excuses grew. It's exactly why I pushed so hard for goals prior to rollout. What are we attempting to achieve? For this discussion, how should we prepare for "*peak*" being reached. No need to fall into a semantic trap. Ask questions. Take action.

3-18-2015 **\$44 Per Barrel.** Way, way, way back, I remember \$39 per barrel. I never imagined us ever getting close to seeing that again. It's a problem getting bigger and bigger. The oil industry depended upon stable generous prices. Those proceeds were used to further develop extraction techniques & locations. Too bad they weren't invested into renewable energy instead... but I digress. Back on topic, we have cheap gas as a result of the low oil prices. Sadly, that doesn't equate to an opportunity to raise gas taxes to pay for roadway maintenance & improvement. Believe it or not, there is still strong resistance to that. I see everything else slowly incrementing to keep pace with the growing economy, as well as the growing demand due to population growth. Yet, the desire to guzzler continues to be a barrier to progress. This is a reality the Volt enthusiasts didn't understand. They didn't know what "*who*" referred to. Audience is absolutely vital. Just because it was built, does not mean people will buy it. This is why the approach with Prius has been so successful. This is why sales grew so high with the second generation, even before a tax-credit was offered. It was no where near as generous either. Less than half the amount and limited to 60,000 sales made its reach much less. Yet, more was still achieved. The enthusiasts know it too, hence the death of that blog. The almost total silence now has opened up the way for many automakers to show off their upcoming solutions. GM thought there was plenty of time... despite countless warnings... losing out to the oil providers. Back when gas was expensive was the time. It is now quite obvious what the "*too little, too slowly*" concern was all about. That opportunity was wasted. Sad. We're seeing the popularity of ordinary traditional vehicles grow.

3-20-2015 **EV Surprise.** Prius PHV is a plug-in hybrid. So if the engine runs briefly, who cares. The benefit of augmenting a regular hybrid with plug-supplied electricity is still achieved. Super efficient HV driving is the goal, not EV driving. Nonetheless, I was surprised to see that yesterday's stats for me revealed having traveled 30 miles from two recharges. That 15 miles for each, without any effort to achieve that, was a tribute to the technology. Clearly, my new commute to & from work isn't affected by all the rolling hills. Who knows, now that it's Spring, perhaps I'll see an improvement over the commute from my old house. The EV estimate has risen to 11.1 miles over the past few days. Range was always less anyway, due to the temperatures well below freezing here, especially with all the trips back & forth during the move. But there is definitely a curiosity about the operation after 3 years of ownership already. I won't be able to measure the capacity retention anymore. The new route ended my long run of consistency. Oh well. At least I'm still seeing really high MPG.

3-20-2015 The Best Choice. It's really frustrating when an antagonist makes up history. Most people assume what's being said is true, or at least close to what actually happened. Sadly, it is not often the case now. Those few who thrive on debate and get a thrill from dropping bait say things like this on a regular basis: *"Speculation had the plug-in as a \$3000 option to the regular model. That may have been low, but Toyota was in a position to eat losses on the first gen in order to grow the market. It is supposedly what they did with the Prius itself. But they didn't, and were the last to drop the price when it happened across the market."* It's an endless battle having to deal with that. Fortunately, I have the blogs to confirm that past. They do not. So, I usually post to draw attention away from them, rather than waste anymore time responding directly. State the facts, summarize, and move on: Being part of that history, I can tell you what actually happened. Keep in mind who the market was then and will be later. That makes a big difference. Think of the big picture, the true competition. First, speculation about plug-in was that the goal had been set for it to become a \$3,000 to \$5,000 option once the market had been established. There was no expectation of the price being that low upon initial rollout. Second, it made no sense eating losses when they were far from the only player entering the plug-in market. Making a design profitable means staying true to mainstream purchase preferences and not depending heavily on large tax-credits. Third, the approach with Prius was to limit availability and set a competitive price. There was no tax-credit back then. There was cheap gas, no concern for the environment, and a strong push for large guzzlers. Finally, why not wait for the second-generation for the big rollout? After all, that is what happened with Prius a decade back and we all know the cost of batteries has been steadily dropping now. The rhetoric was absurd and Toyota's approach has been validated. Look at the disaster Volt became, despite large tax-credits and a large price-drop. It suffered huge losses and GM chose not to make the second-generation competitive; instead, the decision was to endorse EV... the very thing Volt was intended to make unnecessary. Reality is, the true competition is absolutely crushing the plug-in vehicles. The losses GM has suffered were about the money, it's the fact that Malibu, Cruze, and Equinox are the popular choices and Volt is just an interesting model. It comes down to the decision consumers on the showroom floor make. Toyota is well aware that Camry & Corolla must continue to sell in high-volume but is unwilling to sacrifice Prius in the process. Take a look at the struggle Ford has had. What about the delay for Nissan? It's about making the best choice, not being first or last.

- 3-21-2015** **Europe vs. United States.** Very few know there's a PHV difference: "*The PiP there has City mode rather than PWR mode. City mode aggressively suppresses starting the ICE unless you really floor it. This is to comply with zero-emission zones in many European cities. Along with City mode comes the apparent lack of what is called in the US a *boost* mode where both the electric motor and the ICE are providing power at the same time.*" I was happy to see that posted. My response was: That's a nice explanation. Not being aware of Toyota delivering 2 different configurations of PiP has contributed to a variety of misunderstandings about what the system is actually capable of and intent of the first model. Flexibility has always been the key. In fact, that's why it was so easy to augment with increased battery-capacity. Those who wish to undermine twist that to appear to be a desperate attempt to redesign a system to do something it was never intended. We know that isn't the case. Toyota has carefully considered mainstream need and avoided succumbing to hype. Collecting extensive real-world data collection from Europe for CITY operation and from the United States for BOOST operation positions Toyota well for the next-gen model. That will go a long way toward the ultimate goal of delivering a profitable configuration for the masses.
- 3-21-2015** **2 Leafs.** That was cool. As we were walking across the street today, 2 Leafs drove by... from opposite directions... crossing in the middle of the intersection... the only 2 vehicles. It was perfectly timed. Too bad events like that are incredibly rare still. Sure, you can see that eventually with Prius. But with plug-in vehicles, nope. There simply aren't enough of them yet. Someday, but not anytime soon. There's many years to wait before seeing them sharing the same parking lot becomes common. I know. Patience.
- 3-23-2015** **RAV4 Hybrid, coming.** It's finally going to happen. We knew someday that there would be a small AWD hybrid offered by Toyota here in the United States. After all, Estima has been available in Japan for quite a few years now. But minivans are low-demand here. So, it didn't make sense to offer the same here, especially since that one was smaller than the minivans we see on select dealers lots. Remember that neither Ford nor GM even offer minivans anymore. So, targeting a small SUV makes a lot of sense. We'll get detail soon. With Earth Day a month away, pre-announcements like this are to be expected. Details will be interesting. How other automakers respond will be too. Don't forget that Ford discontinued its small SUV hybrid. The fact that Toyota will be offering one now makes you wonder. It will obviously feature the latest & greatest design too. Those improvements should appeal to many who still are not interested in purchasing a car. We'll see. 2015 is definitely shaping up to be a noteworthy year in automotive history.

- 3-24-2015** **Single-Mindedness.** This sure hit the nail squarely on the head: "*Volt was designed to reduce gas consumption, not for fuel economy. They are two very different things.*" Electricity is a fuel too, not just gas. Sending the message of guzzling all the electricity you want, just because you're not using gas, is wrong. It's still waste, just of a different type. We still have a lot of electricity generated from coal. That's dirty. The act of transmitted ends up consuming some as well. Then of course, there's the conversion from AC to DC then back to AC again. So, efficiency of the electric-propulsion system in the vehicle is important. Some just plain don't care though. That's sad. I jumped into today's discussion with: We need to remind people of the single-goal approach GM took. The fact that Toyota chose to address several goals all at the same time... cost... emissions... cargo/passenger room... in addition to improved gas consumption... with the most efficient use of electricity included... is often overlooked. Unfortunately, there's a past of outright dismissal too, in which we had to deal with "*vastly superior*" claims as a result. That single-mindedness of MPG with no regard for other priorities is something new Volt supporters must now deal with. Their predecessors set a terrible precedent that they have no choice but to address.
- 3-24-2015** **Allowing Mistakes.** This comment today certainly got my attention: "*Lets wait and see what they are like in the real world, how many are purchased for whatever reason.*" It's among the first signs to look for when something starts goes wrong. Recognition of purpose is vital. You cannot just build a product and hope for the best. Sadly, we have several good examples of rollouts going bad due to not matching market expectations. I decided to respond with: That's what caused problems with the first-generation offerings. Rather than clearly identifying goals, then addressing them directly, that stance was taken. Not being proactive welcomes trouble to come. Allowing that same mistake to be repeated is even worse.
- 3-25-2015** **Misleading Through Omission.** You gotta like this: "*For an average American car (26 miles per gallon), the report estimates that air pollution emissions altogether cost us \$1,700 in damages per year. In comparison, emissions from energy to power an electric Nissan Leaf would cost us \$840 even if purely powered by coal, and \$290 if fueled by electricity supplied entirely from natural gas. These costs would become negligible if the electricity came from renewable or nuclear power....*" It seems constructive. The summary stated why EV is better than traditional vehicles. That catch is, not all the information available was included. I responded to the discussion thread about that with: That's called misleading through omission. Some would identify sighting only the extremes as cherry-picking. Nothing in between is a red-flag, a warning of potential bias. The plug-in Prius is considerably cleaner than the average American car, but that information is conveniently not mentioned. Why wasn't it? We've seen reports showing emission levels, but never anything with respect to supposed damage. How is that actually quantified? What criteria is taken into consideration? Where is the detail? In other words, don't take a single vague report at face value. The real story is in the detail... or lack there of.

3-25-2015 **Wow!** Today, there was an unexpected announcement... one of great importance. Out of the blue on a big Prius forum thread relevant to the topic, I posted: Looks like GM has finally seen the light and will now be following the same path they heavily campaigned against for over a decade. In other words, the large & expensive battery in a small car clearly isn't appealing to a wide audience. That question of "*Who?*" has overwhelmingly been answered. GM was losing a massive number of customers on the showroom floor and has finally taken a stance to properly address that. All the nonsense, the rhetoric, the hype, the spin, and the propaganda has been confirmed as not the mainstream solution it was promised to be. Many of us will feel quite vindicated as news of this spreads. We were attacked on the premise this would never happen. The belief that blending was a waste & futile path to follow is now being taken by the most outspoken of opponents. Irony. Isn't it great? :)

3-25-2015 **Initial Thoughts.** This news is monumental. I cannot stress that enough. The benefits of a FULL hybrid have been discussed for 15 years. Throughout that entire duration, there was resistance from GM. It was maddening. Finally, after years of the "*stop gap*" argument against them, GM finally changed their attitude. They'd develop one, rolling out first a configuration for large vehicles, then later follow up with a mainstream car. That didn't happen; instead, they decided to pursue Volt instead. That effort fell apart... on a disastrous scale. It was all about diversity. I couldn't care less about what was offered as a specialty vehicle, as long as there was also something for the masses too. Clean, Efficient, and Affordable... what a concept... one that GM obviously didn't have as a priority. Thank goodness the first true signs of that changing have finally emerged. Yeah!

- 3-26-2015** **The Post.** My opportunity to sound off, after waiting for others to chime in, had come: I've been pushing FULL hybrids for 15 years. Since the beginning, it was always about getting something clean, efficient, and affordable for the masses. That meant a practical vehicle which didn't compromise to emphasize any particular trait. In other words, it would be an ordinary part of the crowd, an everyday vehicle you'd see everywhere. Prius fit that criteria extremely well. So, whenever someone passionately liked something else, they'd assume I was fighting against them. It was unheard of back then to endorse multiple automakers. If I was pro-Toyota, in there mind, it was impossible to be anything else. That's clearly not the case. My friends who own Leaf, Volt, and Tesla know that well. Some on this forum though and elsewhere still don't believe that though. Because I want a vehicle for the mainstream, they take great offense to words casting their preference as a niche... rather than just acknowledging a clean, efficient, and affordable also. That's why I pushed so hard on GM. I couldn't care less what happened to Volt. And I was constantly misrepresented as trying to kill it. Thankfully now, it's becoming easier to see that I was pushed for diversification. A niche is fine as long as there's also a choice for the ordinary consumer... hence having mentioned Malibu literally thousands of times and pointing out how it was the true competition for Volt, not Prius. Those losses on the showroom floor will be very, very difficult to deny now. GM's own customers weren't interested... which is why there was so much attention brought to conquest sales from former Prius owners... which cannibalized the market, rather than expand. That missed opportunity has been acknowledged, finally. I'll admit, it is very nice having been correct all along, but there's not really much to take credit for. The economics were pretty basic. GM's production of traditional vehicles didn't change when Two-Mode or Volt or BAS were rolled out. They never captured any sales beyond just special interest. Volt depended heavily upon a subsidy too. This new hybrid, a proper FULL design, won't. It will be targeting the appropriate audience too... those whom in the past provided profit for the business.
- 3-28-2015** **Cold Starts.** This type of misleading gets annoying: *"My beef, as it were, with people who ask if EVs are "cleaner" than ICE vehicles is that they should first talk about criteria pollutants and should not use terms like *clean* or *dirty* when discussing emissions. As you point out, there isn't anything particularly dirty about CO2 or similar gases. It's also why the Volt is far "cleaner" than a Prius or a PIP. Criteria pollutants are released on a cold start. Once the cat-converter warms up they are largely eliminated. Hence the goal is to reduce or eliminate cold starts. The Volt 1.0 eliminated 80% of all cold starts. The Volt 2.0 is designed to hopefully eliminate 90%."* Over and over again, this particular individual has been told the PIP (the plug-in Prius) doesn't have cold starts. Yet, he continues to claim it does anyway. This is the same person who still proclaims the "vastly superior" trophy. So, it isn't worth actually responding. However, I can post detail here. The depletion point for PIP is 23.5% battery-capacity remaining. At that point, the EV driving ends and the engine starts. But rather than the "cold" he claims, the engine runs in a protected state. That reduced burden reduces emissions. In other words, engine alone is not relied upon for power. Much of that is still provided by electricity. For ordinary warm-up, the state-of-charge level will drop to about 20.3%. In the circumstance of a hard-acceleration, it will drop to as much as 18.4%. Put another way, the battery is used to prevent engine from revving beyond 1500 RPM. And once warmed up (coolant to 130°F), the engine will run to replace the consumed electricity, so you always have a buffer available. That restoration level is typically 26.6%. Long story short, there are no cold starts for PHV.

3-29-2015

Who? (question) It's very interesting to revisit that question, now that things have fundamentally changed. There is already a growing attitude of inevitability, as if no one ever said this wouldn't happen over their dead body. I find it amusing. The pressures of economics can only build up for so long. Anywho, that puts Volt in an awkward position... allowing for comments like this: *The "Market" is as always: Someone not wanting to burn gas on their daily commute (and the related engine maintenance), in a fully functional EV, and yet they can take off for the coast at a moments notice!*" I accepted this invite: As always, that difference between WANT and NEED is something not properly addressed. The market described is a desire, what supporters of plugging in have wanted for a very very long time. Consequences of having hoped that would be a game-changing solution are now quite apparent. It's really unfortunate that lesson had to be learned the hard way, especially with so many warnings along the way. But it was a WANT they were willing to gamble on... and lost. The NEED was to replace the business-sustaining vehicles, those which sold in high-volume for a profit. That's a profound difference. We knew who those consumers were. Yet every time the "Who?" question was asked, the reply was focused on the WANT audience instead. It was a disaster in the making. Volt was declared victorious despite not fulfilling the NEED. We could all see that it did not capture the mainstream consumers as anticipated. GM's own customers simply were not interested. So rather than expanding the "market", emphasis was focused on conquest sales instead. That cannibalized what had already been achieved, getting people who had already switched to a high-efficiency vehicle to another. The popular smaller vehicles of GM... Malibu, Impala, Cruze, Equinox... continued on, totally unaffected by Volt. Meanwhile, Toyota pushed hard with Prius, diversifying into 3 distinct models and augmenting the most popular. That pushed the brand to top-seller in Japan and to mainstream quantity in the United States. All without tax-credit incentives. Prius has survived the test of time and will be getting a next-gen upgrade later this year. A new vehicle using HSD will be introduced as well. They are all helping to fulfill the NEED. Looking at GM plans, we see an upcoming introduction, the full-hybrid Malibu. As much of a WANT there was for Volt to become a high-volume profit-earner to help sustain the business with, we see that it is not. There is no expectation for that with the next-gen model. It will remain a specialty choice, a desirable vehicle for a niche. Focus and hope will be directed to the new Malibu. As a hybrid, there is potential to appeal to showroom shoppers, those intending to purchase a GM vehicle anyway. It will be able to compete directly, a strong advantage over Volt. That NEED is long overdue. The "*too little, too slowly*" concern has finally been taken seriously. Yeah! It's really unfortunate how much of a diversion Volt ended up being. Oh well.

3-29-2015 **Who? (answer)** The quote came from an outspoken antagonist, an individual who went out of his way in the past to spread misinformation about Prius. He had been a Volt owner who felt threatened by Prius, not accepting the possibility that co-existence was possible. Coming from a "vastly superior" background, getting over that realization of having been greenwashed is a challenge. No one wants to discover they've been misled. So, I was happy about the opportunity to change a foe to a friend. After all, that is the ultimate defeat... and the goal all along with Volt. Looking for an ally has been a long journey. Anywho, his response was: *"How and why would I 'acknowledge' something I know nothing about? I don't care to know what the current GM product line up is. I care about the Volt. It's an awesome, fun, inexpensive to drive car and I would have bought it if Hyundai was selling it."* Only seeing a single tree in the forest is often the source of a problem. There was no product gap as far as they were concerned. Volt enthusiasts went way out of their way to ensure that limited scope didn't grow too. That's why looking at the rest of GM's production caused so much of a stir. It's also what contributed to Volt supporters emerging, those who wanted true success rather than just some trophies. Sales enough to affect the true market were what's been important, those who would otherwise just purchase a traditional vehicle offered by GM... hence the "Who?" question... and finally an answer.

3-29-2015 **Malibu Sales.** I really got a kick out of reading this: *"Lack of a full hybrid version was not the reason for poor Malibu sales."* There wasn't anything at all posted by me with respect to that. He just saw the words "sales" and "Malibu" appearing in a post pointing out Volt's struggle and got came up with that to voice his anger. He's one of those upset about how things turned out. In fact, he even accused me of "I told you so" posts as a result of recent events. Wanting someone to use as a scapegoat is nothing new. Neither is my support for FULL hybrids. An for years, I've been pointing out how sales of Volt have been lost to vehicles like Malibu. So, twisting my words to make it seem as though my attention to Malibu was something else entirely was to be expected. It all comes down to that product gap. Having no affordable choice without a plug was an obvious problem which could only be denied for so long. Long story short, I wasn't pleased and expressed my feelings this way: That isn't even remotely close to what I posted. Again, the reason for no HIGH-VOLUME BUSINESS-SUSTAINING sales, something directly competitive, was due to nothing being offered. Nothing in the category was a blatant problem. There was a huge product gap that scores of outspoken Volt supporters refused to acknowledge. Thankfully, GM finally did. btw, I've been saying the same thing about FULL hybrids for over a decade now, to the point where people complain about me sounding like a broken record. So, I don't see how my stance could possibly be misinterpreted.

3-30-2015 **Progress.** It can be painful. But if you stick with principle (good business), it will eventually win out. This was interesting: *"The volt though, that created a new category. I can understand the doubt in some peoples minds, but I don't understand the lack of understanding that erev phEV's may expand the market, while another me to midsize hybrid is likely to add little growth. That is unless you see something I don't where the malibu hybrid is better tech than HSD."* The raising-doubt response to the news was to be expected. The pessimism was annoying. The assuming was frustrating. It was the growth part that got me in the end though. GM's stance changed from fighting to joining in. Contributing to the very approach the automaker had been opposed to for so long is a major barrier overcome. All that focus on Volt at the expense of FULL hybrids was always a problem. Rather than being part of the team, it was declared superior without justification. That obviously backfired. The result is bewilderment for some. I posted: The assumptions in this forum are what hold back constructive discussion. In this case, there's the belief of better/worse and success/failure causing the problem. People continue to assume that's the stance being taken when posts are made. And no matter how valiant the effort to focus attention on the market instead of individual automakers, some just plain don't see it. The lack of understanding fits that. The category... or whatever other identification means chosen to describe a technology... makes no difference. It's still the same problem. Paradigm shift simply isn't possible. Period. That's been overwhelmingly confirmed. So, no matter how great the technology, it just plain will not interest a majority of the consumers until their current offering is discontinued. They will just keep purchasing what they feel comfortable with instead. Some people have fought so many years for the advancement & acceptance of battery vehicles, they've lost sight of the original problem... which is what has allowed it to persist for so long. It is absolutely vital to be attentive to the predecessor. Focus solely on the end-state creates a new barrier to overcome... an avoidable challenge if you establish a bridge. Ironically, that idea of a "stop gap" being given a stigma of bad caused people to dismiss the very solution needed to overcome anchors to the past. In other words, that's why FULL hybrids have been so fundamentally important. They are what will bring the production of traditional vehicle to a drawdown, not EV alone.

- 3-30-2015** **Understanding.** It becomes a major problem if you hold discussions with the same person thread after thread after thread. They get mixed up, forgetting if you said something or if it was actually someone else. Remembering when a statement was said also becomes an issue. That's why I blog. The exact quotes are saved, giving me an opportunity to search back to verify who actually said it. As for the when part, the blogs are written as the history unfolds. So, there's no conflict ever related to looking back. The perspective at the time is documented in detail. Anywho, today is was this: *"And here I thought the discussion was about pushing forward technology that would help spread electrified cars (and here we can include hybrids, phev's, and bevs). So again, I will admit to not understanding your point."* Still attempting to convert foe to friend, since this is taking place on the big Prius forum, much effort will be expended to ensure clarity: Many people fall into the "advancement" trap. It's far more common than you'd ever expect too. The belief is that pushing forward technology can only be achieved by reaching beyond the current limitations. That makes a lot of sense, which leads to a lot of incorrect assumptions. Reality is though, the advancement requires sunset of the older technology. It's why traditional vehicles are still such a massive barrier. They are holding back steps forward. The gauge of progress is measured by how the step is taken. Using a carrot (tax incentive) or a push (government mandate) will only help to advance the technology itself. That will not change the attitude of the masses. They'll continue on, perfectly content driving their traditional vehicles.
- 4-01-2015** **Malibu Hybrid.** Details are have been released. Like what Prius already has and what Volt will be getting, it too will feature a Exhaust Gas technology. Being able to recover heat and recirculate air that would otherwise be lost is great. I really like the fact that attention to design features such as that are pressworthy now. Course, in the past, the reason some things were excluded by the media and by supporters was due to only the competition offering it. But who cares. GM is finally catching up. The rating numbers from GM (which EPA will certify) are 48 MPG city, 45 MPG highway, and 47 MPG combined. That truly is competitive... functionally. The system itself may be somewhat expensive still though. Interestingly, it has an EV limitation of 55 mph listed. How much do you want to bet that will be used to mislead? Toyota's non-plug hybrid limit is 46 mph and Ford's is 47 mph. But the values are basically just a note for trivia. Travel at speeds faster without the consumption of gas is a normal part of the operation. Having the engine pump with the valves open causes very little resistance. Anywho, the part I get a kick out of is the size of the battery-pack. It's just like what the other automakers. That's confirmation of what we've been saying all along, for many many many years. Thank goodness GM is finally on the right track. Volt will just fade into the background with other niche offerings. Meanwhile, we'll see growth hybrids and a decline in traditional vehicles. That makes taking the next step so much easier. This will help. Having a major automaker strongly against FULL hybrids was holding back the industry. Some sort of cooperation was needed.

4-02-2015 **RAV4 Hybrid, details.** Some were revealed today. Nothing about efficiency, performance, or price was shared yet. But at least there was confirmation that it indeed would be a 2016 model. Hearing the hybrid will deliver better acceleration and more horsepower was quite a tease. I'm sure some are now want efficiency information more than ever. Isn't marketing great? Speculation about MPG is that low 30's will be realistic. That's obviously a far cry from Prius, at least it helps to help end the reign of large SUVs without forcing people to actually give up SUVs... over their dead body. That's yet another reason it is so important to know your audience. Souring appeal for the larger guzzling SUV by offering a smaller that's more efficient and much cleaner is a decent step forward. It's too bad there have been many who didn't understand that. They just figured if you made a compact car appealing enough, the draw of the SUV would vanish entirely. They were wrong, very wrong. Now, that reality is easy to see. Unfortunately, we have to wait until this Fall to see them on dealer's lots. At least there's something to look forward to in the meantime. It's a category which seems to be well time for strong sales. Toyota should do well. It's an odd situation seeing that Ford chose to discontinue with the option of starting fresh again later with a small SUV hybrid. They were ahead of the time. No, they have the opportunity to diversify. So, all is certainly not lost. How long do you think it will take GM to offer a hybrid Equinox?

4-03-2015 **Told You So.** Only one person accused me of having an attitude like that. He's a well known antagonist, one who thrives on debate. So, there would have been a slight bit of disappointment had there not been any sort of negative reaction. He just wanted closure too... by claiming this outcome was inevitable, wondering how anyone could have ever thought otherwise. What load of crap! But that's ok. No one else had any issue with the recent developments. In a way, Volt was doomed from the start. With so much emphasis on performance and such a negligent approach with cost, there's no way it could possibly be competitive. That's why those like me never saw it being discontinued. As a specialty vehicle, it could thrive. After all, that's what Corvette & Camaro have been for decades. Why not Volt too? It did fail though... falling well short of sales goals. No excuse could cover the fact that expectations were for it to achieve mainstream popularity by the third year. That didn't happen. Not even close. It was a disaster. Had the approach of delivering a second model been addressed from the start, things could have been profoundly different. But instead of embracing the idea of sharing the technology with another vehicle, there was intense opposition. So, the fact that GM did a complete reversal and just announced plans to do exactly what enthusiast feared the most, there's been a quiet death. No, not Volt. Enthusiasm for it. The thought of just the hybrid portion of the design being featured as a premiere offering is devastating. They could have declared that a technology victory. Instead, their own precedent, looks upon that as terrible waste. They brought about their own demise. Seeing the "*vastly superior*" attitude not replaced by a fear of me playing the "*told you so*" card is quite vindicating. I welcome the FULL hybrid that we'll be getting from GM. Finally, there will be something for mainstream consumers. Yeah!

- 4-04-2015 Hatch-Open Driving.** This was an interesting experience, something I haven't done for decades. Back in college, I owned a 1984 Dodge Omni. It was my first hatchback, which proved to be remarkably convenient. That's what made me so excited about Prius becoming a hatchback too. Anywho, every now and then, I'd encounter a load of cargo to carry that was larger than the cargo area. With a small hatchback like that, it happens. With a large hatchback like Prius, not so much. In fact, that's never happened for me. Even that 11-foot folding umbrella we purchased last year fit inside, with the hatch shut entirely. This time though, we weren't so lucky. We accidentally had the 20-foot collapsible ladder transported by the movers to the new house. It was too long to fit inside the Prius to bring in back. So... I did what I had done all those years ago... drove with the hatch open. Securing the load & door was no big deal. What differed though from in the past was there is now a warning beeper. I had to listen to it for 29 miles. Ugh. Thankfully, it was a beautiful day out and the efficiency was still outstanding. Even with the aerodynamics of the Prius compromised and no plug-supplied electricity available, it delivered 52 MPG. You gotta like that.
- 4-05-2015 New Attacks.** The new "*borrowed technology from Volt*" marketing is really frustrating one particular EREV pusher. His arbitrary criteria to differentiate it from PHEV has been falling apart lately, as a direct result this sales approach twist. I find it amusing, since Prius was designed with plugging in from the start, but wasn't offered that way until recently due to lithium density & cost. He was one of the antagonists who refused to acknowledge that, insisting the plug was an after-the-fact scramble to compete with Volt. Anyway, it turns out he's simply against all vehicles offering less than a 40-mile capacity... which explains his near hostile responses at times when the topic of a second affordable model of Volt be offered in the past and his attempts to undermine now: "*Anyone who expects the Malibu Hybrid to ride like a Volt in range extended more will be sorely disappointed. The Volt's smooth EV ride requires a significant amount electrical power (kW) which the smaller battery pack in the Malibu Hybrid just doesn't have.*" That quote really caught my attention. There isn't a reasonable explanation for any difference. Depleted operation is hybrid mode. If Malibu is using borrowed technology and the Volt battery is drained to the same level, what would cause smoothness to vary?
- 4-08-2015 Choices.** There is growing hope. The market barrier Volt had been is fading away. Vastly superior? Certainly not! It reminds me of DIVX, when it messed up the DVD market. Most people have no clue it even existed, no idea there was a rental-disc format that had been introduced for the home-movie market that ended up causing major rollout disruption... then, abruptly disappeared. Volt will be more than just a footnote in history, but it did indeed mess up the automotive market. Was there much harm done though? That's an interesting question. GM paid dearly. But the other automakers found a way to take advantage of the fallout. They made it into an opportunity, despite what the antagonist spin would leave you to believe. This is proof of the changes being recognized: "*I have to admit I am getting concerned for the Volt. In another 18 months, the Bolt will be available, and for many this may be preferable, especially as a second car. Next we have this new Malibu. It has great styling, is relatively spacious, and the hybrid gets 47 mpg combined. ... For probably about the same price as a Volt, I can get a Malibu Hybrid. And with this I probably get more passenger room, a true 5th seat, power seats, and less mileage impact from cold weather. Choices, choices.*" Knowing who, I call that hope. The market is opening up. Choice is very important.

- 4-10-2015** **Stop Gap.** There's nothing to gain from posting on the Volt blog anymore. It's just a republic of what's on the parent-site anyway. The sacrifices made for the sake of EV range are simply too much. That lesson has already been learned by GM. Following the automakers with a smaller range and more efficient blending is what will appeal to consumers in large quantity. Know your audience. This post in its entirety highlights the situation well: *"If everything goes Voltec and they end up discontinuing the Volt, that would be great! But I don't think hybrids and weak PHEVs will get us there. Efficiency helps, but it's just a stop-gap – a Band-Aid for the real problem. We need alternatives to oil. And that's what the Volt does. Most of the Volt's miles are electric. We need more cars like that."* Notice how incredibly vague that is, how it doesn't actually address specific goals? What is the point of alternatives? He's one of those who couldn't care less about the source of electricity or its cost. The penalty of substituting one type of guzzler for another is a real problem. That's unfortunate. It is ironic that he's using "stop gap" as the label for attempting to undermine. That's what GM used in the past and what EV supporters use now. Also, notice his use of "weak" to demean? What would stronger achieve? Isn't anything using a combustion engine at all his true issue? Where is the gap?
- 4-11-2015** **62 MPG.** I used only 2 miles of EV capacity and drove a total of 187 miles. It was my opportunity to briefly escape up north for a few days of rest. Being able to get that kind of MPG without needing to use the plug-supplied electricity is great... especially since there is no where to plug in later. Of course, I don't care. It's my time to rest. Attempting to sell 2 homes and buy another inside of just 6 months is a major effort. Any type of rest is great. I'm so thankful for the large cargo area the Prius provides. I've done so many trips hauling stuff back & forth, my head is spinning. It will be worth it though. I'll get to enjoy Summer at this rate. Yeah!
- 4-12-2015** **Replenishing EV.** Taking a quick trip up north, I wanted to save EV capacity for when I'd be doing short drives, since I wouldn't be plugging in. That meant it would be worthwhile to take advantage of the HV/EV button. It's easy enough to switch over to HV to prevent depletion. The trick though is switching back to EV when there's an opportunity to replenish. When you're in EV mode, the recharge from deceleration is "marked" for use as EV driving. Switching back to HV right away will save it. That same recharge wouldn't be saved if you were still in HV. The system would use it immediately, bringing the SOC (state-of-charge) back to where it was when you first switched to HV mode. In other words, it remembers the SOC when you left EV mode and works to retain that level. The rise can be quite significant if you have a long hill to descend or have to brake from high-speeds often. Using up the electricity right away is how MPG is boosted. So normally, you'd want to take advantage of that design. But when you know you'll be unable to plug in for a few days, you want to save it. Unfortunately, it's easy to forget. I did this morning. It wasn't until I was cruising along at 60 mph that I realized the engine was still off from the intersection I had left awhile back. That used up 10% of the overall SOC available. Bummer. It's great being able to accelerate up to that speed while mixed in traffic without even noticing, but for me it meant less EV for later. In my circumstance, there's a recreation building just 0.7 miles away. Driving to & from it without having to start up the engine is nice. Oh well. More electricity would be nice, but I'll likely have enough capacity for my long weekend getaway anyway.

4-13-2015 **Aftermath.** It has been almost 3 weeks since that surprise announcement from GM... the one that was always the deepest fear of those who evangelized Volt. That group of enthusiasts who absolutely hated the idea of impurity, but kept changing definitions & goals to prevent people from drawing the conclusion of failure, was always angered when anyone brought up the idea of basically exactly what happened. It was a fear of blending. Mixing gas & electricity to achieve reduced emissions & consumption was unacceptable. The vehicle must be an EV until the entire plug-in electricity capacity had first been consumed. Embracing a no-plug hybrid which strived to deliver high-efficiency cleanly was unacceptable, period. That made it quite clear a vehicle adding a plug to that system was unacceptable as well. They declared that the enemy, the competition to fight... not traditional vehicles. Problem was, it wasn't their choice to make. GM's customers were always clearly identified. That's why I kept asking "Who?" Any answer other than what GM itself had identified was unacceptable, period. They'd attack me for pointing that out... even though I had nothing to do with any of it. GM's customers were defined by who was coming to dealers and purchasing GM vehicles, period. Denial has consequences. The aftermath of a disastrous reality shock is quite obvious now. Their adaptation of the old motto to: *"If it is built, they will buy it."* proved horribly inaccurate. Not wanting to accept the voices of reason is their own tragic mistake. I'm thrilled GM finally took the steps needed to deal with the mess it had created by enabling a group of enthusiasts with the hope of a miraculous product acceptance... even though it clearly didn't match purchase priorities of their own well known customers. Oh well. It's live & learn for the automaker. As for the enthusiasts, their effort to shot the messengers backfired. Now, they have to deal with the outcome.

4-14-2015 **Gross Oversimplification.** The very constructive question of why Malibu-hybrid is more efficient than Volt after depletion has begun a popular discussion topic. But since the Volt enthusiasts made great efforts to stigmatize Prius and undermine design information sharing, their own group is now suffering from an understanding of how MPG efficiency is actually achieved. Remember how hostile posts became when the "direct" issue came up? All throughout the design phase, Volt enthusiasts touted EV purity, how their vehicle of choice would never send power from the engine directly to the wheels. In other words, they assumed a SERIES hybrid was the best approach... despite all the evidence to the contrary. Conversion losses were outright dismissed. Then they found out there was direct energy transfer after all, that it was too inefficient to convert from mechanical to electrical. So, they downplayed as much as possible... which meant suppressing all information to that effect. Now, finding out the next-gen Volt will blend even more, they are really at a loss. All that time wasted. Opportunity lost. The "vastly superior" nonsense really caused quite a setback... for GM anyway. It actually ended up opening up the market for the other automakers. They fumbled, the others took advantage of that mistake. Anywho, they are now trying to overcome that loss: *"Its simple, the Malibu does not have to convert to electricity which is then sent to the wheels. Hence it does not experience two levels of loss, the first being gasoline into electrical put into the battery and the lost coming back and being converted into movement."* Clearly, that's not going well. That quote from a discussion on the Volt forum was followed by this: *"But if you don't get that, think of it this way: Simply put – the Malibu is optimized to run on gasoline – the Volt is optimized to run on electricity."* That's so horribly vague, it could mean anything. It's not correct either. They've created their own misconception & assumption trap. Oh well. It's not like they weren't warned.

- 4-15-2015** **Getting Interesting.** This opening line from an article published today certainly caught my attention: *"When the history books are written about Barack Obama's tenure as commander in chief, the Chevrolet Volt will doubtless be remembered as the most important car of his presidency."* It was an obvious attempt to make sure the president was directly associated with the failure of Volt to become a mainstream vehicle. It was frustrating to read. The reason was simple. It was cherry-picking. Not a single mention was made about Tesla. That's an American success story to make us proud, which happened during his presidency too. Yet, there was no mention whatsoever about it. Watching Volt fall apart is really getting interesting. We knew GM absolutely had to do something, to finally rollout something competitive. Finding out the next-gen Volt wouldn't be it, obviously there would have to be another vehicle instead. With all the attention the upcoming hybrid model of Malibu is now getting, some form of closure for Volt was inevitable. Recasting it as a niche moving on is a wise move. It was too small and too expensive. No amount of promotion will get around that. So, we are now seeing attempts to deal with the outcome. It's finally over.
- 4-15-2015** **The Next Prius.** It's nice to see a return of priorities. The media gobbled up every bit of Volt propaganda the various sources available could stir. Very few ever wanted to address what was actually important. Thankfully, Toyota always stayed true. Another article published that today with: *"The new Prius will be the first tangible result of Toyota New Global Architecture, or TNGA, which Toyoda bills as a rethink of the company's business model. Multiple vehicles will share common underpinnings and components..."* They ever stated the goal of cutting cost 20 to 30 percent. That's a really, really big deal. Achieving profitable high-volume sales absolutely demands it. There's also the expectation of delivering improved efficiency. The promise of about 15 percent is still sounding realistic. Yeah! The stakes have never been larger. Oil supply is up dramatically, causing prices to be pushed well below levels able to support alternatives. Expensive gas is no more. That makes selling the idea of high-efficiency an even greater challenge. It's become a nightmare for dealing with emissions. What incentive is there for the typical person to even care? Guzzling is simply too easy. That's why raising the low-end is so incredibly important now. We must find a way to wind down traditional vehicle production. That means delivering a clean & efficient choice which is truly competitive. Prius is the best hope for leading that wave of change for the masses.

4-17-2015

Understanding Failure. Today there was a special on NPR discussing how failure is perceived. The well-informed understand it to be a natural process of learning. You try something, the outcome isn't as expected, you note details of the circumstances to learn from that experience, then move on. It's no big deal. In fact, there isn't even a penalty if the goal was to eliminate uncertainty. That scientific approach is a well-proven method. It doesn't work with business though. Too much emphasis has been placed on getting a product perfect first try. Failure in that regard is heavily stigmatized and often comes with heavy penalty. That's why Volt was doomed from the start. Asking for goals confirmed the expectation of getting it right or losing everything. They didn't leave room for learning. That's why when it was first rolled out, attention was immediately diverted to the next-gen. There was a state of panic. Too much had been gambled on that initial offering. That's why talk of a second model was fought against so much too. The stigma of having to admit "*failure*" was, in the mind of enthusiasts, an admission of being wrong. Accepting the circumstances and acknowledging what was needed next was totally unacceptable. It was all or none. That absolute meant success was impossible. The business environment doesn't work that way. No one vehicle is perfect for everyone... hence so many different models of HSD from Toyota. That's also why the plug-in model was a limited rollout with a configuration different in Europe than here in the United States. Toyota would use it as a learning platform, rather than betting the farm on it being a "*game changer*" like GM did with Volt. The arrogance from all that "*vastly superior*" chest-pounding did a lot of harm. Volt supporters, those who genuinely wanted success, were embarrassed by the enthusiast behavior and quite willing to learn then move on. That's how we got to January of this year. They were the ones who sincerely hoped GM would swallow its pride as they did and adapt to match market need, rather than continue to cater to want. Unexpectedly, GM ended up doing both. The announcement in January started out underwhelming, then turned to disappointment. That next-gen Volt was well short of expectations. But to everyone's surprise, GM would also be rolling out a hybrid based upon the same "*technology*" as Volt. Realistically, it is that second model, initially without a plug though. That diversification is a major victory for pretty much everyone... especially those of us who endorsed Toyota & Ford from the very beginning for their FULL hybrids. The failure was GM not following suit from the start. That's ok. Even though they made a mess of the market and confused the heck out of consumers by misrepresenting a niche vehicle as a mainstream choice, the technology did indeed work. It just didn't serve the needed audience. That's well understood now. Just thing what things could have been like if that had been learned sooner. Oh well. The saying "*better late, than never*" is a more constructive way of saying "*too little, too slowly*".

- 4-18-2015** **Change.** It's over. Done. Complete. The chapter of triumph & failure has come to a close. At long last, we can move on. Yeah! What a relief. It's still hard to believe there was so much hate. The emotion stirred from having endorsed an approach that fell well short of expectations is extremely difficult to deal with. Lashing out at those who were correct all along is a nature reaction, one to be expected... to the point of it being necessary to prepare for. It was quite a mess. GM repeated the history of market fallout again. Volt was promoted as a "*vastly superior*" solution, but wasn't able to deliver the promised sales. To be successful, it needed to become self-sustaining quickly. The goal had been set to for the third year. Sales were to grow to the point where tax-credits would be used up, but it wouldn't matter. That would pave the way for the next-gen offering. Instead, the entire burden was placed on the next-gen. It was to rescue the effort. That didn't work either. Now, the industry is attempting to deal with backlash. Rather than Volt having usher in an efficiency technology for the masses, we are seeing the sales of small traditional cars and SUVs rapidly grow. That's a big step in the wrong direction. Volt burnt bridges along the way too, doing everything it could to tarnish the reputation of competitors. What a mess. Fortunately, to the frustration of some, Toyota was smart to wait for that to pass. We can look forward to the next Prius in a very different market... one not tainted by "*over promise, under deliver*". The careful balance Toyota strives for with Prius often gets mocked as compromises. In reality, it's a diligent effort to best match the purchase priorities of their customers... hence all the references to showroom floor importance. Remember all those stories in the past of Prius owners being ordinary mainstream consumers who discovered the hybrid while at the dealer? They we won over by the in-person experience. No amount of online hype & misleading can hide the importance of that. Automakers must sell profitable high-volume vehicles. Period. That is not anything a halo can achieve. Thank goodness change is bringing about recognition of that. Phew!
- 4-20-2015** **A Few Still Trying.** I get a kick out of those who blatantly lie by stating a history which can easily be confirmed as false. That kind of misleading by assumption is common. They simply hope no one will look up the true story. When confronted with the truth, they just change focus. It makes confirming their intent easy. Today, it was: "*Perhaps he should be reminded how poorly the Prius sold when first introduced and how many manufacturers are working to build cars of similar concept to the Volt in the next couple of years.*" Prius had strict inventory limitations and no tax-credit help. Yet, there were long waiting lists anyway. How is that translate to "*poor*" by any definition? That was back in the day when gas was cheap, there was no concern for oil dependency, and emissions were not even considered a topic of interest... different from so many ways compared to Volt, it's hard to believe that history would even be brought up. As for the "*working to build*" comment, who? I haven't heard anything at all to that respect. Plug-In hybrids are the interest now. That's what all automakers (except BMW) have embraced as a solution for their emission & efficiency competitiveness. I'm tired of the distortions and trophy-mentality, but there's no benefit in responding to the greenwash attempts. Business need is quite no longer a topic of debate. All automakers must deliver something beyond traditional, period.

4-21-2015 PHEV Announcement. The confusion from GM about what technology is really under the hood got even more confusing today. That's the best way to move beyond the troubles of the past and join the other automakers though. You obscure to the point where messages from long-ago are simply abandoned. It's quite vindicating to those who opposed to the one-size-fits-all approach. The upcoming Malibu hybrid will supposedly be using technology from Volt, but won't behave like it but also will. The details are self-deprecating. The contradictory nature of what were being told makes enthusiasts who were opposed to what's happening now hypocrites... hence, not bothering. Abandonment makes taking the next step so much easier. We've seen in several times in the past, with Two-Mode being the most prominent example. Those who fought the needs of the masses abruptly changed their stance when the reality of business finally could no be denied. That's what makes the announcement today so important. It represents exactly that. The very thing they fought with hostile vigor is happening. Cadillac CT6 will be offered as a plug-in... not like ELR though... it will be like the Malibu hybrid will battery augmentation instead. In other words, the Volt system has come full circle. Despite all the arguments trying to convince us that Volt was an entirely new approach, we knew all along it was really Two-Mode's next-generation design. Proof even came out later confirming it. This one is really the next. Volt was overkill, making many sacrifices to deliver EV as much as possible. That was a terrible business decision. Consumers weren't interested in the compromises it made. Those of us who suggested the very thing GM is now planning to deliver were attacked relentlessly. I'm so glad I took the time to document those reactions with quotes from those posts of the past. They were wrong, very wrong. Engineering alone will not win over mainstream consumers. If you build it, they won't necessarily buy it. And even with large subsidies, ordinary GM customers weren't interested. They recognized the "*too little, too slowly*" and purchased a traditional GM car instead. Now, GM is scrambling to rectify the situation. Starting with CT6, they will offer a PHEV. It will be similar to the approach Toyota, Ford, Honda, and Hyundai have already taken. It will be a hybrid with a plug and large battery-pack. In this case, a very large one: 18.4 kWh. That's massive capacity to squeeze into rear of the vehicle. Having an even smaller trunk than Fusion will make things interesting. But then again, a Malibu version of it would likely offer a smaller capacity... making it more affordable than the Cadillac version. After all, with a combined system output of 335 horsepower, the CT6 is far more than what consumers shopping on the showroom floor of GM dealers will looking for. It's all quite a relief. After countless years of insisting a plug-in hybrid was necessary, it's about time that message was finally acknowledged. The announcement today was the long-awaited change we've been hoping to get for many, many years now.

- 4-22-2015** **All The Same.** The belief that a single solution will satisfy all need is really getting in the way. People coming from a simplistic background don't see how essential it is to identify who. Doing that reveals multiple markets. You'd think this would be easy. After all, trucks were originally sold to fulfill a need cars could not. But now in the age of commuting with a vehicle capable of far more than just commuting, but never actually using those extra features, it's clear why the problem exists. Frustrated, I posted this and didn't bother with any follow-up: That's called effective greenwashing, when consumers misunderstand or assume intent. In reality, Toyota is against the one-size-fits-all approach. People don't realize there is need for variety. Not everyone uses their vehicle the same way. Diversity is required. The old-school single-choice business-model is no longer effective. This mindset of all-the-same is becoming a really big problem.
- 4-23-2015** **KNOW YOUR AUDIENCE.** For crying out loud. The fighting continues. It's really sad. No matter how much you point out GM's own product-line, all they believe is that it somehow really an effort to endorse Toyota. Some just don't get it and refuse to actually acknowledge what you post. I certainly try and stick with it. Here's the latest attempt: A lot of Volt "*hate*" came from pointing out sales losses on the showroom floor. We've seen many who's lease expired choose something else afterward too. The response was to focus on conquest sales instead, completely disregarding loyal GM customers lack of interest in GM's premiere vehicle. That obviously isn't a wise long-term plan. That's why the next-gen model look was chosen to make it blend into the GM product-line better. The sacrifices are still too many though. Cost is high. Seating is limited. It continues to exclude a rear-wiper. It doesn't offer adaptive-cruise or LED headlights. How does that make it competitive with the other GM choices? Not offering high-speed recharge keeps it from competing with high-capacity plug-on vehicles too. Appealing to the masses is a major challenge, even when gas is expensive. But now with the gallon so cheap, even more effort is required. Understanding the customer mindset is key.
- 4-26-2015** **The Next PHV.** We keep hearing rumors. There's a realistic expectation for battery-capacity to increase. From the very beginning, the outlook has been that more will be offered as cost justify. Making the vehicle expensive just for the sake of a big pack isn't how you achieve lots of sales. There's a careful balance. Watching the MPG and MPGe ratings increase from generation to generation makes sense. After all, we've seen efficiency improve with traditional vehicles over the decades, why not with a plug-in hybrid too? Sadly, we may not get details on what the next PHV will offer until a year from now. The regular model will be rolling out in the meantime, and we don't have any detail on it yet either. So, like usual, there's lots of waiting still. Oh well. Each generation has been totally worth the wait.

4-28-2015 **Vehicle Pricing.** The discussion began yesterday. It was an interesting read. What will be the price of the new Volt? Since it was a new platform without any variants, that was always an issue... quite unlike Prius, which was well established and had augment plans all along. In fact, Toyota stated had a upgrade package target price. We knew they were striving for between \$3,000 and \$5,000. So, that never really stirred any controversy. It was a simple, clear goal. For Volt, we still don't know what the heck the intent is. Being told the first year of the next-gen rollout would be a niche leaves you wondering. Then, hearing about the CT6, you have no idea what to think. As for that discussion, it was on that daily blog, so you can imagine what happened... nothing. The reality of profit need was only addressed by a single person, a strong supporter of Volt (unlike enthusiasts, who sacrifice well-being for the sake of prestige). Here's his entire post: *"\$29,995 is my guess even though I don't think that will be low enough for the GEN II Volt to be successful. GM may be forced to make this decision strictly due to profitability. If the price is above \$30K, GM is sending a clear message the Volt is strictly a "compliance" vehicle."* But since that audience still doesn't recognize the importance of cost, even a pricing comment like that from a regular falls on deaf ears. Much like ELR, it's obvious before rollout that formula for high-volume sales isn't there. That vital aspect of appealing to GM's own customers and making profit is not part of Volt's charter. The ugly truth is that business importance cannot be neglected. In the end, that trophy mentality held back progress. Not being able to competitively price a vehicle hurts. Think about how large of a problem there is to come when the tax-credit expires. Sales need to be very strong before that happens.

4-28-2015 **Missing The Point.** We found out today that production of the current generation of Prius PHV will end in June. That's no surprise. Most model-year production ends around that time anyway. What made this announcement stand out was it came directly from Toyota Marketing. From time to time, they tell us something by posting on the big Prius forum. We get information the same day as dealers as a result, firsthand. That's really cool. In addition to that tidbit, we were also told they are looking forward to sharing details with us about the next generation. That's really exciting! Those newer to PHV discussion lack detail and often don't have the background needed to understand intent. That makes sense, but you still have to somehow deal with their claims. For example, we had this as a result of the announcement: *"It's just a compliance car."* Most of the rest of us no that's not the case; however, it is easy to see how that assumption can be made. I simply responded with: Call it what you want. After all, it was a mid-cycle release in a highly volatile market. So, looking back is messy anyway. The point was to collect data from well informed consumers to strengthen the next-gen rollout.

4-29-2015 **More On Pricing.** Today's topic on that daily blog was about next-gen Volt sales. Price immediately came up as the factor of great importance. I couldn't resist chiming in. It had been weeks since they heard from me. So, the time had come to find out firsthand how much change had taken place with that group. Here's what I posted: Ask yourself what has changed over the past 5 years. That "*nicely under \$30,000*" price goal without tax-credit was set back then for the same reason it holds true still. To become mainstream, it must be able to compete with other mainstream vehicles. That means selling in high-volume without subsidy at a profit. We know that Malibu, Impala, Cruze, and Equinox are very appealing to GM customers. On the showroom floor, they draw attention. Volt's price is a major deterrent. The hope was that battery cost would drop significantly prior to Gen-2 being rolled out. 50-mile capacity makes it difficult to compete. So, without even considering any other sales factor, that in itself presents a big challenge. Those other choices GM dealers offer wasn't taken seriously with Gen-1. Focus was diverted entirely on other automaker offerings instead. It's clear now that mistake won't be repeated; however, that doesn't make the matter any easier to deal with. In fact, sales numbers show the "backfire" effect will become a big concern. Not capitalizing on the opportunity right away makes it even more difficult to overcome later. That makes the question of debut price for Gen-2 a matter of great importance. It sets a precedence for the generation, informing us of the approach to come. Think about what happens when the tax-credit ends and how price-drops later on affect resale value.

4-30-2015 **Question, Insult, Greenwash.** Yesterday's post went over well, with one exception. There were several constructive posts. I was pleased how things have changed over the past few months. The change of stance with GM has really influenced that group's approach with respect to responses. The "*vastly superior*" nonsense is long gone. Getting over that major barrier is a huge improvement. Rather than blindly praising with a one-size-fits-all mindset, we're getting more of that team effort instead. From the very beginning, it was a quest from me to find allies. That's why the local EV group we have here works so well. They don't care what automaker you favor, all they desire is the spreading of electrification. In other words, they openly acknowledge & champion the problems of business & consumer. Focus on engineering alone is not a problem... for them. As for the daily blog, there was one individual who was wrong to such a degree, he developed a hate. I became his scapegoat. So, when I posted today after such a long absence, his response was to question, insult, then greenwash. The question was simply re-asking the same thing he already had an answer to. That's a typical trolling technique, to provoke an online debate. I didn't bite. His next bait was to insult me. It was another effort to provoke. I didn't bite on that either. Finally, it was a greenwash attempt, by misleading about Toyota. He gets really irritated when I focus entirely on GM and point out the production & showroom concerns. When someone else mentioned Prius, that was the opportunity he had been looking for... with, of course, the hope I'd bite. It bet it was especially irritating for him, since that other post was about Toyota's importance for profitability & affordability. Anywho, this was his response: "*GM has chosen a different path to Faith: Early cross-pollination with the rest of it's line. Prius continued to be Prius for most of it's run (at least one attempt was made to spread the tech, but the Hybrid Highlander failed miserably). Perhaps Toyota doesn't have enough faith in it's own HSD, where the rest of the line is concerned.*" Knowing he intentionally excluded the hybrid Camry was quite amusing. The 39,515 sales here last year is the reason why. Even without a tax-credit or MPG being competitive with the very latest offerings, it still sells better than Volt. He didn't make any mention of the hybrid RAV4 coming this Fall either. That totally contradicts his claim. So what if the large SUV with a 3,500-pound towing-capacity doesn't sell in large volume. What about all the Lexus hybrids? For that matter, what about the hybrid Avalon? The hybrid minivan offered in Japan (called Estima) was pointed out to him countless times too. Needless to say, he was rather desperate for attention. I didn't bother. With the attitude of that daily blog changing to constructive discussion, there's no place for vengeance from failures of the past. It's over. Learn from those mistakes and move on with the rest of us. Geez!

5-01-2015 **Reminder.** It amazes me how vital pieces of information are just forgotten... especially with a really hot discussion topic? How can something so important be omitted from posts each time a new thread starts. Yes, some people intentionally exclude. But there are others who continue to overlook, even after pointing the fact out. What can you do about it other than just post reminders? So, today, I did yet again: Let's not forget about the recently expired NiMH patents. No longer having those restrictions will obviously have a positive impact on the regular Prius. Of course, that likely played a big role in the delay of Gen-4 rollout.

- 5-03-2015** **More Reminding.** Ugh. It makes you question the value of some discussions. What are people really getting from them? Needless to say, there's a lot of back & forth going on about Volt in the big Prius forum lately. This was yet another reminder needing to be reposted: The price is not competitive though. The other hope was winning over GM's own customers, rather than only conquest sales. Traditional vehicle sales will continue to overwhelm. GM's own product-line is the competition. Making it appeal to ordinary buyers was very important for this second generation. Not stirring interest from them will be a problem. When the incentives expire, the brand must be able to self-sustain at a profit in high-volume.
- 5-04-2015** **Clarity.** Some continue to argue, pretending certain detail still hasn't been made available. It's nice having closure, a finality to the nonsense of the past... even though some just plain don't want to accept it. I'm thrilled about the upcoming divergence. Some clearly are not. I'm making sure that clarity is known by all. We now have answers. Moving on should be easy. Maybe someday it will be: GM already stated this Volt will continue to sell at niche level and has moved on. They recently revealed a hybrid Malibu and a plug-in hybrid CT6. In other words, those of us who pointed out the business shortcomings of the Volt approach are finally relieved. GM didn't understand who. Now, it looks like they do.
- 5-04-2015** **Competition.** That word is carelessly tossed about on a regular basis. For example: "*Competition is getting tough.*" Rarely does that ever mean anything without a plug. Pretty much every time, they mean only the battery-centric market. Traditional vehicles still aren't considered a problem. It's a denial on such an enormous scale, arguing is almost pointless. Most think you are nuts to consider the "*competition*" anything beyond plugging in. Some of that comes from being overwhelmed. How do you take on something on such a massive scale? Whatever the attitude or belief, I continue on with the reminders: The competition is other traditional vehicles from the same automaker. Misunderstanding audience was the lesson learned from the first generation Volt. Conquest sales are not business-sustaining, especially when they depend heavily upon tax-credits. Volt competition is Malibu, Impala, Cruze, and Equinox. Those are what steal away GM's own customers. For Toyota, the next-gen Prius must be made appealing enough to compete directly with Camry & Corolla... which is a major undertaking.

- 5-05-2015** **Excuses.** They often prevent progress. For example: *"One other thing the Gen-2 does NOT have that the Gen-1 had: Development and market release in the middle of a GM bankruptcy and Federal government bailout that made it a political punching bag."* What does telling us that actually accomplish? Had there been information to follow about what to expect, that would be different. Instead, it was just the pointing out of a fact without any context to expectations we should have going forward. Ok, so it's not a punching-bag anymore. What does that mean for acceptance & sales? What should the next step be? What does it mean for the rest of the market? Too many questions. No effort to address them. Just excuses. So, I jumped up onto the soapbox: GM's marketing choices, which was complained about on a regular basis, contributed to it. Remember the uncertainty of who the audience even was? Everyone is now relieved about that is now over and that Gen-2 starts a new chapter. There is still a looming issue though. Approaching tax-credit expiration will stir change. Each vehicle must be able to deliver profit without subsidy. Nissan will reach that deadline sooner, so Leaf will put external pressure on Volt. Oil prices, due to over-supply, will remain relatively low for years to come. So, GM's own traditional offerings will put internal pressure on Volt. That means even without any political attention, Gen-2 will still have major challenges to overcome. Starting out with a higher MSRP than anticipated complicates matters too.
- 5-06-2015** **Labels.** This was today's issue of contention: *"In the Chevy Volt's early days, GM caught flak for declaring it an "extended-range electric vehicle" and not simply a plug-in hybrid, but this week the Idaho National Laboratory verified real-world drivers annually traveled 94-percent as far gas-free as did Nissan Leaf drivers."* Some get so hung up in labels, heck even semantics, that they lose track of purpose. Wasn't the goal sales? Calling it something different won't change what happens at the dealer. That's just marketing, which has little impact once the person is looking at the vehicle on the showroom floor. That's when all the other purchase priorities become apparent. Changing a configuration to make it affordable, without having to alter the design itself, is a factor. Yet, that reality was pushed aside many, many times over the years. It was all about bragging rights, what comes with having a particular label. Sacrifices, like leg & head room in the back seats, are a big deal. So, the arguments about definition is a complete waste. Again, wasn't the purpose to sell a lot? Needless to say, the broken-record reposting of facts is getting old. Fortunately, the gen-2 rollouts are helping to draw in new discussion participants. Here's what I posted: That's because by the time Volt was finally rolled out, it didn't actually fit the very definition which had been coined for the technology it was to deliver. That's also why the top reason sighted by supporters for low sales is marketing. Since then, the BMW i3 has been rolled out and series mode in Volt has been eliminated. So, there's nothing left to contend anymore. Take a look at the battery-capacity to identify what the 94% actually represents. Without changing any engine, motor/generator, clutch, or software, simply reducing the amount of electricity available completely changes results. Next, take a look at the way Ford approached plugging in along with an engine. In other words, there's no point in labeling. Unfortunately, it's not as straightforward as focusing on KWH or MPG. Results from initial consumers don't tell the complete story either. Fortunately, the same purchase priorities consumers had in the past still hold true. Ordinary buyers of vehicles look for a well-balanced choice. Making sacrifices for the sake of maximum EV has proven to be unappealing.

5-07-2015 **Vastly Superior.** This very well could be the last of the senseless vastly superior shoutouts: *"Well, after another attempt to skim over the difficult bits, it occurs to me that this wasn't so much a Gen II Volt as a generic E-drive system usable across much of the GM line; with acceptable performance in a Volt configuration just one of several design objectives. Works for me inasmuch as it lowers overall costs, and increases fleet mpg more directly than with one or two halos excusing a less-efficient "mainstream" fleet. Doesn't work for me as much when contemplating how much better an actual designed-for-Volt might have been; but overall this is a good approach at this stage of the game. No one will be able to touch it for years: Advantage GM."* That was the result of reading a thorough and constructive report on the upgraded system. There's no advantage. GM has joined the rest of the industry. BMW's design is clearly more technologically advanced, abandoning convention much more than any of the other automakers. i3 is very expensive though. But then again, their audience spends more anyway. That most definitely isn't the case for Chevy cars... hence all the Malibu & Cruze references. Long story short, there are a few individuals who never want to be part of a team. That EV club we have here has no issues with what brand of vehicle you drive. If it has a plug, you're playing the game with the rest of them. The team's competition is traditional vehicles, not each other. Some people never learn. They don't understand who.

5-07-2015 **Understanding Who.** Some people just plain don't want to. They'll do everything possible to keep debates alive. Today's example was: *"Who is toyota building the mirai for? I hear the who question from you on the volt, and to a certain extent I agree with you they missed the market. Where I disagree is toyota has done better in this market for alternatively fueled vehicles. EQ cancelled. Rav 4 EV cancelled. Prius phv suspending in june for at least a year with clear pr saying fuel cells are the future. Mirai only planned for 5700 total vehicles world wide through 2017. Have toyota learned from the low sales of these 4 vehicles, who they should target?"* Even though we have solid answers, he keeps asking the same questions and attempts to mislead. He gets so frustrated when I point out facts of the past. The only response left is to omit points already discussed in great detail and relate unrelated topics. The hope is to stimulate discussion. He, like a few well-knowns on forums, thrive on frequent exchanges of posts. That perhaps is a friendly version of a troll, where there's no ill intent, but the purpose of preventing a thread from ending is clear. Anywho, I responded with: Take some courses in business & economics. Among the topics covered will be audience, timeline, diversification, and willingness experiment. GM bet the farm on Volt, hoping for a quick & large payoff. It clearly didn't work. That's why it got so much attention. Thankfully, we are now seeing a change of approach as a result of the lesson learned the hard way. Toyota is getting attention now with fuel-cell rollout because people don't like multi-faceted approaches and long-term efforts with limited quantity. (It's also a common diversionary tactic used to draw attention away from other topics by those losing debates.) In an ever-changing market, Toyota has stayed true to the goal of focusing on the masses. They haven't fallen into the trap of sacrificing cost for the sake of niche praise. It's the ordinary mainstream consumers they are striving to deliver competitively affordable & profitable vehicles choices and patience waiting for that is a challenge with each generation.

5-08-2015 **500,000 Goal.** Most of the problems with Volt were and still are centered around cost. It's simply too expensive to compete. Even with heavy tax-credit subsidies, sales have been low. That's why efforts with smaller battery-packs have become most desirable, especially since the lesser size & weight is beneficial. Remember the "*too little, too slowly*" concern? That burned enthusiasts really, really bad. They absolutely hated hearing that. So, their unified response was to wait until the second-generation model was rolled out. Trouble is, the rapid success they always hoped for couldn't be achieved without consequence. Only 200,000 total tax-credits per automaker are available, then phaseout begins. It meant reaching profitability would have to become a reality very, very quickly. Achieving that in a world without competition would be a challenge. Knowing Nissan would be putting pressure on GM due to reaching their threshold first made it even worse. To confuse matters, GM declared an initiative to achieve delivery of 500,000 electrified vehicles by 2017. That goal was quite vague. What did "*electrified*" actually mean? Whatever the case, revealing Bolt stirred that pot. It would be consuming some of the 200,000 allotment for GM. It would also be stealing away some sales from potential Volt buyers. Needless to say, it was more of the mixed message problem. It also seemed unrealistic. That would require a major change in attitude from Chevy dealers... who currently are enjoying strong sales of profitable pickups. What would compel them to suddenly embrace such a paradigm shift? Long story short, news broke yesterday that we can already see that GM will fall well short of that 500,000 goal. Blame is placed on low gas prices and increased competition... both factors people like me warned about on a regular basis. GM took the gamble anyway. Enthusiasts continue to claim there's no way we could have known that would happen. Ugh.

5-09-2015 **Back to Prius.** The long lull from next-gen "*delay*" makes bringing up constructive discussion a challenge. The perception is that there are problems causing the wait, rather than the automaker simply postponing for business advantage. Engineering assumptions are quite abundant. It's really unfortunate. With our culture right now, discussing economic influence continues to be a thankless effort, at best. Fortunately, there are some who help to overcome that. This may not be one of them: "*I think sales of the pip will continue to be poor no matter what they do.*" It depends upon your expectations & background. Here were the thoughts I contributed: That's a relative measure. Upon early rollout of the next-gen model, sales will indeed be on the low side. High volume shouldn't be the initial goal anyway. We know how Toyota approaches advancement. It's been a successful strategy. The intent is to position their technology for a later upswing, to have a well-proven platform readily available. Lots of real-world data is needed for that. After all, many people don't buy first-year models anyway. They wait regardless of whether or not the brand is reputable. That's just the way ordinary consumers think. They feel more comfortable with their large purchase by exercising patience. The other factor is reliability & profitability. Refining production takes time. It's that simple. And since the non-plug model is the premiere product, of course the plug-in will have to play second fiddle. That's just the way it is. Delivering a product for the masses is a top-priority. The regular hybrid is that product. Eventually, the PHV model will be discovered by mainstream buyers... the ones who have that "*work out the bugs first*" mindset before seriously considering a purchase. At that point, we can see the affordability of the design shine. It will leverage off of the success of the Gen-4 model too... which obviously have to wait a few years for. Sadly, those not in favor of Toyota's approach will spin perception of the situation. Heck, it's pretty much inevitable that they'll label the current PHV as a flop, simply by seeing how much of an improvement the next will be. Of course, they'll avoid acknowledging the real-world data from those of us currently driving one to do that.

5-11-2015 **Waiting.** There are some who just plain don't have patience. They see something and want to draw a conclusion based solely on what's currently taking place. Having a reason to wait simply isn't part of what they consider. This concluding sentence wrapped that up nicely: "*...as the toyota corporate seems to have given up on the model.*" I find it quite hypocritical how the precedent for waiting was set for GM with Volt, but the same isn't acceptable for Toyota. Ugh. Of course, that was to be expected. It's the same reason goals are demanded prior to rollout. Having them available then is how you measure success. You can't just arbitrarily make up criteria after the fact. Yet, that's exactly what happened with Volt the first time around. It's too early for that with Prius PHV, since we basically don't have any information about it yet... other than production has finished... and is now being spun as giving up. Oh well. There's always someone to stir trouble. I responded to that with: That's the greenwash being spread. Please don't contribute to it. In reality, they have stopped investment in the current generation. Seeing the market struggle with the other plug-in vehicles were having, it just plain did not make any sense pushing forward yet. Waiting until the next generation is far more sensible of a business choice. Knowing the battery tech will be better is reason enough. But we are also all well aware of adoption effect. KISS. Remember how well that worked for Prius in the past? It took years before people finally learned how it actually worked. The PHV model has the same thing going for it. That approach requires nothing but a basic understanding and a simple 120-volt connection. Cost will be realistically competitive with traditional vehicles too. In other words, there's a big difference between giving up and waiting.

5-14-2015 **i3 verses Volt.** BMW delivered what GM promised. That still really upsets a number of Volt enthusiast. So naturally, they are attacking BMW's new plug-in anyway they can: "*For me, prestige isn't even part of the equation. Convenience, reliability, and price are key. For convenience, the i3's pathetic 2 gallon gas tank is a non-starter.*" I found that quite amusing. This is the same person who told us Volt's engine was only for emergency purposes, after the battery-pack had been completely depleted. He absolutely insisted a small tank is all that would ever be needed, even with just a 40-mile EV range, for Volt. Yet for i3, with an even much larger battery-pack, that same logic doesn't apply. It's sad to see such contradiction payout. Oh well. At least I can point out the hypocritical nature of the posting: Calling it a non-starter directly contradicts what we've been told for years. Think of how many Volt owners boast about going many months between gas refills. Also, we've recently been told the increased range of the next-gen Volt to 50 miles will cover 90% of owners driving needs. With a 72-mile electric range and around 78 miles of gas range (that's 2 gallons at the 39 MPG combined rating), it totally covers all but vacation needs. How often would the 2.4 gallon tank actually be inconvenient?

- 5-16-2015** **Red Herrings.** That's when something seemingly important gets attention, but in reality is just a distraction. We waste a lot of time on them. It's because they are presented as somewhat constructive, an innocent question like: "*What about those unexpected trips that last quite a bit longer than the range of the gas tank?*" That was asked by a Volt supporter about the small tank in i3. If you don't take the time to think about what is actually being asked, you'll waste time posting comments that aren't helpful. But if you take too much time to think about it, you end up wasting time anyway. It's a lose-lose situation. That's where the blogging comes in handy. It gives you alternate time to think. So when the topic reappears again later, and you know it will, you'll already be prepared to deal with it. This was such a situation: I honestly have no idea what situation that would apply to. Some of us simply don't have distant friends or family or have unexpected trips. Exceeding 150 miles of travel that wasn't planned without taking any time for a break isn't something that really ever happens. When I travel up north (175 miles), there's always a break for food along the way anyway. So, taking a few minutes to get gas isn't a big deal. Carrying around extra tank capacity only for the sake of a rare circumstance is what we're trying to avoid. It's wasteful if all you have to do is stop to refill, especially when you have the option of just carrying along an extra tank if that rare circumstance should ever actually occur.
- 5-17-2015** **Poorly Informed?** Certain people are clueless, starting arguments solely on what they observe in a forum. Not taking the time to study elsewhere, to really research what the situation is, doesn't happen often. But even so, you want to wait to be certain. Offending someone who simply didn't express themselves clearly in a series of posts is good to avoid. That means watching them, thread after thread, to confirm they really are poorly informed. Then when you do, it's acceptable to pounce. This was such an opportunity today: "*What other Toyota vehicles are hybrids?*" That came from a Volt enthusiast strongly opposed to the idea of diversification. Whenever I brought up the idea of a second model, something targeted at the masses, he'd get worked up. He also continues to lie about Prius PHV battery-capacity, claiming it's only 6 miles and those who say it's 11 are intentionally being deceptive. Ugh. Oh well. I got to respond with information that will give reason for pause. Whether or not he understands how vital it is for a technology to be spread will remain a mystery though. My guess is his obsession with the current Volt prevented him from ever stepping back to consider the big picture, the larger fleet rather than a single vehicle. Whatever the case, this is what I posted: There are more Lexus models available here, plus some European & Japanese. But this is a list to show the variety, with different engine & motor sizes... FWD 4-cyl small hatchback - Prius C; FWD 4-cyl hatchback - Prius & Prius V; FWD 4-cyl sedan - Camry & Avalon; AWD 4-cyl minivan - Estima; AWD 4-cyl SUV - 2016 RAV4; FWD 6-cyl SUV - Highlander (3500-lb tow); AWD 8-cyl sedan - LS600h; RWD 8-cyl sedan - LS460F.

- 5-22-2015** **Blind Hate, the post.** There was an article published today that brought attention to the Sonata plug-in hybrid. That was met with mixed feeling on that daily blog, where some fragments of disappointment still exist. Coming to grips with the reality of being part of a group of vehicles helping to advance emission & consumption goals, rather than being the undisputed leader, is difficult for some. So, when I read the misleading statement about Prius PHV, the choice was to patiently wait. Sure enough, a comment was eventually posted to allow me to respond in-context: *"I don't trust Ford, Hyundai or KIA with their AER or MPG "guesstimates".*" We know that even EPA estimates can be manipulated to misinform and there was just a reference made to Prius only getting 6-miles from plugging in. I knew that sounding off about it would stir hate. I'm still a scapegoat for Volt's failure to capture the market by storm. So, regardless of how much effort is expended to focus on need, the blind hate for being correct about the market will persist. I posted anyway: That's why we need to include stating kWh capacity. The whole misrepresentation issue with Prius PHV could have easily been avoided by doing that. The 4.4 kWh capacity is clearly enough to supply 11 miles of EV. And sure enough, owners consistently report getting 12 miles... a far cry from the supposed 6-mile claims from a few who clearly didn't want to be constructive. That and fallout from Ford & Hyundai are excellent reasons why taking estimates at face-value are not a good idea.
- 5-23-2015** **Blind Hate, the reply.** Reaction to my post was quite harsh by 2 particular individuals. Their hate was quite intense. An owner of a Volt who frequently posts on the big Prius forum came to my rescue. He politely corrected the misstatements. That was great! Those particular people just plain don't try anymore. I was pleasantly amused by one. He accused me of having no idea what I was talking about, sighted a source to validate his "6-mile" claim that was over 3 years old and clearly an early-rollout hype article, then closed with a personal insult. The other hate response hypocritical, a blatant double-standard for the sake of bragging to evade what had actually been posted. Both were childish. It always make me wonder what readers of the blog think seeing that. Anywho, my reply was: The local EV club met on Thursday. Those meetings are always a lot of fun. There's a wide variety who attend. We had everything from a custom EV convert to a new BMW i3. That audience doesn't have any hang ups about an engine running briefly to supplement power during high-demand. With them, it's all about having a plug and polluting less. Heck, one of the owners even joked about his "coal powered" Tesla. So from their perspective, I'm recharging a 4.4 kWh capacity battery-pack every time I plug in. That electricity is used to both provide propulsion-power and to reduce the environmental impact of the engine. There's none of the purity nonsense routinely brought up here. Range doesn't matter. Electricity is being taken advantage of. That's the point. I always got a kick out of those who pushed the "6-mile" range claim. It was a dead giveaway they had no intention of being constructive. Focus on bragging about EV didn't actually solve the problems we faced. That's why the EV club here is quite welcoming to anyone interested in plugging in. Volt isn't "vastly superior" there. It's just another player on the same team trying to overcome the terrible challenges traditional vehicles continue to pose against our efforts to reduce emissions & consumption.

- 5-23-2015** **Blind Hate, the answer.** It's best to disregard the rhetoric and stick to principle. Ask yourself what the goal is. Stick to that... which is exactly what I did with my follow-up post: Hyundai's decision to offer on-board recharging further reinforces the need to address more than just EV miles alone. Think about overall efficiency. When HV efficiency is traded for the sake of running the generator to replenish EV capacity, what happens? It's an ability the other plug-in hybrids could also offer, but don't. We get a hold mode to retain EV capacity, but battery recharging using the gas engine has been withheld to achieve better emission certification. The choice to deliver greater flexibility to the customer really emphasizes that need to understand audience. Who do they try to sell it to? How many do they intend to sell? What place in the product-line will such a configuration hold? When will we know if this is a compelling decision for other automakers to consider? There are many questions. All require the necessity to understand how plug-in hybrids actually operate and how each differs. For my Prius PHV yesterday, from starting with a full charge in the morning, recharging at work (via solar), then meeting with a friend for coffee on the way home, the result was a 135 MPG average for the 42.9 total miles traveled. Will consumers care that only 25 of those miles were EV and 16 miles HV? (Note that the computer truncates to the next lowest whole number.) Will consumers even understand that some of the HV miles took advantage of plug-supplied electricity but weren't counted as EV? The answer is simple. Consumers won't care. They'll look at price, efficiency, and how much room the battery takes.
- 5-25-2015** **Blind Hate, the pattern.** Seeing history repeat makes a bad situation worse. Things fell apart as the rollout of the first Volt drew near. Details confirmed Toyota was on the better path, in a far better position to capture enough market to self-sustain. It put those who supported Prius that pointed out the situation well in advance in a difficult position. The challenge to stir market interest simply wasn't there. The same thing is happening with this next-generation rollout. An essential requirement for becoming a mainstream seller is to not depend upon a subsidy. The vehicle must be able to survive on its own. Clearly, that's not going to happen with Volt. There are no expectations of it being able to draw appeal from ordinary consumers without the \$7,500 tax-credit available. This is why asking Who? and demanding goals is so important. The refusal to answer is confirmation of... for lack of a better word... failing. Remember that pattern? Evade was a dead giveaway there was a problem. The expectation was much more than a \$1,175 price reduction. That magic \$29,995 goal was set for good reason. \$33,995 is too much to be taken seriously by the masses. They just plain won't be interested. The incremental improvements aren't even appealing to the enthusiasts. In fact, just about all of them are quite content holding onto their current Volt. That certainly wasn't the case with Prius. We saw a balanced mix of keep & replace. We hear many positive things about Toyota's effort to keep costs contained. GM chose to increase battery-capacity to 18.4 kWh to deliver 50 miles of EV. Why? Was there truly an audience for that? Who are those people? The data I've seen points to around 25 miles as the ideal balance for a plug-in Prius. Trading off space, weight, and cost for the sake of capacity beyond need is a risky move, with that being the only choice offered. We've seen this before. Results were not good.

- 5-26-2015** **Rushing.** We've seen countless problems arise from announcing something too soon. Yet, the lesson isn't learned by some. They expect rushing anyway. No patience is a common downfall. Oh well. All you can do is point it out: Toyota was smart the first round by waiting to see what the market offered and how it reacted. Consumers overwhelmingly prefer to guzzle and the profit clearly isn't there yet. GM celebrated their victory before rollout even began... hence yet another "*over promise, under deliver*". The major price drop, repeated inventory pile ups, no demand growth, heavy dependency on incentives, and loss of loyalty upon lease expiration confirms the market is very weak. It makes no sense rushing Gen-2 announcements.
- 5-27-2015** **Diluting Design.** This has been a hot topic since way back in 2007. Enthusiasts of Volt were fiercely against any type of small-battery endorsement. That's why when Prius PHV came along later, all the online fighting ensued. It was brutal. Fast-Forwarding to today, we now get this: "*How is the 2016 Volt design "diluting the Volt" ?*" That was asked by a supporter who truly wanted to know, one who didn't participate in any online discussions related to Volt until after rollout began. So, he lacks the background. I do what I can to fill in that missing history: Step back and look at the big picture, then you'll understand what the situation was and is now. Don't just look at 2016 Volt. The "*diluting*" is with respect to other vehicles. Enthusiasts wanted everything to offer a plug and at least a "*40-mile*" capacity. They fully endorsed the same approach across the fleet. Those enthusiasts fought intensely, to the point of hostility at times, to prevent support of any new vehicle from GM using a battery-pack smaller than that in the current Volt. So, whenever the topic of a more affordable model was posted, the person suggesting it got labeled as a troll and personally attacked. It was quite amazing to witness. Long story short, they felt strongly about the "*40-mile*" range being a standard base for all vehicles going forward. In other words, this upcoming CT6 plug-in hybrid is what they absolutely didn't want. The enthusiasts used to make fun of hybrids to no end as well, portraying them as a huge waste of effort. So, the upcoming Malibu hybrid is the last thing they ever imagined would happen. Both are variants of Volt technology. One offers less electricity capacity. One doesn't even offer a plug. The product-line is diversifying. They didn't want that.

5-30-2015

Transition. During this time of transition, we are hearing very little about Prius. Attention is focusing heavily upon Volt. Having so many details about the one and almost none of the other makes it easy to see why. Sentiment isn't exactly encouraging though: "*The Volt could very well become the albatross of the century.*" You could imagine how much attention that puts on me as a result. Each post vindicates the position I've held from the very start. I want something for ordinary consumers, a vehicle part of the mainstream. That comment today was my invitation to post more observations about the upcoming next-gen rollout of Volt, at this particular point in time. Just think of what history will think of this: The choices GM has made with Volt 2.0 are setting it on that course. Many years ago, we watched the first GM attempt to deliver a high-efficiency technology fail horribly. Two-Mode was touted as the great successor, the advancement that would out-Prius the Prius. It didn't, not even remotely close. Too many tradeoffs were made. Volt was the effort to make things right. Early on though, we saw a misalignment of priorities. What they targeted for performance was not conducive to making it affordable for the masses. As details emerged over the development years, results wandered further and further from mainstream interest. Enthusiasts were thrilled though, absolutely delighted with the engineering achievement. Unfortunately, rollout proved that didn't pay the bills. Gen-2 should have been a correction, realigning goals. Reducing cost was supposedly the highest priority. Turns out, it wasn't. Having reduced the battery-capacity would deliver improved cost, space, and weight. It could have easily been done without loss of EV range too. Instead, that was sacrificed for the sake of increasing range from 38 to 50 miles. Will that tradeoff really be worth it? So what if the engine starts from time to time? The benefit of carrying around a gas engine is to supplement power. If the goal really is to use EV almost exclusively, avoiding HV for all but special circumstance, why not use a smaller engine like BMW does? The obvious sign of trouble to come is how the issue of cost is again passed on to the hope of later technology improvements. In the meantime, dependency on tax-credits will continue. That's contributing to low sales expectations and an emerging theme of "wait until Gen-3 rollout". How much will an automaker continue to invest in a vehicle unable to self-sustain? Dealers certainly won't want to carry a low-demand vehicle. Seeing GM make an effort to diversify by offering a plug-in CT6 and Bolt is encouraging, but their sales could shorten the duration of when tax-credits are available for Volt. Should we really just sit back and wait, again?

- 5-31-2015** **Mutually Exclusive.** We're starting to have a lot of problems with fuel-cell verses plug-in. The media is presenting the technologies in a polarizing manner. That sets a precedent for discussions to start in a this or that attitude. The idea of both being successful is outright dismissed. This is really unfortunate. So, when comments like this come along, I take advantage of the opportunity: *"I don't think --- or anyone here has said they are mutually exclusive."* It's implied to such a degree, most people never even realize a choice is available. They come from a background where there's a winner and a loser. Both cannot win. That just doesn't make sense to them. A simple look at the computer industry should be all it take to change attitude. How do you connect to the internet nowadays? Notebook? Tablet? Phone? All 3 of those have their place. They all win. Remember back when the only choice was a desktop computer? Anywho, I replied with: Quite correct. However, not going out our way to make that clear... an explicit reminder of goals... contributes to those assumptions. We become enablers by not taking the time to make sure everyone understands. As well informed and frequent posters, we should all be making an effort to prevent. Leaving opportunity for misunderstandings & misleading has had terrible consequences in the past. We can stop that early on with raised awareness and a continued message of purpose right from the start.
- 6-01-2015** **105 Miles.** Managing expectations is an on-going effort. You are constantly challenged from sources that aren't even credible. Someone will post a comment that is vague and without listing a source, readers just accept it as fact. Ugh. Nissan is the latest victim of this problem. Supposedly, next year's model of Leaf was to get a battery-pack upgrade which would deliver 200 miles of EV. According to who? None of the other automakers are planning to deliver until the 2018 model-year. That's over 2 years away still. Needless to say, the recent announcement that the capacity for the 2016 would increase to 105 miles was met with mixed feelings. Geez! Leaf started at 73 miles, then later got an increase to 84 miles. Without any change in the basic design, it will be improved to deliver 105 miles. That should be great news. Electric Vehicles benefitting from battery-tech improvements without needing a generation upgrade is fantastic. Yet, there are some who express disappointment. That's sad. Unrealistic expectations are a very real problem. Our mentality of bigger-being-better is major contributor. What about keeping cost down? What about not having to give up seating or cargo space? What about maintaining high reliability? It's really unfortunate how limited some people's views are on what a plug-in should deliver.

6-02-2015 **We Know.** The reason for Toyota's choices is well known; yet, some continue to dismiss it and focus on other argument points instead. Their goal always has been and continues to be the pursuit of clean & efficient vehicles that are both high-volume & profitable. It's easy to sell a vehicle with a dependency on tax-credits and HOV incentives in small numbers. The challenge of cost isn't taken seriously. So, we get post after post claiming Toyota has given up, despite the effort they've made to deliver something for the masses. The more-is-better argument never ceases to amaze me. Rather than actually consider mainstream need, it's always the same old thing, claiming the battery-capacity and highest EV speed is too small and too slow. That argument is weak, since it's easy to see how the resulting MPG is always intentionally avoided. No one wants to address the fact that the system delivers over 100 MPG at 65 mph. Those against the approach hope you'll just see that the engine is running and deem the system unworthy. Reality is, electricity provides a substantial efficiency boost while also reducing emissions. That's the purpose of a plug-in hybrid, which can be achieved with a smaller battery-pack... on that doesn't sacrifice what appeals to hybrid shoppers... interior space... hybrid efficiency... and selling price. With respect to EV delivery, it's even easier to see the goal of high-volume & profitable remains a major challenge. So to all those who misrepresent by not acknowledging the reason, we know.

6-03-2015 **Impressions.** This attitude is difficult to overcome: *"The PIP then came as a 2012 model year here. Which was just in time to go sale after the Volt. This let GM make a first impression upon the public of what a plug in hybrid is. If the PIP had arrived first, it could have been Toyota dictating that impression."* When the mindset is trophy-centric, getting someone to recognize business objective is like talking to a wall. They just plain don't understand what the heck you're talking about. They see the immediate goal in front of them and disregard all else, even if there's a penalty or sacrifice for doing so. As far as their concerned, initial impression is absolutely vital. Ask the typical consumer if they have any clue when a particular technology came about. They'll have no idea. Being incorrect by many years is common. Not knowing any detail is even more common. It's just vague recollection, at best. That makes the online squabbles rather pointless; yet, some will insist on trying to "win" anyway. This time, I dealt with that this way: That misses the point. Toyota already understood both the market and their audience. That's why they planned for rollout flexibility... which continues to be spun as a shortcoming, despite proving a wise move. They steered clear of the obvious rollout issues GM was about to face. They knew... which is why I blogged stop much back then about that very problem. The concern was clearly documented. Looking forward, we see the fallout as avoided. The mainstream consumer will have no idea and just see any of that history they stumble across as ordinary early-adopter issues.

6-03-2015 **Semantics, Labels, and Definitions.** When things start going bad, that's what discussions get overwhelmed with. Simple things like audience & purpose are lost to arguing points without any benefit no matter what they overcome. For example: *"Then questions on why it didn't have the EV range of a Volt could be countered with, 'the Prius plug in is a PHV and the Volt is an EREV.' That could have nixed direct comparisons between the two in the general public consciousness."* Simplicity is often a major problem. That's why they say *"the devil is in the details"*. Always be aware of the dangers from generalizing. Clarity is key. What will the debate accomplish? Here's some food for thought: Volt supporters tried, but the definition ended up weak and contradictory. Labels don't mean anything to those who don't consider engineering anyway. Sorry, but your looking-backward perspective is preventing constructive discussion. Remember who said what to who about dwelling on history? Take a look forward, considering the majority of the population who has yet ever give any plug-in any thought. Their introduction will be gen-2 offerings. None of what happened so far will mean anything to them. Pointing out that past won't accomplish anything either. Look forward. Recognize audience. Consider goals.

6-05-2015 **IF and ONLY.** Speaking of generalizations.... I looked back through a recent popular discussion thread. The words *"if"* and *"only"* were used quite a bit, so much so, they were controlling content of posts. People don't like multiple choices. As a result, they just prefer true/false and yes/no and either/or type responses. Those are easy to follow in the confusing venue of online posting. Forums present challenges. Many discussions take place all at the same time, at different paces, with a wide variety of participants. It gets confusing. That makes simplicity a draw. Unfortunately, that impairs constructive discussion. This is how those daily-blogs thrive. You start fresh each day. At least with a forum, you stand a chance of finding relevant content to build upon. After all, when the choices are *"if"* and *"only"*, there really isn't much to discuss. That's how topics become polarized. People choose a side and never consider balance. One extreme or the other is a problem. Remember the lesson from Star Wars, how absolutes led to corruption? Unfortunately, our society has stigmatized the word *"compromise"*. That had meant seeking out a balance. Now, it means making a sacrifice. That's really unfortunate.

6-06-2015 **Unrealistic Expectations.** We've been taught to recognize leadership as breaking new ground... progressing further... reaching beyond... exceeding limitations. The reason is simple, that's what results in praise. The other type of leadership is thankless. So, not only doesn't it get any attention, it is often dismissed as having any importance. Needless to say, that's a major problem for automotive advancement. The media just plain doesn't care about leading the way with ordinary vehicles. They pretty much only care about pushing the envelope. That means progress in terms of vehicles providing business-sustaining are almost totally overlooked. Powerful large pickups and super-fast sports cars get lots of media coverage. This is why Prius has faced challenges with mainstream penetration. This is also why Volt was hyped so much. That makes you think when this is posted: "*Frankly, I'm shocked Toyota didn't take the lead in plug-ins.*" Realistically, they did. Toyota was the automaker which took cost-containment seriously by making it a very high priority. With so many factors at play and the concern about dependency on tax-credits, you'd think expectations would be set with cost in mind... by GM, so there's been a lot of fallout to deal with. Nissan and Ford didn't sacrifice as much, so they've been doing better. Tesla obviously didn't worry about cost, but they made their intent quite clear. Toyota stayed true, rolling out a mid-cycle release with low-volume in limited markets, showing us a solution for the masses will follow. They chose to wait for affordability and set time expectations. Knowing approach is vital. Acknowledging it is a different matter: Knowing that making it affordable to the masses is the primary objective, the fact that batteries are still striving to reach that point should have been a clue. The failure of Volt taking the market by storm was another obvious indicator. There was wishy-washy response to both Leaf and Tesla as well. Rolling out mid-cycle made it much easier to keep the plan flexible too. Then there's the reality of low gas prices.

6-07-2015 **Advice.** I posted: "*Take the blinders off. Notice the traditional vehicles are absolutely crushing the sales of plug-in vehicles. Then join your local EV club for a dose of reality about the market.*" That daily-blog suffers from group-think. They've convinced themselves that only the plug-in market matters, that no other sales are relevant to their cause. That amazes me. To totally disregard all else is like ignoring the fact that the ship is sinking, simply because your cabin is still dry. You can do everything right and still lose. That's why looking at the big picture is so important. A perfectly executed rollout with plug-in vehicles, having the technology operate flawlessly, be practical & affordable, and easy to understand is not a guarantee people will actually buy them. Those purchases depend upon factors outside of what you have control over. The influence of cheap & abundant gas is a great example. Why bother with electricity? Even if you prove greater reliability and lower lifetime cost, some people simply won't care. They'll stick with the status quo. The market is everything. You cannot just pick & choose what you like and disregard the rest.

6-07-2015 ICEV label. The effort to win over the friendship of former foes is going well. Some were simply frustrated that things didn't go their way... which naturally meant anything I said as the perceived argument winner would be in some way an "*I told you so*" type remark. Thankfully, their desire to participate in active discussions trumps their desire to be correct about market response. Since they are well informed and aren't afraid to speak their mind, they are a useful ally. See, one way or another, I'm finding a way to build up a team of influential individuals who have a reach beyond the typical single-forum participants. Each routinely post elsewhere too. Anywho, this was the quote I jumped on this morning: "*The only hybrid I can recall that has an ICEV available here but isn't offered is the Fit.*" It was a sensible comment. The poor choice of wording got me though. I'm quite curious what the response will be, especially from this particular individual: Do you realize the disservice and unbalance the use of "*ICEV*" represents? People see the new term with "*EV*" in it and assume that actually means something is new. That makes sense if nothing is different. There are an endless numbers of examples of new labels used to indicate something is new. In this case, it's just a replace for the ICE term the rest of us have been using for many, many years now. What benefit does the new label bring anyway? If there actually is one, then you must also stop using the "*hybrid*" label and only refer to them as "*HV*" from now on. Lack of consistency can become a problem. Since you are one of the outspoken regular posters, I specifically highlighted your quote. Seeing it used by others is one thing, but you have more of an influence... hence asking you directly. If we want to all move forward, it's seemingly small details like this which really have an influence.

6-07-2015 Abbreviations. The label response was rather weak, sighting the official SAE definition. We know that mainstream consumers couldn't care less, that technical description is meaningless. Again, this is the difference between engineering and business. The way to market a vehicle often has nothing to do with the underlying technology. That's why the simplistic MPG advertisements have been so effective. Needless to say, I wasn't thrilled with his response. My own was an effort to, hopefully, keep some type of constructive dialog going. We'll see. After sighting the official terminology origin, he said: "*I started using it to keep from switching between conventional and traditional, both of which could have baggage for the reader...*" In reply, I posted: We've overwhelming confirmed abbreviations are problematic. By far, the better choice than introducing yet another is to simply say: *non-hybrid*. Notice how EV doesn't actually tell us much anyway? Prius PHV is just as much an electric-only vehicle in a wide variety of circumstances. In fact, I'm at a coffeeshop now typing this. I got here via a 55 mph highway and a little bit of suburb. Total distance round-trip: 8.8 miles. Total amount of gas consumed: 0.0 gallons. It was all EV as far as the energy consumption is concerned.

6-07-2015 **Surprises.** Even now and then, something constructive is actually posted on the daily-blog. It comes from someone who doesn't often post, a person far enough from the rhetoric to make a worthwhile comment or suggestion. I jumped on the opportunity today, which really surprised me: It will be intriguing when GM does finally expand the Voltec offering to something other than 4'ish passenger car. Prius Plus has been available for years and is exactly what you describe. (It's a variation of Prius V available to some countries in Europe and over in Japan). Like the model here, the back seats are on rails. Where it differs is the addition of 2 seats behind that, increasing the passenger count to 7. The seats fold down when not needed. The trick was finding an alternate location for the batteries. With Prius Plus, it was to switch to lithium for the higher density and smaller size, then moving it to between the front seats. If GM sticks to the 50'ish mile range promotion, rather than shrinking the battery and retaining current range as some of us hoped, that diversity opportunity is going to be a problem. Just think if GM had stuck with the current range. Cost would have been reduced while at the same time increase both seating room and depleted efficiency. But then again, this is where CT6 comes into play. Volt can retain its purity while still allowing GM to offer variety. It saves face for those who endorsed "*EREV*" by introducing "*PHEV*" labeling, even though they share the same technology. It's a good compromise, if it actually happens and in a timely fashion. Any comments about what you'd specifically like (similar to what current vehicle) and by when (next-gen or mid-cycle release)?

6-07-2015 **Reality.** It comes crashing down on some. I like to take advantage of the opportunity to make sure they understand the situation. This was such a case: I see frustration & denial from those who wanted Toyota to push the market into submission, rather than sticking to sound business decisions. We all know that the rollout of Volt turned into a disaster. GM's attempt to deliver a mainstream vehicle (selling at a rate of 5,000 per month by the 3 year of sales) will be major example of what not to do for decades to come. The warning signs were abundant, yet hope clouded judgment. Toyota clearly saw what was going on, that consumers just plain were not ready yet. Toyota also saw the inner-conflicts, where other plug-in supporters couldn't even agree on what & how to endorse. Toyota knew gas prices would be pushed lower and lower due to all the effort among oil suppliers to increase scope & volume. Toyota knew the expiration NiMH patents would end up stirring the market in an unpredictable way. Toyota knew the dependency on tax-credit subsidies and HOV privileges was very risky. As for claims of belief & direction, those are easy to spin. The facts about gas prices, oil supply, battery patents, and dependency risk are not. There's also the reality of CAFE and EMISSION standards. Any automaker can rollout a token technology. Changing their overall fleet is an entirely different matter.

- 6-07-2015** **More Is Better.** Sharing of owner experiences like this seem innocent enough: "*Cool story bro. I did like 6 different errands yesterday and drove 67 miles all electric without charging once. Still had 17% of charge left, and this with going 75 mph on freeways and hard acceleration.*" But when you back up and look at overall context, you'll see the reoccurring theme of more being better. Vehicles with smaller battery-packs are being shunned, even though they are contributing to the larger effort of endorsing the plug. We don't want packs so big only the elite can afford them. That's why I stand behind Prius so strongly. Toyota chose to make the most out of the least. The attitude of guzzling electricity is not good in the long run. You want motors that are efficient. Smaller systems strive to deliver that. Simply increasing capacity is not a solution. Increasing the depth-of-discharge isn't either. Yet, things like that are rarely ever mentioned. Notice how KWH is pretty much never included in posts. It's the same type of nonsense we dealt with from GALLONS being misrepresented by MPG. Does an increase in MILES really make a difference when your commute is short and you live close to town? What's the point of more? For that matter, why carry an engine if you try to avoid ever using it? The true competition will continue to dominate until those questions are addressed. I put it this way: Good example of how the market is not ready. Whether intended or not, the continued "*more is better*" message about plug-in capacity is a clear sign that the spirit of cooperation to compete against traditional vehicles is not there yet.
- 6-09-2015** **Progress!** We got a sensible question today: "*Why leave untapped market to competitors when you do have available stock?*" I was thrilled to reply: Hooray! An economics 201 question. That's real progress. :) Unbalance can work against a leader. When you're too far ahead, competitors will fight you rather than collaborate. Toyota wants the others to join in. It's a win-win situation, but requires a wait period for the leader. That works out nice, since the R&D effort never ceases. We've seen this many, many times in the computer industry. The automotive industry is only now discovering the potential.
- 6-11-2015** **2016 Volt Specifications.** It was fascinating to read this today: "*GM has quietly updated the 2016 Volt specs. Old: 41 mpg combined, 102 MPGe EV. New: 43 mpg combined, 106 MPGe EV.*" That's well below expectations. Should we expect another few years of fallout and backpedaling as a result? I'm not the slightest bit surprised. If cost-reduction had been taken seriously, advances in efficiency would be a natural tradeoff. Increasing expense doesn't make sense. Smaller improvement is realistic... which appears to be exactly what happened. I responded to the next this way: With such modest improvements... well below what had been hoped... the lack of fanfare is no surprise. Enthusiasts had anticipated a revelatory leap forward; instead, they got evolutionary... which is what "*next generation*" was always intended to represent. I'm glad the craziness is over and we can all join in as a plug-in team. The "*vastly superior*" nonsense really had a negative effect on the overall effort to end the reign of traditional vehicles. Sadly, this outcome had been predicted many years ago, when the "*too little, too slowly*" concern was first made. Finally having reached a state of closure is quite nice. I'm looking forward to more plug-in events. The looking down upon Prius PHV was counter-productive. Now there can be a variety of approaches and a recognition of how diverse the market really is. The more-is-better mindset has proven ineffective.

6-12-2015 **Prius Prime.** What an intriguing situation. Back in November 2008, the top online supporters of Prius were tossing around identifiers, trying to come up with universal labels for the various generations. It was that discussion which ultimately led to coming up with "*Iconic Prius*", a term now formally associated with the second-generation Prius. I was thrilled that a close online friend had suggested that and to have been part of the brainstorming process. My suggestion was "*Prius Prime*". It didn't appeal to many. Oh well. That was ok. After all, I was the very first person to ever use "*stealth mode*" as a specific label to identify the electric-only operation of Prius and my frequent promotion of it following that led to its mass adoption. It became the term now used universally throughout Prius discussions. Who knew a comment made way back in 2000 could have had such results? You never really know how what kind impact constructive contributions will have. That's why it's so exciting for our shared effort to find a name ultimately having this as an outcome... Toyota just Toyota registered the trademark "*Prius Prime*". Apparently, they are pursuing the official use of that term for something within their upcoming product-line. Who knew that brainstorming session would stumble across something useful for later! We were collaborating, to coin a label for the benefit of future owners. After all, that group did a great deal to promote the third-generation design. The 2010 rollout did well with our contributions. Many endorsements from owners go a long way, often more effective than any type of advertising or promotion an automaker can provide. We provide observations & advice. In this case, I got to provide an official name. Sweet!

6-13-2015 **Third Generation.** Wild spin about the distant future is emerging already. That's not a good sign. Ever since the first plug-in rolled out, the anticipated target battery cost for mass acceptance was \$200 per kWh. The primary reason for this is the high-cost for the second-generation Volt. It will continue the dependency on tax-credit money to assist with sales, a trait hoped to have been eliminated by the time rollout began. Much of that was the hope of cost having come close to \$200. Abruptly having changed that number of \$100 is yet another example of moving goal posts. That cliché describes the behavior of enthusiasts all too well. When their hope turned to disappointing outcome, they just change their expectation. That's not the slightest bit constructive, yet we see it all the time. It often comes in the form of cheerleading, like: "*Just in time for a 3rd gen Volt! :)*" It was surprised to witness such behavior already. But then again, we all know GM will be diversifying as a result of the decision to keep Volt a niche. Mainstream high-efficiency sales will come from the Malibu hybrid or a Chevy model using their PHEV configuration. The so-called EREV configuration quite simply isn't competitive. I sounded off with: It won't matter. Volt is no longer Volt already. An affordable choice for the masses will likely be something else anyway. Go over to the daily blog. Yet again, they are changing definitions & goals. Those changes have skewed the vehicle called "*Volt*" so far from the original intent, what difference does it make what comes out next? By the way, that's why there is still some resentment for Prius. Toyota has stayed true to purpose. Thankfully, the pointless chest-pounding is fading away. Business reality is helping to bring about plug-in cooperation. In other words, market need is finally being addressed. In fact, we're seeing that here now with more constructive discussion. The magic "*\$100 per kWh*" target will open up a wide range of battery configuration opportunity. It won't be possible to declare "*vastly superior*". There will be a variety of choices for a variety of buyers.

6-16-2015

Looking Back. The spin of history as a new chapter is about to begin is inevitable. People look back with a very, very different perspective. Already knowing the outcome of the previous chapter prevents a good understanding of how motivated people were from the uncertainty. Seemingly logical decisions were sometimes wild guesses and tremendous risk, others were based on lack of information and fear. That rarely gets acknowledged looking back. In fact, many have no idea after the fact. Not having participated in that history firsthand means a great deal of study is required to share sentiment with those who did. That rarely happens though. It's common for forum members to only know of past dealings based solely upon recent posts. Blogs like this, which were written as the history was unfolding rather than long afterward, offer a very very different perspective. Long story short, it's extremely difficult to look back. That's why this statement made today was so troubling: "*Others think the Volt is too much, too early.*" It offered nothing else, just that generic assessment without anything to actually support it. Ugh. All I could do was say: That's why the WHO question was asked over and over and over again. Who are those others? GM did indeed set a target for mainstream sales. It was for the end of the second year. By then, the plan was to grow beyond those sales of 60,000 annual to take advantage of their 120,000 annual production capacity available at that point. Knowing who they intended to sell to was obviously important information... which was evaded over and over and over again. The daily blog for Volt was the center of attention. They were who. GM took advantage of that resource, continuously feeding it to draw more attention to Volt. It started out as supporters there, a group who I thought could be an ally in the quest to end the reign of traditional vehicles. Sadly, they transformed to enthusiasts who declared Volt as "*vastly superior*". They spoke out against plug-in hybrids and EVs, coining the EREV label to distinguish their preferred design. That fell apart though, as other automaker offerings fit the same definition and Volt sales struggled. It's what brings us to the "*too much, too early*" assessment. GM clearly over-engineered the first Volt. In fact, that's fundamentally why those enthusiasts felt it was superior. Unfortunately, that too much resulted in business problems. There wasn't a market to actually sell it to. That extra made it too expensive. Only early adopters bought it, taking advantage of bargain leases, the tax-credit, and HOV privileges. As for the too early part, that's why the same questions are being asked again about the next-gen Volt... specifically, who? In the past, both the enthusiasts as well as GM itself spoke out against small capacity battery offerings and electric-only vehicles. Volt was the solution for all. An increase in EV range, combined with a more efficient engine and a much lower production cost, would fulfill business need to reach the masses. That would supposedly achieve those mainstream sales... which begs the question, will it? I see the next plug-in Prius as targeted to reach ordinary consumers. Toyota's choice to keep the battery-capacity on the smaller side (to avoid space & cost compromise) and the choice to take advantage of blending will make it more appealing. It's easy to see the MPG boost the plug provides. It's still very much a Prius after depletion. Full recharging with just a 120-volt connection isn't an overnight process. That sounds like just the right amount at just the right time. We know the details of Gen-2 Volt. We know the price too. With ever increasing competition and the looming subsidy expiration, what should we expect?

6-18-2015 **Unity.** It's a very real problem that some still don't take seriously. How many times do we have to see the same thing play out before they finally see it too? It just gets dismissed as something not to be concerned about. Not learning from history means you've got a good chance of repeating those very same mistakes. Ugh. Oh well, all we can do is try to point out the problem: Lack of any sort of unified message from Volt supporters led to a number of problems with its rollout. That raised a warning flag, which Toyota acknowledged by delaying their plans. Why would we expect any type of market expansion for any of the variety of plug-in vehicles to succeed when faced with such unity failure? No agreement on usage of public chargers sends a bad message. And that's just one of many problems. Thankfully, most consumers have no clue what's happened so far, nor do they care. But having faced some of the hate firsthand and struggling to get early-adopters of the past to move on makes the need quite clear. Progress will not be possible until we all finally work toward a single goal. Seeing that, they'll get the message. Fortunately, I'm part of a local plug-in owners group who doesn't hold resentment or place blame for mixed messages of the past. They all have the same purpose... to get vehicles electrified. So, even though I drive a car with the smallest plug-in battery-pack and a gas engine, I'm still using electricity. I'm also providing an endorsement for lithium. So, they're happy to share a charger. They see how starting small will contribute to a much larger impact. They realize how important it is to reach a wide audience quickly too. Quarreling amongst ourselves will not accomplish that. I've been told my encounters with "unfriendly" supporters have only involved a few individuals who are best to just ignore. Those of us with lots of online experience know all too well that isn't an effective solution. Choosing to disregard a problem doesn't make it go away. In fact, that's a terrible solution... since it can often backfire. We need to settle differences here & now. We are the people of influence. We can take agreed upon suggestions and actually make them happen. We're the vehicles of change, not what we drive.

6-19-2015 **Gasp!** The word "*dismay*" is only way to describe the following: "*Who could have possibly imagined ten years ago that the CUV would do so much damage to compact and mid-sized cars?*" It's hard to believe that level of naivety could have existed, now. Back then, people were clueless... despite the encourage to guzzle was obvious. Heck, back in 2001 my Prius was featured in a auto show at work. There was a wide variety of vehicles, from classic to hybrid. In that mix was a new category of vehicle called "*crossover*". That was the new type of SUV, one that was less truck and more car. It's what is now called a CUV... replacing the S for "*sport*" with C for "*crossover*". That was 14 years ago. It was very clear to see the damage about to come. Automakers were heavily pushing that new category, since it reduced consumption without having to sacrifice much. Unfortunately, what started out as small and less powerful didn't last long. Everything grew and became more powerful. The result all these years later is the belief that 30 MPG is doing your part to use less gas. Ugh. The hope of 40 MPG averages by 2010 became a long, lost dream. That's why selling a 50 MPG has been such a challenge. People in this market have a "*good enough*" attitude and only now are waking up to the obvious. The rest of us imagined this increasingly difficult situation ten years ago.

6-19-2015 **New Antagonists, introduction.** Just as we had worried all those years ago, Volt did indeed become a huge market distraction. Yes, it proved the technology. But unfortunately, it sent a message that it was expensive and impractical. Supporters we so blinded by the engineering, they didn't take ordinary consumer importance into account. Prius was mocked since way back in 2001 for being too small. That meant regardless of how well it performed, the car would still be outright dismissed based on size. That way it grew over the years. Being able to compete directly with midsize cars was no just important, it was vital. That gave Toyota the opportunity to diversify, offering 3 choices of size. Allowing it so reach a wide audience was a big deal. You'd think GM would have followed that wisdom. GM didn't. Supporters see the challenges the upcoming next-gen rollout present and have moved on. That's stirred antagonists on the big Prius forum. More and more, we see anti-Toyota sentiment. Their arguments are weak and based on just vague references & limited scope. Unfortunately, they don't get called out as trolls. That identifier doesn't work on forum members who have participated for years and only recently turned. So, just like with the big GM forum years ago, the big Prius forum now faces the same problem. Some of us are attempting to call them out, to draw attention to their intent to do harm. The detail reveals their criticism is not only not constructive, it's also purposefully misleading. Needless to say, it's troubling to watch these disenchanted frequent posters become antagonists. Their disappointed with Toyota's approach and have chosen to not listen to any reasoning. They've made up their mind and now want to take out their frustration using the forum.

6-19-2015 **New Antagonists, sounding off.** The chosen venue for that frustration release has been on a new thread about public charger abuse. The antagonists have taken advantage of the opportunity. Seeing the hate some have expressed, the hope is to attract more anti-Toyota support. In a way, it's intriguing to watch their obvious trolling methods play out. The avoidance of questions is obvious. The vague references and attempts to change the subject are desperate. It's sad. Two days ago, finally sounded off with this unaddressed (no quote) post: For those of you... and you know who you are ...that continue to come down on Toyota for not having expanded rollout of Prius PHV, this topic is a contributing reason. It never ceased to amaze me how dismissive some have been when I brought up how the market wasn't ready yet, sighting the conflicts between other plug-in vehicles as a barrier to still overcome. Thankfully, there are some who are more receptive. A plug is plug. You're using electricity for cleaner emissions and a reduction on oil dependency. That's the point and the numbers of those who accept that is growing. So what if a plug-in hybrid is plugged in? You have no idea how far they actually drove to get to that charger anyway. The goal is to replace guzzlers with affordable, practical, and profitable choices.

- 6-19-2015** **New Antagonists, diversion.** The distractions are endless. There is favorite though, fuel-cell vehicles. Rather than address the topic of discussion, the divert attention by simply complaining about something unrelated. This came up on the public charger abuse thread: *"Unfortunately Toyota is really trying to force the FCV on the consumer using politics and questionable marketing to more or less foist a technology a lot more limiting than PHEV and EVs."* What the heck does that have to do with a plug-in vehicles not being considerate of others by moving their vehicle when charging is complete? It's so far off-topic, you'd think people would complain. But coming for a long-time forum contributor, they don't see the act as troll behavior... even though that's exactly what it is. So, thread participants often take the bait. Successful trolling is a challenge to deal with. That sound-off didn't have any impact, so today this was my attempt: FCV is a product of many automakers, clearly a long-term work-in-progress not intended in any way to be rolled out in large volume. We'll be getting plug-in options far sooner. Affordable batteries offering enough energy-density to actually compete with traditional vehicles are on the way. Where is the conspiracy? What amazes me is the deliberate effort to not pay attention to the traditional vehicles. Those strong sales should be a concern. Instead, there's this on-going pointless argument about leading. It completely misses the point... and the market.
- 6-20-2015** **New Antagonists, introduction.** There's growing frustration. Fortunately, the obsession of the antagonists often causes them to expose their true purpose. I particularly like this comment: *"Feeling threatened by Tesla and BMW, Lexus puts out some anti-plug in ads."* It was obvious rhetoric with no intent to be constructive. They just keep trying though. That abuse thread is a perfect venue for the anti-Toyota sentiment. The reason is simple, most people have absolutely no idea how they would actually deal with the charging-station situation. What should happen when charging is complete, yet the owner leaves the vehicle parked in the spot? Should the owner have even plugged in at all? What if they were just topping off the battery-pack and someone else is desperate to recharge? Should the desperate owner have risk the chance that a charger wouldn't be available? It's a messy situation, especially when you consider plug-in hybrids and short distance travel. Anywho, I responded to that comment with: Lexus is a totally different entity than Toyota. Coming from the same corporation and sharing the same resources does not make their customers the same. So, it is inappropriate to think both will have the same approach. The audiences are very different. In fact, it's as absurd as applying truck selling logic to car buyers. This is why I keep pointing out the need to understand economics better. It makes no sense combining unrelated groups. Yet, people keep doing it anyway. One is targeted at middle-market, the other luxury.

6-22-2015 **Importance.** Moving on is a challenge. There's a fine line between stirring up the past and not forgetting it. You want to remind people how things happened; otherwise, it could happen again. After all, falling into that trap has proven very easy. The Volt enthusiasts got sucked in to an extreme, the entire time claiming their situation quite different from that of Two-Mode... even though I was continuously pointing out the parallels. It's quite amazing to watch mistakes being repeated. That's exactly what we saw. The disbelief manifested itself in odd ways. The most frustrating was taking out of anger on Prius PHV, using it as both an excuse and a scapegoat. Unfortunately, placing blame turned into misleading. Then when evidence emerged (like the videos I shared) to show what actually happens, some posts became outright lies. Those individuals simply didn't care. That allowed misconceptions to run wild. Some innocent readers would assume they knew what they were talking about, then help spread that misinformation. Thankfully, we are now seeing evidence of that coming to an end. Hooray! This was how I pointed out an observation of that today: Notice the "*just 11 miles*" in the article's introduction? That's a clue to the plug-in Prius importance. Until this year, there were some other plug-in supporters so desperate to undermine Prius PHV they'd intentionally mislead about it. For 3 years, we had to deal with the "*6 mile*" claim. It was really annoying, but at the same time confirmation that they felt threatened by the potential the system offered. It gives us a lot to look forward to with this next generation.

6-22-2015 **Intentional Omissions.** A common technique for misleading is to not include vital information. Without all the facts, it's easy for a reader to draw incorrect conclusions. They make assumptions. It's that simple. Recently, we've had an honest & constructive attempt to do the opposite. An owner of a Prius PHV purchased another. The second was used though, with an uncertain history, and performance results have been different. Not knowing how the driver recharged or even their driving routes & distances, observed variations in performance cannot be well identified. Many of the posts have just been anecdotal too, since the owner doesn't have any type OBD-II scanning device to note vehicle detail. How to you measure without a gauge? The well-informed active participants have been trying to help. The owners focus has been on EV miles. Right away, a former Prius owner who now drives a Volt jumped into the discussion. Unfortunately, he did the typical disregard. The amount of gas consumed was left out of the equation entirely. Despite several posts pointing out that the same amount of electricity is consumed in the end, the fact that HV miles were higher was all that mattered. Getting recognition of overall MPG was, again, a problem. That's a common theme. Obsessing with miles labeled as EV disregards HV miles, which include those known as EV-BOOST. It's maddening. The goal is the same. The outcome is the same. But as we see with those who greenwash, no mention of vital information is a problem. Omitting non-EV miles that take advantage of plug-supplied electricity is misleading, period. That's quite frustrating to know the act is intentional too. We try to ignore the attempt and direct our effort toward the owner instead. Hopefully, he'll come to recognize what's happening. I added: The one Prius delivering fewer EV miles is utilizing the same amount of electricity, which likely means the same is true for gas consumption. In that case, the EV/HV ratio really doesn't mean much. It's the overall efficiency that counts with a plug-in hybrid and that fact hasn't been taken into consideration yet. We still don't know what the resulting MPG is. Blending isn't count as EV, even though it takes advantage of plug-supplied electricity. You must look at both KWH and GALLONS to truly understand differences.

6-23-2015 **Conquest, the problem.** I'll admit, watching the "*vastly superior*" blog come crumbling down to join the rest of us has been rewarding. Falling to right where they should have been right from the beginning is nice. You really don't want any harm to come. You just want them to be the ally you've sought for all those years. But to be expected, there are a few bad apples remaining behind, those who absolutely refuse to be part of the end-traditional team. Oh well. It is intriguing to watch the denial playout. They've always thrived on conquest. No cost could be too great. The trophy was all that mattered. Volt has quite a few. That doesn't pay the bills. Praise isn't enough. People actually have to buy something. GM's diversity is finally happening. Yeah! It was quite frustrating to see the battle against Toyota. But to watch defeat coming from Ford, that's what really stirred reason for worry. Soon, there will be the new Cruze. Rated at an expected 40 MPG highway, it shows just how fierce traditional competition will be. Fortunately, there will be the Malibu hybrid. That's long overdue. There will also be a CTS plug-in hybrid. Later, the electric-only Bolt. Needless to say, Volt is being pushed into a category of many. No more trying to declare it superior. So, when the topic of plug-in hybrids was posted on the daily blog today, I was captivated. Only the troublemakers are left. No one else participates there anymore. Would they even try to be constructive? After all, acceptance is the stage which follows defeat.

6-23-2015 **Conquest, the post.** This is how I jumped in: Progress is made when overall consumption of both electricity and gas are taken into consideration. The problem for years has been the belief that EV miles are vital, important above all else. That has resulted in missed opportunity, not taking advantage of the gas engine during times of inefficiency and neglecting EV efficiency itself. It also required cost, weight, and space sacrifice. While cruising on the highway, it doesn't take long to see the battery-level drop. The miles go by quickly. When it's winter, that need for heat uses up electricity which could otherwise have been used for driving. And of course, there's the reality that electricity is a fuel that shouldn't be wasted either. It's why KWH and GALLON usage was brought up so many times when first-gen rollouts first began. Unfortunately, the rhetoric drown out those constructive discussions. Now, we find ourselves going back to that very same topic. Remember the "*too little, too slowly*" concern? This was part of that. Consumers understanding what's available and how it works is a really important. The blatant disregard for diminishing returns was an obvious problem. More EV isn't necessarily better. Blending offers opportunity. It's nice to finally see attempts to address that. Subsidies will end. Traditional vehicles will continue to become more efficient. Oil will continue to be inexpensive & abundant. The challenges to overcome never cease.

- 6-23-2015** **Conquest, the trouble.** Things immediately fell apart. The very first response was filled with denial and a clear pattern of repetition. We're seeing the same trouble emerge again. Ugh. I got attacked. Funny part was, it was a rant about my "*perfect*" Prius and how Toyota can "*do no wrong*". I found that quite amusing, since my comments were entirely about GM. It reminds me of the past when there was an individual who absolutely insisted I was lying, that there was no possible way that data was correct. Then when I posted a video showing exactly that, I got banned. Some people refuse to accept reality. Oh well. This isn't as extremely. It's more a matter of avoidance, pretending it doesn't matter. Naturally, I had to respond: It is so superior, yet it still feels threatened by mere mention of KWH and GALLON. Then when there's mention of COST and WEIGHT and SIZE, all hell breaks loose. The over-reaction is quite entertaining when TAX-CREDIT and NISSAN are added. I was beside myself in awe by how a rant could emerge, going on and on about Toyota and Japan, when neither were any part of what had actually been posted. That's an obvious sign something is wrong. Why is there avoidance of those particular design factors? That's a legitimate question and quite on-topic. Plug-In hybrid have to deal with them. There is growing pressure to reduce consumption (of all types) and reduce emissions (of all types). What we saw here today is proof some are not taking that seriously.
- 6-24-2015** **Conquest, the nonsense.** Sometimes, the problem runs so deep, it turns into pointless nonsense. In this case, it came to: "*If you were to be honest, you would admit that you are not a fan of a GM EREV but fully support Toyota's efforts in their hybrids and plug-in hybrid. You are not a fan of GM, period.*" In other words, there's nothing you can say that will ever be accepted. They establish a false belief and disregard all else. Put another way, they don't think it is possible for anyone to like more than a single automaker, that the idea of plug-in supporters joining together will never happen. That's sad. Long story short, I decided to make it ever longer... by climbing up on my soapbox: Over and over and over again, I posted the need to diversify. It has nothing to do with any particular automaker. It's simply good business. Remember all the SECOND MODEL posts? Those were to get Volt split into multiple configurations, one for the enthusiasts and another for everyday consumers. Notice that no matter how many GM references are made and no mention of Prius or Toyota whatsoever, all certain people see & hear is Prius and Toyota. It's amazing how blinded some can be to the obvious. Post after post I'd refer to the true competition: GM'S own traditional vehicles. Yet, they'd simply ignore that. The evidence is blatant now. My complaints about ONE SIZE FITS ALL were finally heard, not by those here though. Bolt and the CTS plug-in are what will come about as a result. They are that diversity of product. Watching sales of Volt getting lost to Malibu, Cruze, Impala, Equinox, etc should have been a concern. It was baffling to witness denial of such a major problem. GM's own vehicles were cannibalizing Volt. Instead, there was using me as a scapegoat and waving the flag of conquest. Didn't you see that happening?

6-24-2015 **Conquest, the continuation.** The push went on: *"I've suggested to you in the past that you take an extended drive in the Volt. You might be able to talk a dealer into letting you have one for a day or two. Please do so so that you can open your eyes and see the dawn breaking. A new era is upon us."* The same old belief that great engineering will deliver a popular product continues to spell doom. They truly don't understand the audience. The reason for asking the "Who?" question was lost on those without any type of business experience or education. That shortcoming is remarkable. They truly don't see what is so obvious for others. Oh well, that means this too will likely fall the poorly informed: I responded with a compliment of the engineering achievement. Unfortunately, all people seem to notice is the business concern part. A well performing design does not mean a well selling vehicle. That's why the COST, SIZE, WEIGHT aspects are so important. Having pointed out those concerns early on, then being proven correct, labeled me as a troublemaker and a hater of GM... even though I was actually just pointing out what needed to be addressed sooner (proactively) rather than waiting until sales later (reacting) when it was much harder to change. In other words, regardless of how impressed a person is with the test-drive experience, that doesn't mean they'll actually purchase it.

6-24-2015 **Conquest, the facts.** This particular response really got me: *"When faced with irrefutable facts presented in a discussion, you will not respond directly to them, conveniently ignoring them to put forth some other not-quite-understandable statements."* The close-minded attitude is a repeated theme that's easy to see. I get nothing but talking-points and accusations from certain people. Oddly, it's a good sign. The idea of conquest has fallen apart. That's the proof. Strong sales are the measure. They don't like talking about that. So, I kept on posting: Haven't you noticed that those facts are repeated? How many times would you want to answer the same thing? I bet you too would respond a few times, then ignore when they get asked following that. The topic here is PLUG-IN HYBRIDS. Why in the world is the non-plug model of Prius being referred to and the plug-in model ignored? When facts are selective, that's often called cherry picking. Toyota offers a PLUG-IN HYBRID. Ford offers two PLUG-IN HYBRIDS. Hyundai offers a PLUG-IN HYBRID. Honda (until recently) offered a PLUG-IN HYBRID. Heck, GM will even be offering a PLUG-IN HYBRID. There's also BMW i3 and GM Volt, if you want to include them in the category too. So... why the reference to a non-plug and disregard for the rest?

- 6-25-2015** **Conquest, the end.** It did finally come: This all-automaker topic was the ideal opportunity to find out what has changed, what will be different with the rollout of second-generation plug-in vehicles. It's troubling to find out there's still an obsession with conquest sales and a lack of understanding who the competition actually is. I was blown away by the response. We've watched the market saturate. With all the early-adopters already driving a plug-in, few else could be encouraged to buy. Sales opportunity was lost. The true competition, traditional vehicles, continued on strong. It's not GM against Nissan or Tesla or Toyota. It's not EREV against BEV or PHEV or even HV. It's just old verses new. GM's own traditional product-line is cannibalizing sales of Volt. Not drawing customers on the showroom floor, at the dealership, is a very big problem. Yet, focus has been entirely on conquest sales instead. How does drawing in potential customers from other automakers change the loyal GM buyer? Owners of older Malibu will just replace it with a newer Malibu. It's lost opportunity. Why isn't anyone else concerned? The senseless shooting of the messenger may make you feel better, but it doesn't help the situation. In fact, it's a distraction, allowing the problem to persist. That's really sad.
- 6-26-2015** **Conquest, the desire.** That plug-in hybrid topic was started with an article which included this information: *"Prius PHEV. Numbers based on 40 miles per day, 15,000 per year, 15 miles to work, 110-volt charging on both ends of commute. Eighteen gas stops per year. Other PHEVs with larger batteries are much fewer. The Volt would never need to stop for gas and could do much more than this with its superior AER. Source: EPA."* No link was provided. No actual data is either. Notice how the actual consumption value is missing and vague adjectives are used? My favorite part though is the use of "never" for Volt. That's an outright lie. Even if the vehicle's passengers or battery-pack don't ever need the heater, the system will eventually start up the engine anyway. There's a maintenance mode to prevent the fluids from getting too old. Running the engine briefly from time to time will happen. It's part of the design. EPA knows that; yet, for some reason this misrepresentation took place. I didn't get to question it though. The desire for conquest prevented any type of constructive discussion. Those few remaining regulars just plain don't care anymore. They are holding onto what's left and pretending the bigger market doesn't matter. And since they no longer are presenting a barrier to progress, it's best to leave them to their niche. We see that mainstream consumers will just look elsewhere. Who knew it would take an entire product-cycle of struggle before change finally happened... the game has changed.

- 6-27-2015** **Conquest, the solution.** There isn't one. That desire for conquest is a trap. Enthusiasts of Volt were so obsessed with dethroning Prius that they allowed the sacrifice of GM's own customers. It didn't matter how much you pointed out the "*cannibalization*" effect either. The market wasn't actually expanding. Instead, it was just a small base of plug-in supporters taking advantage of incredible prices. When leases expired for those who chose not to buy, many moved onto trying some other plug-in from another automaker. Yet, there was a solid denial theme, diverting focus to outdated statistics instead. When details of the new Volt were revealed, many who chose to buy stated they would continue driving their old model. How will GM draw in their own customer base? From the "*vastly superior*" perspective, the desire for conquest cannot be achieved. Superior compared to what? Sales of traditional vehicles have been absolutely devastating. Toyota sees that. Ford sees that. Nissan sees that. Each has acknowledged the challenge by stating intentions to better compete directly against their own traditional offerings. The purchase-priorities of mainstream buyers are goals the upcoming releases are striving for. GM, on the other hand, decided to continue on with their approach. Why? It makes no sense increasing EV range, knowing that choice requires a cost which pushes much higher than vehicle that will share their showroom floor... especially with so much smaller of an interior. Becoming larger and achieving a more competitive price was a very big deal for Prius, the key to its success a decade ago. That level of success was reached without a tax-credit too. Needless to say, Volt will continue on as a niche. Malibu hybrid offers a glimmer of hope though. Larger and without the burden of massive battery-pack, it stands a chance of drawing interest from within, from GM's own loyal customers. There is finally recognition of business need. Phew! It's too bad the remaining enthusiasts don't see that. Oh well. Supporters of profitable high-volume sales will.
- 7-01-2015** **Co-Exist, moving on.** It's going to be a challenge. Moving on when there is no shared goal is a very real problem. Lack of clarity from plug-in owners leaves everyone wondering... which is a barrier that holds people back. Supposedly, the purpose of the EV is to eliminate our dependence on oil. But with all the domestic drilling taking place right now and the resulting surplus, that priority has essentially been dropped. Since it is no longer a foreign dependency, the argument for EV becomes a very big challenge. Gas is cheap and air-quality still isn't important to the majority. That's where fuel-cell vehicles slip in. It's a technology able to take advantage of renewable energy on a larger scale. When the sun isn't shining and the wind not blowing. Where does the electricity to recharge come from? For that matter, how is electricity not needed immediately stored? People just assume the grid is a repository. It's not. That's only a means of conveyance. There is no infrastructure for storage... hence converting that energy into hydrogen. It's clean and will be available for rapid refueling. It's not perfect though; however, it does reach an audience EV cannot. That's where co-exist comes into play. Rather than one solution for all, consumers will have a choice. It posted this, knowing the thread was an obvious attempt to stir post activity: The media treat FCV and EV as mutually exclusive. That draws lots of attention, which is how they operate. It's their business. In reality, automakers will explore both options... since they have very different audiences. After all, we can already see how different the markets will be.

7-01-2015 Co-Exist, no free lunch. That's what hybrid owners were constantly being reminded of. The electricity being used was ultimately derived from gas. Antagonists wanted to make that overwhelmingly clear. Well, having sent that precedent, they now have to deal with the reminder of storage. Electricity has to be stored somewhere. EV owners are too use to the idea of the grid always having plenty available for them to recharge with whenever they plug in. That's not realistic on the massive scale. Capacity is costly. It's inefficient & wasteful to always have maximum available. That's why storing is so important. Heck, that's the very benefit of hybrids. The battery is used for opportunistic charging & discharging. Hydrogen serves a similar purpose. True, there's a loss from conversion. But how's that different for an EV. The electricity must somehow be saved before being delivered to the vehicle. Needless to say, there's more to the situation than the brief online encounters reveal. That's why the idea of co-existing is becoming an issue. People assumed it to be a simple situation. In reality, it's not. We will have different approaches to fulfill different needs. Just look at the computer industry for examples. Notice how internet access is no longer limited to just desktop computers. We have notebooks and tablets and cell-phones and smart-tvs and now even cars to connect & interact with. One size does not fit all. Each has a cost too. Price varies. None are free.

7-01-2015 Co-Exist, mixed feelings. There were some outright attacks. That's to be expected. When people don't have all the information or understand intent, they lash out. What do you think this particular comment was: "*The primary advantage of the EREV is the mature gasoline infrastructure. An FCV would abandon that and would rely on two different inferior refueling infrastructures.*" I find it hypocritical how the group on that Volt blog use the word "*mature*" when it's to their advantage and "*obsolete*" when it's not. In this case, the situation is a matter of not seeing the big picture. That's quite common for enthusiasts, since they tend to focus solely on a particular implementation or approach. In fact, that's why I had to deal with so much hostility in the past from them. Their refusal to even accept the idea of a second model of Volt was met with fierce resistance. Looking at the larger market was beyond their grasp. Thankfully, there are many who do see much and recognize the greater need. This is how I responded: FCV retains the "*infrastructure*" already in place. We all know the oil/gas providers won't go down without an intense fight. Rather than trying to force them out of business (and at great expense to the electric effort), it makes far more sense to have them become the hydrogen providers. We can have our plug at home and still have commercial refueling. Since those markets are for different types of driving/owners anyway, it could work. Oddly, that plug-at-home and hydrogen-at-station, is a simplified model of what we currently have. How many stations currently have to deal with gas (3 different octanes) and diesel and E85 pumps? Offering just hydrogen would be easier and reduce storage variations.

- 7-03-2015** **Back to Prius.** The dust is beginning to settle. My drive out to celebrate the holiday weekend with family involves about 150 miles of travel, each way. The results of the trip there were just like every other long drive during the Summer with no opportunity to recharge. It was 59 MPG. That's the basis to which the "60 MPG" expectation has derived. People see how easy it would be to squeeze out just a little bit more efficiency... even though that is an ideal example, rather than average outcome. Oh well. It is still impressive, despite being somewhat misleading. But then again, that's only using half of the small plug-in battery-pack. Imagine the results from using more electricity or not driving as far. Anywho, it's good to finally get out... my independence day! Having went through all that work to sell the old houses and get settled in this new one really left me drained and with very little free time. At least I was able to take advantage of the large cargo capacity the Prius offers. That sure came in handy.
- 7-05-2015** **New Attacks, Same Desperation.** I wondered how the silence would go before being broken. With all that rhetoric of the past, the upcoming next-gen Prius is inviting... very inviting to antagonists, especially for the disenchanted Volt enthusiasts. The pressure to break out beyond niche is hard enough. But to have a strong mainstream player come along and show an upgrade with even greater potential, it's too much for that particular group to resist. They have begun their greenwashing again. Ugh. Reading this today was both annoying and amusing: *"Prius outsells the Volt because people are sheep and think Japanese cars are better than a Chevy. The Volt is simply a much better car to drive than the Prius and it is more efficient as well. If you haven't driven a Volt you might not know. If you have and you think the Prius is still a decent car, you don't know cars."* His explanation of how his Volt saved more gas than a 50 MPG from Prius (complete with a gallons chart) was then followed by saying it was *"lame"*. Needless to say, I had no interest in biting on that bait. He was clearly looking for someone to take out his frustration on. The childish name-calling is bad enough. But to go out of your way to pretend there isn't a plug-in model available and to completely disregard the cost difference, that's blatant greenwashing. I do wonder though if people will notice the omission. Comparing the two as if cost & size was the same is just plain wrong. It's the same old nonsense as with the previous generation. Back then, some became absolutely desperate for attention by attacking Prius. Looks like we'll see that repeating again. Blah.

- 7-08-2015** **Europe Trip.** I will soon be abandoning all I know at home and venturing off to Europe. That's a place where roads are quite different... busy, narrow, and filled with small cars primarily fueled by diesel. That should be very interesting. I'm looking forward to the sight-seeing and trying as many new foods as possible. We'll be traveling to 3 different countries using a large tour bus which will be towing a large trailer. That should make the experience especially interesting. We'll end up on the Autobahn at times. So, I'm sure there will be many sightings of vehicles flying by us at amazing speeds. What I'm most curious about is what will stand out... the differences or the similarities? It's really difficult to imagine or to even set realistic expectations. I know there will be Prius used as taxis, but I have no idea how many I'll see owned by ordinary consumers. I also have no idea how many electric-only vehicles I'll encounter. For that matter, will there be any SUVs there (the smaller type, of course)? It's exciting to have the opportunity to make those discoveries firsthand, in addition to the vacation itself. Heck, even the long flight from the center of the United States to Iceland to Germany will be an interesting experience. I certainly cannot drive to this destination. Watch for blog updates. I'm not sure how much time I'll actually have to document my observations, but I'm sure there will be a few key things to write about.
- 7-09-2015** **Small Cars & Roads.** What I've seen so far isn't encouraging... small cars, parked on small roads or small driveways, almost all running diesel. At least back at home, the suburbs stand a lot of potential. I have no idea how adding a plug would work. Do they have the amp capacity to support that? Where exactly would the plug go? It's a difficult situation... not as bad as apartments, but not much to show promise. Hydrogen really makes sense in those situations. Hybrids without a plug present a challenge too. What's the incentive to purchase one from Japan or the United States, especially with the wide variety of European automakers selling diesel vehicles there?
- 7-13-2015** **Superchargers!** What a bizarre place for my first Tesla Supercharger sighting. We just crossed the border from Germany to the Czech Republic. There at a fuel-station to use the pay-lou and get some Koruna (since they don't use Euros) was a row of superchargers. I couldn't believe it. Needless to say, I ran over to get a photo. Play first. Business later. I certainly wouldn't have expected to encounter a piece of new American infrastructure established there. But then again, we were on a major highway where a Tesla potentially could do some long-distance driving. Next is to look for an actual Tesla.
- 7-18-2015** **Tesla Delivery.** I did end up spotting a Tesla on the road. That did seem realistic to happen at some point. What surprised me was another stop along the highway. There was a delivery truck loaded with Teslas! I couldn't believe it. Again, I ran over for photos. The encounter was much more of a surprise than I had anticipated. The truck driver was quite happy to show me the load he was hauling... to the point of opening a Tesla, insisting I take photos inside. When a friend of mine caught up, he jumped in behind the wheel and actually started the car up. I had no idea what the European impression of a Tesla would be. Clearly, they like that type of luxury vehicle. Of course, who wouldn't be impressed by a 691-horsepower electric-car? (It was the P85D model, which starts at \$105,000.) The estimated range for it is 253 miles.

- 7-21-2015** **Cost.** This question from the big Prius forum was rather timely: "*What does it cost in Europe?*" Seeing another part of the world, one that still depends upon driving personal vehicles for primary transport is quite vindicating. I studied as much as I could using online resources, but there's nothing like actually being there. I posted in reply to that: Cost is just part of the equation. Right now, I'm in Munich, Germany. Talking about getting first-hand research about audience. The European situation for plugging in faces many challenges, in addition to the issues related to driving... road & parking space, along with pollution from the large number of diesel vehicles. Yesterday, I visited BMW world. It's quite clear they achieved what GM did not. They too faced high cost, but the decision was made to focus on making the design practical instead. This next-gen Volt is clearly a specialty configuration, not one for the masses. Look back at the original goals. Look at what i3 delivered. btw, I've seen a ton of Prius-Plus (the European wagon model) used as taxis during my travel. And yes, I even saw a Prius PHV.
- 7-22-2015** **Done.** It felt good drawing the remaining rhetoric (from certain particular individuals) to a close with this: The generic "*anti*" comes from those tired or unwilling to discuss the actual issues in detail. It's the same old nonsense we've seen for years when it comes to the "*leap frog*" topic. Reality is, the "*bad*" is undeniable. When an automaker is unable to capture the interest of its own customers, what's the point? We've witnessed Toyota's struggle to keep Prius a top-seller here. They've managed though, despite pressure from low gas-prices. Success came from identifying consumer need, the balance of appeal-factors resulting in high-volume profitable sales. GM didn't do that with Volt. Focus was on want. That's fine, if also given a choice. That's where the upcoming Malibu hybrid and CTS plug-on hybrid come in. Those are the "*good*", since they address what Volt does not. In other words, they are being targeted at people who have simply chosen to purchase a traditional GM offering instead. Why some refuse to acknowledge the true competition and recent diversification is a mystery. My guess is old habits die hard. It's easy to overlook audience and not notice change.
- 7-23-2015** **Responsibility.** You gotta like reading this: "*Then why isn't Toyota making a big push for fuel-cells by building a "Super Hydrogen" network the way Tesla did with Supercharging stations around the country?*" We live in a do-nothing society, expecting someone else to take make things happen rather than joining in ourselves. Reality is, Tesla only established some stations. Others around the country have joined into the network by building their own, at their own expense. The newest one to open in the Minneapolis area by me was exactly that. The station owner paid for the charging equipment and power-lines himself. Toyota will help establish, but it makes no sense to not encourage others to contribute. For the benefit of many, why not? After all, many other automakers have also experimented with hydrogen. All need filling stations. In fact, that's why the state of California setup the hydrogen highway. It serves as a template for others to learn from. Somewhat frustrated, I replied: Why must someone else take responsibility for our own well being? Our country is horribly behind in the acceptance of renewables. I just got back from a trip to Germany & Austria. Seeing how common solar & wind is there makes us look like really bad, like young children selfishly complaining. It's embarrassing. We should be doing it ourselves, creating that electricity locally for immediate consumption along with hydrogen storage.

7-24-2015 **30-35 Miles.** The discussion today on that daily-blog for Volt was about possible configurations for the next-gen Prius PHV, specifically a model offering 30 to 35 miles of EV range. I was really irked when this was posted: "*It isn't 11 miles, it is only 6! Blended burns gasoline. Toyota and their fans are misleading everyone!*" My emotion didn't come from the content itself either, which is a blatant lie and easy to disprove. It came from the fact that no one said anything. The entire group there is nothing but enablers. They allow the spread of false information. That's just plain wrong. It's like watching someone get hurt and not doing anything at all about it. Allowing slander is something we now teach our children to stop. Too bad the adults aren't taught the same thing. Oh well, at least I can point out the problem and try to refocus on what's actually important: As for the 6-mile greenwashing, that shows true desperation. We all know the 4.4 KWH capacity delivers 11 miles total and that the 6 is simply the result of a hard-acceleration. Following that particular point in the EPA driving cycle, there's still electricity remaining... enough to drive roughly 5 more miles in EV. So if you don't drop the pedal, the engine stays off for the entire 11 miles. My old commute on a mix of suburb roads (from 30 to 50 mph with a few stops) and 2 short stretches at 55 mph routinely delivered 13 miles of EV during the summer and 9 in the winter (without heater). That makes the claim of 6 an obvious attempt to mislead. It's also an attempt to distract from the plug-in hybrid purpose. Blending still greatly reduces gas-consumption and emissions. That's the point. If you want purity, buy a Leaf or i3 instead. This thread clearly confirms there's worry about the upcoming Prius, as well as serves as an endorsement for the other plug-in hybrids. Notice the sales numbers for the Energi offerings? Ordinary consumers simply what a reasonably priced plug-in option to boost MPG. It's that simple.

7-25-2015 **Progress?** Here's an attempt, in response to: "*If you don't have a spare 12 amps, you've got bigger problems to worry about than an EV.*" It was a quote for a long-time troublemaker that I saw as an opportunity for progress. Who knows if it will work. But at least I tried: Looking back doesn't accomplish anything at this point. Let's try looking forward. It's time to move on. After all, who isn't tired of the oversimplifications and outright dismissals? Address what is needed to make some progress getting people to plug in. Not having a 15-amp circuit (for a steady 12-amp draw) available is a big deal, something still not addressed in discussions here. Can we finally? Many home garage outlets are shared, used as a primary during initial construction. That means the same circuit uses the same line somewhere in the center of the home and somewhere on the outside. It's a common practice to make building the home itself easier. That's a problem later on though, if you maxing it out all night for recharging. Just go in the bathroom and startup a hair-dryer for confirmation or go outside and startup a vacuum. You'll immediately pop the fuse the car was plugged into while recharging. 13 hours for a full recharge on level-1 isn't exactly practical either. Getting home later in the evening would mean you went somewhere else after the work commute, resulting in a battery-pack being totally depleted. Plugging in then wouldn't allow enough time to completely recharge before having to head out the next day for work. Getting home at 10 PM and having to leave for work the next day at 7:30 AM would only provide 9.5 hours for recharging. You stay out even later, you have even less time. 13 hours is too long, period. (Note, that is what GM states gen-2 of Volt will need for level-1.) Level-2 is required for large battery-packs to be realistic. That adds expense and may not be an option for older homes without a large-enough box capacity. Additionally, there's the problem of needing to plug in more than one vehicle at the same time. With a small battery-pack, you can get away with a timer. 2.5 hours for a full recharge at level-1 for Prius PHV is easy to deal with. There's more than enough time for even 2 to plug into the same circuit at the same time. Set one for 12 AM recharging and the other for 3 AM. Simple. But with a larger battery-pack, you're basically screwed. In short, there are challenges for recharging at home. Finding a way to recharge at an apartment or condo is even more complicated. This must be addressed. Progress for plug-in vehicles is impaired dwelling on issues of the past. Let them go! Give this topic a serious consideration.

8-17-2015 **Goals.** No entries for several weeks should be a clue that something major happened in the meantime. That is indeed was the case. I got married! The love of my life just settled down. The wedding was a blast. All the prep work totally paid off. The outside ceremony went extremely well. She made the program on a stick, so it could double as a fan... and it did. It was on the hot side. Rather than a unity candle, which clearly wouldn't work with any type of breeze, we had roses for us and a white carnation each person attending added to the bucket at the alter (a bridge over a small stream). That worked well in the warm & bright setting. It looked really nice too. At the reception there afterward, my best man pointed out to everyone how he knew it was true love... I started talking less and less about the Prius. Everyone there was quite amused, since that indeed what happened... an indication I wasn't even aware of. She likes the Prius. It was incredibly practical during the move to our new house. It even helped in the wedding itself, since I needed to transport an arbor for the alter and a special bike. (We started our relationship through a biking trip.) We stuffed ever last bit of remaining space to bring back gifts and leftover food. It was a great evening with family & friends, a memory I'll cherish. The lesson taught by the Prius and repeated several times over the past 15 years is that some things are worth waiting for. That special day most definitely was.

8-17-2015 **Argument Points, looking back.** The time is quickly approaching. That chapter in history covering first-generation plug-in vehicles is coming to an end. The rhetoric is starting to ramp up already. It's quick surprising to see some of the same old argument points coming up all over again, the greenwashing crap is even worse than the hybrid nonsense too. Think about how much more obvious the claims trying to raise doubt about climate change are. They're rather desperate at this point. Yet, some continue to attempt that anyway. Fortunately, since battery reliability is proving reliable and the desire to plug-in fulfilled by each automaker in some fashion, the argument for delay is very difficult. Sadly, there are a number of argument points that persist. They're all weak, lacking substance & credibility, but still a force to be reckoned with simply due to the reality of most readers not being well informed. So, I'll take the time to document recent observations.

8-17-2015 **Argument Points, copy cat.** The supporters of the plug-in model of Prius are quite abundant in the plug-in market. Leaf and Tesla get a lot of upgrade and secondary buyers from Prius PHV. They clearly understand the endorsement it provides for lithium batteries. Ford Energi is less clear, mostly because the second-generation will likely be competing directly, without an idea what the market will be. In other words, it's mostly a matter of awkward timing. The BMW i3 is the only true EREV available, which is pretty obvious due to the ever-changing definition coming from the Volt enthusiasts. Rather than focusing on results, they persist with focusing on semantics. It's sad. They're the ones who will still trouble for the next-gen Prius PHV too. The obvious power increase coming from improved electronics and the capacity increase will have them claiming "*copy cat*" instead of finally acknowledging priorities. Like always, they'll do everything they can to avoid dealing with the market. Know your audience. What got copied and why? Based on goals, it's easy to see that Toyota has been following a natural progressive to keep their system affordable, practical, and competitive with high-volume traditional vehicles. GM clearly is not with Volt; the goal of 25,000 sales for the first year of gen-2 rollout removes all doubt. Tesla and BMW have a luxury audience, whose priorities are different. Leaf is targeted directly at mainstream buyers though. The Energi vehicles are too. Heck, Hyundai is even pushing for being competitive. Selling at a profit without dependence on a tax-credit is vital. We see most automakers striving for that. Obsessive attention on "*copy cat*" with complete disregard for actually selling in high-volume is a dead giveaway that intent of those online posts are not sincere. We saw the trophy-mentality emerge way back in 2007 and continue on strong until now. Don't expect that misplacement of priorities to change. They'll continue to turn a blind eye to who the competition really is.

8-17-2015 **Argument Points, no plug.** The hypocritical & contradicting nature of some posts is a good indicator of status. It's the most basic type of greenwashing. We'll see a lot more of that too. Expect it to be a strong theme coming from Volt enthusiasts. Just like with gen-1 rollout, they'll do everything in their power to compare gen-2 to the regular Prius... the one without a plug. You'll see comparison after comparison, complete with spreadsheets & graph, explaining how the 55 MPG won't in anyway be able to compete with the 50-mile of EV range. No mention will be made about the plug-in model of Prius. They pretended it didn't exist for years. There's nothing signifying that behavior will change. (They'll also dance around the reality that the Prius interior is larger as well.) It's frustrating to constantly have to deal with such desperate misleading, but in no way a surprise. And like I said, it's a good indicator of status. Doing that shows us those individuals doing that just plain don't care. Watch, they'll even avoid mention of GM's own non-plug hybrid, the upcoming Malibu hybrid. Not being able to compete without deception tells us what?

- 8-17-2015** **Argument Points, hydrogen distraction.** This is an argument point I find quite amusing. Whenever an antagonist stumbles in a debate, the topic of Toyota's current attention on fuel-cell advancement gets thrown out there. It's an obvious distraction. That's quite clear when scope is mentioned in a rebuttal and there's an effort to evade. The reality that audience is very narrow and timeline is very long simply gets dismissed makes the hopelessness undeniable. The market is set small, showing the current rollout program is to advance the technology through real-world feedback. You cannot go wide scale without that. They don't care. They use the many hydrogen greenwash beliefs to spin the situation as Toyota having lost purpose... even though we know there is a next-gen regular Prius followed by a next-gen plug-in Prius on the way. Those are targeted at ordinary car buyers, intended to compete with the true competition (high-volume profitable vehicles) right away. Sales of hydrogen powered vehicles have nothing in common with that. It's a long-term effort, quite different. Hydrogen will exist in parallel to electric power anyway. They will co-exist. So, the distraction is just that... more evidence of not acknowledging actual need.
- 8-18-2015** **Argument Points, size disregard.** That's the most obvious sign of intent. We saw that at the very beginning here, back in early 2000. Honda Insight was a 2-seat hatchback. Prius was a sedan with 4 seats and leg & head room larger than many of the midsize cars of the generation being replaced, plus it had a surprisingly large trunk due to the extra height. Yet, people constantly compared the two as if they were equals. Insight was primarily made of aluminum too, making it impossible to be sold at a competition & profitable cost. Sound somewhat familiar? Volt is clearly smaller and profit is clearly a challenge (tax-credit dependency), yet the same thing happens. Arguing online makes points like that easy to overlook. Thankfully, the test-drive experience makes it blatant. An enthusiasts places size as a non-issue. A mainstream buyer considers that among the higher priorities when choosing what to purchase.
- 8-18-2015** **Argument Points, profit achieved.** This one makes me laugh. Toyota has sold well over 7 million hybrids. Yet, some of the most stubborn antagonists will still argue that profit wasn't achieved until very recently. Wow! How could they believe that people are so stupid that they'd won't question how that could be achieved. Selling at a loss for nearly 15 years at that volume just plain does not make any sense. But then again, the vast majority of troublemakers have a strong engineering background and little to none experience in business. You can tell their lack of accounting & economics background by just asking a few basic questions. They'll respond with a personal attack or something completely off topic. Evade is their motto. Reality is, automakers are in the business to make profit. Although the motive to have the spotlight is compelling, that isn't what pays the bills. Remember the massive amount of money GM got from the government and didn't pay back? Remember how much Ford struggled to pay back their government loans? Remember how painful it was to fill the tank when gas was \$4 per gallon? How much longer can automakers remain dependent on large guzzlers for a majority of their profit?

8-18-2015 **Argument Points, tax-credit.** It's terribly dishonest to disregard tax-credit dependency. How is ignoring cost helpful? Yet, we saw that all throughout the entire lifecycle of the gen-1 Volt. Supporters gambled that sales would pick up over the years and cost would fall dramatically before the gen-2 rollout. Neither happened. So, expect this to be a big argument point in the years to come. GM has made an effort to set expectations by clearly stating the first year of this next Volt will only have a production volume of 25,000. That has quietly angered Volt enthusiasts who, for many years, have stated the second generation will sell even better than the second-generation Prius. 53,991 was the sales total here for 2004... all without a tax-credit... for that first year with gen-2 Prius. The importance of the \$7,500 for Volt cannot be overstated... especially when you consider the 2005 sales. They were 181,221... again, with any tax-credit. The subsidy was a major problem... for a car being portrayed as a "*game changer*". Proving a technology is viable is quite different from selling to the masses. That distinction kept getting swept aside though. So, it will be interesting to see how, or even if, it gets argued with the second generation.

8-18-2015 **Argument Points, profit achieved.** The goal of mainstream automakers is to sell vehicles at a high-volume profitability. We all know & praise the other type, which makes a small number of vehicles for a much different audience. They make a profit too though. They are relying on a subsidy or accept loss for the sake of reputation building. It's business. The engineering achievements are great. But when it comes down to what's important, it's paying the bills. With GM in particular, we've seen how having the money necessary turns into a disaster. So, when Volt gets hyped, it is appropriate to ask about goals. What will it compete against the GM product-line and how will the other automakers react? One of the biggest points of contention in that regard is when profit was actually achieved for Prius. We know back in 2002, during to the first-generation sales, that particular goal was reached. Toyota had improved & diversified. What we call the "*first*" was actually the second. Rollout to the United States for Prius was really an upgrade from Japan's model. But with so much bias here, our attitude of what happens elsewhere so bad, and the simple being able to disregard the initial 3 years made the topic of profit easy to spin. After all, how many people still remember Echo? The engine in Prius was detuned, the hybrid system replaced with a traditional transmission, and the body simplified. It shared the same platform. That's a cost-reduction measure which Prius directly benefitted from. That reality is evaded. None of the antagonists even want to address that. Anywho, the point is the date is still argued. After all this time. It's hard to believe anyone would attempt to convince people that Toyota continued on, selling millions of hybrid systems at a loss for another decade. Yet, we still encounter such arguments..

8-18-2015 **Argument Points, engine runs.** The is the pointless argument point... again, coming from the Volt enthusiasts & supporters. The original intent of Volt was to deliver an EV with a backup engine, for when those times come along when you need range outside of the battery-capacity. GM didn't deliver that. Turns out, the capacity much be much larger. So, the engine gets used far more frequently. To make matters worse, using the engine routinely rather than in rare circumstances, it must be larger... and well as the tank, radiator, exhaust, the vehicle itself, etc. Heck, even the cost must be more. Needless to say, that didn't work out well from profit perspective. To make matters worse, BMW did actually deliver. So naturally, we get this on-going argument. Personally, I find it quite amusing since much of the detail ends up contradicting itself and fails to acknowledge goals. Prius PHV is a plug-in hybrid that reduces emissions & consumption. What's so complicated about that? So what if the engine runs, the goal is still achieved. Unfortunately, the rhetoric is so bad at times, the online posting never get beyond what "runs" actually means. Spinning without consuming any gas is apparently the greatest of all sins, according to them.

8-18-2015 **Argument Points, only 6 miles.** Throughout the entire duration of Prius PHV production, the specification for "*electric only*" range was sighted as 6 miles. Everyone attempting to undermine its acceptance would completely disregard the 11-mile stated capacity in favor of drawing attention to the arbitrary 6-mile mark on the EPA testing-cycle. They'd all want you to believe that hard-acceleration point meant no electricity remained. It was an outright lie, often in the form of intentional omission. The same people over and over and over again dismissed the facts, even when presented in video detail, with the hope readers would assume they were being honest. Well, you know what will happen with the next-gen is rolled out... They'll all state 11 miles instead. That's so the percentage of capacity increase will look smaller. It's a classic hypocritical response. We've seen it many times before. When Prius was first rolled out to the United States, the first year available was overwhelming stated as 2000... even when the topic was about the technology itself. They'd complete disregard the 3 years Prius was available in Japan prior to that. But now, the first year available is always stated at 1997. It goes to show you how easy it is to be misled and how poor research some writers are. A true journalist would never make that mistake, but someone wanting to undermine would think nothing of omitting or limiting scope. That's sad. But then again, it makes it easy to discover who's sincere and who has ill intent.

8-18-2015 **Argument Points, no experience.** Among the biggest points of argument derive from information sources without any experience. We seeing review after review from writers who use a stock-photo in their article written about some supposed road-trip with the car. Many supporters scratch their heads wondering if that person ever even touch the vehicle. The strangest descriptions came be found in what they publish. Clearly, many have little knowledge in the engineering. We find lots of examples of anecdotal experiences written up. These are obviously based about observations rather than research, but sometimes they are so wrong you can't even tell if the reporter had actually driven or just witnessed what happened. Needless to say, the lack of detail gives reason for suspicion. That doesn't matter to an antagonist though, they'll refer to the article relentlessly, sighting it as an authoritative source and dismissing contributions from owners proving the claims false. Think about it. How much training would you need to teach others about a new technology? A road-trip certainly won't inform you of wide variety of circumstances the system is designed to deal with. That's why the reputable publications do 1-year reviews. Collecting just a small sample does not tell the whole story. You need lots of real-world data and some knowledge on how to properly analyze it. That requires experience.

8-18-2015 **Argument Points, diminishing returns.** Forcing people to look at the big picture is a problem we'll always have to deal with. There's simply no way to know what the a person's perspective or intent is. They recognize whatever the issue is, then attempt to find a solution often based upon arbitrary information. In other words, they're doomed to fail if what is presented to them is incomplete. That's the goal of greenwashing, when misguiding someone through omission is the desired outcome. Undermining is when the wanted result is for the person to make incorrect assumptions. Diminishing returns is a great example of both. MPG is presented only for certain vehicles. It shows the improvement (decrease in MPG) for the selection. What we see left out all the time is anything above 50 MPG. In other words, the plug-in Prius is intentionally excluded from many arguments. They don't want you to see that efficiency begins to level off significantly beyond 75 MPG. So to undermine, they exclude. To greenwash, they'll sight real-world data for Volt. Seeing MPG beyond 200 gives the impression of a major improvement, when in reality there is little gain. More electricity does not necessarily mean an equal savings in gas. The return is less and less, even though MPG grows more and more.

8-18-2015 **Argument Points, guzzling electricity acceptable.** This is by far the worse for environmental improvement... when a plug-in supporter just plain doesn't care about how much electricity is consumed. They focus solely on not using oil anymore. Thankfully, these particular individuals are not common. However, the disruption they cause to those who truly want EV to be success sure is a problem. Using more electricity is not the answer. Figuring out how to drive further with less is the key. Just like with MPG using gas, you've got Miles/kWh using electricity. A plug-in vehicle that guzzles is bad too... especially with a most of our electricity coming from coal and natural-gas. Neither is a renewable resource... and sadly, we have little wind & solar in this country still. If you were charging up at home using the sun, the situation may be different. But who wants to have to plug back in right away. Why wouldn't you want more driving opportunity? That reason is simple: impatience. Some supporters are so fed up with the slow pace of adoption, they want to get more plugging any way they can. Some of us don't want to sacrifice doing it right for doing it quickly. In the long run, that type of tradeoff ends up being costly. It's best to be patience... though, very trying at times. There's a balance. The compromise of inefficiency electric travel isn't worth it.

8-19-2015 **The Reveal.** Today we got the official announcement that the reveal of the 2016 Prius... the next-gen model... will be in a little less than 3 weeks from now. It will be in Los Angeles, where there and the rest of the country will have just finished celebrating Labor Day. Finding out some detail about what's to come then sounds like a nice way to conclude the holiday weekend. In the meantime, there's going to be quite a bit of speculation. I'm sure we'll get a big mix of posts too, including some using the argument points, as well as the usual greenwashing. Being able to see the vehicle itself will be nice. There's always horribly vague posts whenever a reveal takes place. People will exclaim "*ugly*" but never bother to actually share any detail. They just express there feeling without any explanation. How is that helpful? Whatever the case, we'll be anxiously awaiting information that has nothing to do with cosmetic appeal. Performance detail is a really big deal. Who knows what spin will result. But the more impressive those specifications are, the more intense the attacks. With 4th generation though, there's nothing we haven't heard or faced many times already. Price will naturally get lots of attention. With gas so inexpensive, selling any hybrid is a challenge. But then again, there's new one coming from Toyota which has nothing to do with Prius. That's the new RAV4. A smallish SUV hybrid should address the market issue quite well, especially when the hybrid system itself is so well established already. Anywho, a large chunk of the wait is almost over. Hooray!

- 8-21-2015** **Spy Photos.** It appears as though, some halfway decent photos were taken and shared online. I like the look of that new car. Good thing too. The plug-in model isn't suppose to come until next year sometime, most likely near the end. So, I'll end up seeing quite a few new regular models on the road before having the chance to upgrade my current PHV. That's ok, I'm still thoroughly enjoying it. The new house is yielding an average of 135 MPG for the commute to work & back, with a recharge at each end. I'm quite curious how that new location & route will do in the winter. It's further than before and has a number of large hills to climb & descend. Looking at those spy photos, my favorite color is red and I haven't ever actually owned a red car. Perhaps this 5th will be that. I'm just saving up for the opportunity while I wait. As for everyone else, who knows. I'm amused by the initial comments posted online. I'm focusing specifically on the general automotive sources, nothing devoted to any specific vehicle. That's where you draw out a lot of the diverse activity. And sure enough, the attacks from Volt enthusiasts began right away. They are easy dismiss though, since claims there are so many substanceless and misleading comments. There are some insults too. It's the "*ugly*" posts wasting time though. Hopefully, actual detail about the car will cause all that to fade. Right now, there's a lot of childish nonsense to sort through. Makes you wonder what those same people say when seeing the new Camry and new Corolla... especially have being told how well they've been selling.
- 8-21-2015** **8 Million Hybrids.** That milestone was reached by Toyota last month. It works out to 10 months to sell 1 million. What does that mean for the rest of the industry? Numbers like that may be nothing but trivia to ordinary consumers, who may not even notice just how many are actually sharing the road with them. The majority likely don't even care. But then when you start naming off the variety available, the perspective changes. You can see the automakers having dismissed them for years. Being expensive and a challenge to sell for countless greenwash excuses, what is a dealer to do? It's far easier to let sales staff to do what they've always done... stick to simple sales with a decent commission. I can't imagine how difficult it is to explain how the hybrid system operates, hoping they'll not waste your time and leave confused... or wondering why Toyota's system delivers better MPG. But that was the point of having started worldwide rollout way back in 2000. It takes time to establish a reputation. 8 million now speaks for itself. From Prius C to Highlander, there's a variety of choices available (30 of them worldwide) and more on the way. It's a moving target with uncertain competition. What does that mean for the rest of the industry?

8-22-2015 **Human Nature.** You bet! Having followed Prius since late 1999 and owned 4 of the models available since September 2000, I've heard it all. There are a lot of hypocrites out there. Some respond to the urge to resist & contradict, others are totally oblivious to their actions. Whatever the case, the "*ugly*" claims will pass. I remember when the minivan was first introduced. Wow! The number of "*I wouldn't be caught dead in one of those*" comments were quite abundant. And sure enough, some of the people who made that comment ended up buying one anyway. On the opposite end of the spectrum, you've got the auto enthusiasts who praise certain style, yet never actually buy one themselves. They end up with an ordinary vehicle like everyone else. Watch the "*ugly*" comments. People are so vague, you have no clue what aspect of what they're seeing they don't actually like. That's more of the human nature reaction. Many simply aren't ready for change. If it doesn't resemble what's familiar, they aren't interested. Like countless stories of the past, owners ended up deciding to buy from the test-drive experience. It's the practical design of Prius, combined with the affordable emission & efficiency technology, which ultimately wins people over.

8-24-2015 **Market Issues.** Upcoming rollout of new hybrids and new plug-in vehicles is stirring online interest. Every source is ramping up hype & rhetoric. As usual, we've got GM attempting to gain attention. It worked on me. A presentation featuring Gen-2 of Volt caught my attention. They stated customers wanted: more range, better fuel economy, and more power. No mention was made seating or price. Those countless complaints about interior space were simply ignored. Instead, the "*What we did*" had 4 bullet points. The first was "*fun to drive*". The following three, all mentioned "*powerful*" as the first item of importance for battery, electric drive, and range extender improvements. In other words, we have solid confirmation of who... even without addressing the cost issue. With the stock market having dropped dramatically today (closed at 15,871) and a barrel of oil almost to the point it was back when the Classic Prius was still being sold (below \$39 today), selling high-efficiency vehicles is becoming even more of a challenge. Toyota is the other attention-getting, but not by actually doing anything. This is all coming from leaks. The specifications even appear to be legit... and exactly what will feed the spin. Toyota appears to be right on target, staying true to the original mission of being practical & affordable rather than seeking trophies. That's not exciting... hence the antagonists trying to shift focus over to Mirai (the fuel-cell vehicle) instead. The next Prius will seek out ordinary consumers. That goal of mainstream sales of high-volume isn't threatened the hype & rhetoric, simply due to the source. We've got the nonsense coming from Volt and the continuing problem of understanding. The real push for profitable & popular plug-only vehicle comes from Nissan & Tesla still. In other words, it leaves Prius standing alone. That doesn't make appealing to traditional buyers any easier, but at least market issues are being addressed. Ford, Honda, and Hyundai all stand potential. But then again, with gas so cheap and the oil supply greatly outpacing demand... their challenge is enormous. Put shortly, we've got a messy market to deal with.

- 8-28-2015** **Smooth & Quiet.** Using the word "*luxurious*" to describe Prius over the years would have been laughed at. But secretly, everyone has always known there's no possible way a combustion or compression engine could ever be as smooth or as quiet as an electric motor. There's no debate. It's quite obvious. The fact that Prius delivered those highly sought after traits luxury buyers desired has always been a source of irritation for antagonists. They have no way to rebut. A large motor with a large battery could deliver an unchallenged amount of torque as well. Engines simply cannot compete. Combine that with the necessity to reduce emission & consumption, the choice is blatant. BMW has acknowledged this. An announcement today stated within the next 10 years, "*Virtually every BMW model would be converted to electric drivetrains, including range-extending engines and plug-in hybrids.*" The upcoming carbon emission standards for Europe has been putting a lot of pressure on BMW. Known for delivering basically nothing other than powerful guzzlers, we could see this as the first domino to fall. 17,793 sales of i3 worldwide last year may be an indicator of positive expectations. If nothing else, it does serve as yet another endorsement for battery & motor acceptance and will introduce people to the smooth & quiet some of us have been enjoying for almost 15 years.
- 8-31-2015** **Change.** The rhetoric began again. Government measurement data was released today for the gen-2 Volt. I watched posts for a bit, then posted this: So... after all these posts... we've found out that the "*leap frog*" will be lower CO2 emissions and the "*competition*" will be H2 vehicles. Volt has wandered so far from the original goal of attracting ordinary consumers and selling at a mainstream rate, what's the point of giving attention anymore? We'll continue to see some make gallant efforts to try to promote, but there's a big difference between proving a technology viable and selling large quantities without assistance for a profitably. Who cares about bragging rights? That's not what pays the bills. Automakers must produce something for the masses. Volt isn't it. The message is that simple.
- 9-01-2015** **Teaser Photo.** Just like with the previous generation rollout, Toyota is releasing teaser photos. I was fortunate enough to host one all those years ago. This time around though, the online world is quite different. Photos have been leaked & shared. We have many to look at already. Oddly, it doesn't seem to affect the excitement & anticipation. Today, from Toyota itself, we got a teaser photo of the tail-light illuminated. That's all you can see. It's just a line of red. But the shape & length is so distinctive, it caused the internet to rumble. There were posts everywhere, on any website even the slightest bit interested in automotive topics, exclaiming how "*ugly*" that was. Knowing that the leaks have already informed those audiences of what the entire vehicle will look like, it's easy to imagine the backlash. The message of change coming is crystal clear. Prius is pushing the market again. Racing ahead of the competition like that is good reason for supporters of those automakers to lash out. What the heck will they compete with? The only logic next step is to try to convince readers that new styling isn't appealing. It's a paradox though. The more attention brought to it, the less the impact... it becomes familiar... which is the very thing those antagonists want. They self-deprecate, resulting in an endorsement for change rather than successfully holding it back. That's very difficult to see today, just hours after the reveal. But we've seen the effect play out over the past 15 years. Toyota is marketing to the way we instinctively react. It's human nature. Change is coming. We react accordingly.

- 9-01-2015** **August Sales.** Gas is cheap... so low, traditional vehicle sales are very strong. 37,592 sales of Camry for the month is a difficult number to acknowledge. 31,726 for Corolla is another. This is why I was always so hard on those spreading Volt rhetoric. It's a dose of reality to significant to accept. When it's only \$2.39 per gallon to fill your tank, why consider any type of high-efficiency vehicle? Prius remains the leader. 10,450 sales is too distant though. It puts Volt's 1,380 sales (with a \$7,500 tax-credit and heavy overstock discounts) into a very uncomfortable place. Comparing to 3,119 for Prius V and 3,844 for Prius C makes it even worse. What does that mean for the future? The next PHV will be rolled out nationwide. The promotion of EV will advance. The exposure of FCV will continue. Automakers without anything competitive will have no choice but to continue to push their traditional vehicles. Gas will likely remain cheap for quite awhile, since the over-supply of oil has no end in sight. Change doesn't come easy. The future is going to be a challenge.
- 9-01-2015** **1,000 Times.** We've watched goals change... not from learning about market need... it was from finding out about shortcomings... promises not delivered. Volt became a major disruptive force and we don't want to see it again. Watching it follow that mistakes of Two-Mode was bad enough, but now with the market working to offer a diverse choice of reduced emission & consumption vehicles, we really don't want to go through that again. It looks like we won't have to either. Today, I read a "1,000 times" quote. In it, this antagonist who fought me intensely recite my very words. He's now in favor of what I had been saying for years (hence the count) about needing to offer more. Back then though, my words were responded to with hostile posts. It was amazed. The assumption was that my intention was to kill Volt by diluting it. The paranoia was remarkable. I'm sure glad I took the time to document it in great detail as it was happening. Looking back now, who would believe there would be such an intense reaction to something that should be so obvious. Wasn't the goal to spread the technology?
- 9-02-2015** **Styling.** This is a hot topic now. I had no idea my contribution to it would get so many likes. That's incredibly encouraging. Change is usually slow. The new Prius is breaking new ground, pushing mainstream to transform faster. After all, how else do you advance forward? Concealing technology into the familiar was already successfully achieved. This is the next logical step. Remember when the second-generation Prius was first rolled out. There were no other midsize hatchbacks available. Prius as all alone. Now, there are many to choose from. In particular, I liked this particular lookback at the situation: "*This is the Prius that will get back at all those people that made fun of its older generations.*" Between performance & styling, this Prius will be all alone too. I joined in with: The spin from those contradicting their own statements of the past will be entertaining. For me, I'm still totally amazed how so many think the old-school car is the only thing considered attractive. As time goes on, the divide will grow. The unique shapes of exterior lights will draw wider audiences. After all, the automakers can only do so much with the already refined car shape. Something new is needed to interest buyers.

- 9-02-2015** **Design.** It's shifting from heavy engineering emphasis (to the point of business neglect) over to truly new styling. It's about dang time! The flexibility of LED lighting helps a lot with that effort. No more Physical size & shape constraints is a big deal. We're not stuck choosing among vehicles that basically all look the same. Problem is, people are resistant to change and an increase in variety makes it worse. The other problem is that automakers are struggling with MPG shortcomings. That's a non-issue when gas is so cheap. As soon as it goes up though, things get ugly. If all the cars look rather similar, how are they going to attract sales? Getting stuck with inventory that cannot be sold is costly. So, why not embrace different looks? What do you really wanting to be driving years from your purchase? It's so obvious this change is coming. You can see it beginning with the luxury vehicles already.
- 9-02-2015** **Newbie Observations.** It isn't often I get to interact with Prius owners anymore. Letting the less new answer the new owners questions is beneficial for both. So, unless confusion emerges from lack of information, I just lurk. Today, that silence was broken. A discussion about when the engine shuts off and why got rather messy. It was time to step in. And I did, with this: There are 2 electric-only modes. STEALTH mode is what we got way back when Prius was first rolled out, it's a fundamental part of the hybrid system. The engine automatically shuts off when the power from it is not needed, relying exclusively on the battery & motor from that point. EV mode is what came later, but instead you get a button to engage it. The difference is it trades off speed for power. You'll discover climbing a hill is much easier; however, you cannot go as fast. With the plug-in model, since more battery is available, the EV mode offers both more power and faster speed. You still have STEALTH mode too, same behavior as with the other Prius models.
- 9-03-2015** **Modern.** The upcoming new look of Prius sure has stirred a lot of style posting. I get a kick out of how people back themselves into a corner without even realizing, then sometimes step out with the greatest of ease. Sometimes, all you have to do is point out what they did. That's happening a lot with visual appeal. The mindset is "a car must look like this", so why ever change. Working in the computer industry and having to design & support user-interfaces, you learn quickly that people typically have no idea what options are available to them and that designs of the past were due to limitations which no longer exist. Once they realize flexibility is at their discretion, new opportunities suddenly open up. I've experienced that firsthand many times over my 2.5 decades of design for my career. Seeing the same happen with the automotive industry is quite refreshing. Anywho, here's what I chimed in with into the online discussion: It's 2016 model year, time to abandon the shape & look of cars that has been shared since the 90's. After all, these new models will be on the road in the 20's. Think of how quaint it is to not have the screen on the dashboard and a fob in your pocket. Some of us have moved on years ago. Many more may be waiting for the opportunity. In other words, the thought of "*modern*" is changing.

9-04-2015 **Remembering The Past.** How much detail is actually important? Will anyone care that Toyota stopped production early to avoid having leftover inventory as the product-cycle end approached? Will anyone care that GM got stuck having to clear out their leftover inventory at incredible price reductions because they didn't? Will anyone remember the spin & rhetoric as a result of those business choices? Those are the final glimpses of questions related to the generational end. What about remembering the beginning? What about those original goals? Long story short, we encountered a lot of problems with the first-generation rollout. It had nothing to do with the technology either. It all came down to audience. Who the heck were those vehicles for? The intention for Volt was to be a "*game changer*", to crush Prius with sales so strong it would become a mainstream seller by the third year of sales. That didn't even come close to happening? Will anyone remember? For that matter, will anyone care? That failure taught us a valuable lesson. A symbol of change does not mean change. It became a "*someday I'll get one*" vehicle, rather than be a vehicle people actually purchase. In fact, that distance effect grew so bad, Mitsubishi didn't even bother rolling out its PHEV to the United States. 48 other countries can purchase them, but not us. It's a plug-in hybrid SUV offering a 32-mile range capacity! You'd think in this land of SUV guzzling, that would be an ideal product to sell. Instead, we get nothing here. Fortunately, all the craziness in the market didn't impair EV advancement. Thankfully, Nissan & Tesla have been pushing hard. But cost remains a major barrier. That's why gen-2 rollouts are so important. That's why we need to find out who they are intended for... prior to rollout. So, finding out directly from Volt enthusiasts that Volt will remain a specialty vehicle is an fascinating development. No more undermining like in the past? No more hype about strong sales? No more changing of definitions, arguing semantics, or forgetting goals? I wonder if they'll remember that a year from now when the new Prius sightings become common. Hmm.

9-05-2015 **Similarities.** I'm intrigued to find out what kind of responses I get. This is what I posted the following on the big Prius forum, in a discussion about reasons not to buy a plug-in Prius... Reading through this new thread turned out to be rather inspirational. I hadn't noticed some similarities until now. For example: PHV is a mid-cycle rollout to a limited market. CLASSIC was a mid-cycle rollout to a limited market. PHV calculations are done to see if it will save money. CLASSIC calculations were done to see if it would save money. PHV comments about how its design are based on assumption & observation and are often wrong. CLASSIC comments about how its design were based on assumption & observation and are often wrong. People didn't know what a hybrid was back then and most don't know what a plug-in hybrid is now either. That makes me feel like we're starting all over again, which is great. I recognize the potential. It's a new audience, new market, and there's lot of new opportunity.

- 9-06-2015 Delay.** The expectation was that we'd be seeing the new Volt being sold nationwide soon. Instead, the word is that only select states will get them for the first few months. You can imagine the stir that news has caused. I posted my thoughts on that this way: Searching online, the current inventory is listed as 2,634. That's 2 months sales, based upon heavily discounted prices in August to clear out what's left. As the calendar advances, that rate will become increasingly difficult to match. Other automakers march on. Obviously, Toyota will be stirring the pot with Prius. BMW just announced their entire fleet will add a plug in some fashion, they even just announced 2 new plug-in hybrids on the way. Mitsubishi Outlander plug-in hybrid has been selling well outside the United States, which means we'll eventually get it here too. And of course, there's a variety of EV choices. GM's decision to delay prior to sales beginning will bring some interesting spin. Whatever the case, we things can happen beyond the automakers control. We also know the market still isn't ready... especially with gas so cheap. Heck, I saw it at \$2.22 today. Ugh. The problem with Volt the first time around was lack of clarity. There were so many mixed messages, the chaos was a challenge to document. Though, it isn't difficult to remember certain goals being missed and weak sales. The original goals were set so it could become a high-volume profitable seller. This next-generation didn't focus on them. Why? We've been told production for the first year has been set to just 25,000. That's well below the mainstream minimum of 5,000 per month and pales in comparison to sales of other GM cars. In other words, even without any delay, what difference will it make? More is needed. The technology must be spread to make it feasible to sustain the business. Should hope for change come from Malibu hybrid instead?
- 9-06-2015 BMW 225xe and 330e.** There are two plug-in hybrids coming from BMW. The name of the same is "*eDrive*". 225xe will use a 3-cylinder, 1.5 liter, 134 horsepower engine connected to a six-speed automatic transmission for front-wheel drive. It will include a 87 horsepower electric motor powered by a 7.7 kWh battery-pack connected to the rear wheels. Apparently, this is what Dodge set out to build 15 years ago, but ended up giving up. Through the road connectivity is rather complicated. But then again, the technology nowadays is much better and there is a certain desperation to actually deliver. 330e uses a larger 4-cylinder, turbocharged, 2.0 liter engine that delivers 181 horsepower. It will also send power to both the front & rear wheels. The electric motor is the same, but the battery is 7.6 kWh instead. 25 miles of EV range is the expectation for both vehicles. Price has not been announced yet.

9-08-2015 **The Reveal.** Toyota finally showed us the new Prius. It's a standout, very much like we had anticipated. We've heard lots of "ugly" comments already. But now there's this growing sense of they-will-sell-a-ton-of-them-anyway feeling coming from the outspoken anti-Prius crowd. I find it very appealing, especially the red color of the reveal model. The point is to draw in new buyers. That makes styling important. Heck, we have already seen how the recast of Corolla worked in its favor. Claims were made that Prius screamed "*I'm green*" and that's exclusively why people bought it. (Remember, those claiming that were also disputing the efficiency.) We know owners aren't that vain, that the practical nature of it being the only midsize hatchback back then was a major draw... as well as the efficiency & emission benefits. Irony is to now capitalize on that very premise. Why not? This evening's photos & video show Toyota is doing exactly that. What gets me is how people say they want a "*normal*" looking car but have a strong sense of fascination when new car styles are shown. What do they expect to fall in love with? Do they want something unique or something that resembles what everyone is already driving? What does "*normal*" actually mean? Those are mutually exclusive qualities. The beautiful super-model is not a normal-looking person. Of course, neither is someone ugly. You either stand out in a crowd or you don't. You can't have both. Needless to say, getting noticed is the choice that has been made. That's interesting, since virtually every other high-efficiency mainstream offering (including Volt now) has chosen to blend in instead. The exception is Leaf... which is still selling quite well, despite the model at the end of its product-cycle. Time will tell. I really like what I got to see tonight. More to come as the rollout itself approaches early next year...

9-09-2015 **Speculation.** Even though expectations for change were set, I suspect many followers of Prius could speculate this way: "*The fact that they announced nothing in terms of specifics leads me to believe that they are having a very hard time meeting the numbers they have touted of 10% efficiency improvements.*" It's more fallout damage from Volt. Ugh. The campaign to make MPG more important than anything else should have made that quite predictable. Some people just don't pay attention though. They don't notice. Other detail just slips by. Hopefully, my response will be found helpful: That requires an assumption that Toyota is marketing this generation of Prius to the same consumers as in the past, ones who deemed efficiency among their highest priorities. We've clearly been told that isn't the case. Attention won't be on MPG anymore. Read the quotes. "*Prius set the global benchmark for hybrids, but now is breaking its own boundaries with more engaging style and fun-to-drive dynamics.*" & "*What was once a rational purchase that for many customers focused on fuel economy, is now so much more. This Prius will invite new drivers into the category by delivering an impressive look and feel, built on the foundation of safety and eco-consciousness that define the vehicle's heritage.*" This new Prius is intended to draw a new audience, expanding even further into the mainstream. The technology is so well proven and so well known as this point, focus has shifted to other aspects of ownership. Those buyers simply don't care about the detail you've grown to expect in the past. They won't care if it's 9, 10, or even 11 percent. All they'll want to know is that the motors, engine, and battery have all been improved. The other part is just ordinary business. The reveal is just first step down a long road to attract customers. It makes no sense telling everything all at once when there are many major autoshows to come still. Why not build up anticipation each step of the way?

- 9-09-2015** **Waste of Time.** I originally joined that daily blog, all those years ago, looking for an ally and helping to end the spread of misconceptions. Today, I decided there's no sense even bothering. There was a clear effort there to create new material for undermining. I was actually rather stunned to see that. It was sad. The post that caught my attention was a reference using vague data. I knew it had been cherry-picked from the second-generation model. No one else would though. The part which got me was the claim that the fourth-generation would work the same way. I know the third doesn't even do that. Unfortunately, no one else would know that either. It was pure desperation on his part. He hoped to attract attention. Discussions have dwindled. That venue has shrunk down to just a small number of enthusiasts. It's just a waste of time... hence not even wanting to mention specifics. The same topics can be found on other websites.
- 9-10-2015** **Moved On.** I was fascinated. Watching the same old rhetoric tried all over again didn't interest anyone. Arguments that were clearly a desperate attempt to mislead fell on deaf ears, this time. These blogs are filled with examples of that nonsense, so it isn't even worth the bother repeating them. We've moved on. Watching the final remaining enthusiasts go down without a fight is worth the time, but not enough to post. Curiosity about what excuses would be reused is difficult to resist. Who's going to bother to listen at this point though? I simply wanted to see what would happen. After all, we've seen promised fall apart before. This was no different... hence being so cryptic. The technology in Prius is extremely well proven. 15 years later (since rollout here) everyone knows its reliable. Generational improvements made it more appealing. It's much easier now to take the purchase into serious consideration. What else needs to be said? The antagonists have certainly run out of ideas.
- 9-11-2015** **Choice.** It's easy to see Nissan has moved on. They just announced another model of Leaf will be available in May next year. This one will include a battery upgrade, as well as a range increase. The electrodes have been improved and the chemistry revised. That's the incremental progress we've come to expect from EV offerings. What's not is that the original will still be available. Not everyone will need or even want to pay for that extra 23 miles or be interested in the battery change. The key is having a choice. It's a good move on Nissan's part. As Leaf ages, shifting to a next-generation can be challenging... as we're seeing play out with GM right now. Toyota introduced their variety along the way too. New features in Prius could be found in their other hybrids first. That's how we figured the two-stage PSD would end up in Prius. It was in Camry already and had proven to be a worthy upgrade. Anywho, the market is adjusting. Inflexibility can be a problem on the commercial scale. It's nice to see that isn't a problem when it comes to the utilization of motors, batteries, and electricity.

- 9-11-2015** **The Plan.** You gotta like it when goal-posts are moved... *"That WAS the original plan."* ...but there is no new plan. How many times must it be asked for? Certain individuals leading the rest of the enthusiasts really don't have a clue. You'll get something, then contradictory statements will follow. It's a dead giveaway that trouble awaits. No clear message of intent is a recipe for failure. What should we be expecting? I replied with: The expectation was ordinary distribution, just like any other vehicle from GM, so strong sales would occur right way. Enthusiasts even boasted that those sales would be even better than the second-generation Prius... which were so good, the industry was taken by surprise. It's obvious that Volt is stuck in the middle. GM needs to rethink approach. It cannot compete with the small-capacity plug-in hybrids, which have the advantage of size & cost. It cannot compete with the EVs striving to reach mainstream consumers, which have the advantage of covering an entire day's travel with a single charge. How will the new Volt be promoted and to who?
- 9-11-2015** **The Surprise.** Ugh. Watching this Volt fall apart is amazing. No one really thought the same mistakes would be repeated. Or would they: *"This roll-out schedule of the 2016 Volt is not a whole lot different than it was in 2011, so why is everyone surprised?"* I was beside myself reading that. For years, we had been told this new Volt would be different. Now, those same people are surprised we would ever believe such nonsense. This is yet another sign of trouble to come. My response was: The expectation was set that the next Volt would be different, that it would break away from being a niche. Instead, it continues on as vehicle set apart from mainstream offerings. There are countless posts on this website telling that. We heard that same message for years. Just wait for gen-2. What is the point if we just continue to watch GM's other vehicles overwhelm Volt sales numbers? Should the focus be set on popular sellers getting Volt tech instead, like Malibu?
- 9-11-2015** **The Niche.** There's a growing hate for the word niche. That's because there's no semantics to argue this time. The count is quite clear. No label will change that. What amazes me is the denial. The enthusiasts act as if none of this has ever been discussed before, that the numbers are completely made up and arbitrary. Acknowledgement of the same standard having been applied to Prius over a decade ago is impossible. They do everything they can to evade that reality. It's quite amusing, and yet another dead giveaway. I posted: MAINSTREAM has been clearly defined for well over a decade now in this market. It is a minimum of 60,000 annual sales, which averages 5,000 per month. That is why GM chose that as a target rate for Volt to reach by the end of the second year of sales. Many common vehicles (Malibu, Cruze, Equinox, etc) sell at a rate much larger faster than that. NICHE is simply a vehicle selling at a rate well below that. NICHE is also a vehicle requiring a subsidy.

9-11-2015 **The Failure.** Gotta like this obvious desperate effort: "*So based on sales, the Mirai & PiP must be engineering failures.*" It's quite telling when the subject is abruptly changed. But since you invited me to provide a response specifically about Toyota, I will. Mirai is a long-term project, an investment of profit which just entered the next stage in development... specifically: infrastructure. By getting a small number on the road, focus on fuel improvements can take place. At the same time, the technology can continue to be refined. And since we all know FCV and EV are not mutually exclusive, that they will co-exist, it makes sense to use profit for that now rather wonder if funding will be available later. PiP is a package-upgrade, rolled out as a mid-cycle release to a limited market. There was not a goal to make it a mainstream seller. With the next-generation Prius on the way, which shares the same profitable platform, simply waiting has proven a better business choice. After all, it is quite clear the market isn't quite ready for plug-in hybrids anyway. As for that platform, the center-of-gravity of the hybrid-system was lowered, the weight of the vehicle dropped by 200 pounds, and the suspension system refined. Thermal-efficiency of the engine was refined as well. With respect to Prius in general, it is no longer held back by patents. They recently expired. How NiMH can be used is no longer restricted. As a result, the battery-pack is now smaller and more dense... allowing it to fit underneath the rear seat. In other words, it will be able to reach out to a wider audience at a competitive cost. The package-upgrade known as PiP will take advantage of cost-reduction from high-volume production of the platform and high-demand for the regular model providing opportunity to expand.

9-11-2015 **The Disruption.** My favorite example of disrupting the status quo is when Ford rolled out C-Max Energi. Some people on the big GM forum completely lost it. There was now another plug-in hybrid offering less than half the range-capacity of Volt. The fear of diluting Volt's heavily promoted "*40 mile*" necessity (range-anxiety campaign) was in jeopardy, so some lashed out to stop the posts anyway they could. Same thing we're seeing emerge here now... use misleading info, make it personal, change the topic, deny previous goals, etc. Ultimately, the person attempting to encourage taking the next step would get labeled as a Prius supporter and the group would return to the status quo. Now, with the advent of Gen-2 rollouts, that's happening again. Trouble is, business success requires looking at how Prius was able to attract consumers. That cannot just be ignored, especially since conditions have changed. Mitsubishi has had success with their plug-in hybrid, adding to variety of configurations on the market. BMW has had success with their range-extender, using the approach GM originally pursued for Volt. Toyota will be upping the ante with an upgrade to their plug-in hybrid offering. Combined with EV popularity and low gas prices, getting some type of coherent message out to consumer is a major challenge. What is that message for Volt now? The idea of leaving it as a niche and focusing on making an affordable choice for the masses from some other vehicle seems to be the theme, specifically, to offer a model of Malibu hybrid with a plug instead. However, the thought of Volt not getting as much attention as a result really rubs certain individuals the wrong way. Placing blame on anyone who makes reference to Prius is somehow suppose to make the situation better. Whatever. Change is coming. The choice is to either participate now or react afterward.

- 9-11-2015 *The System.*** Amongst the pointless, we do get some constructive points across: "*Toyota built a system that could be extended to a PHEV with minimal effort.*" That's a statement the stubborn don't want to acknowledge. Technically, GM built an adaptable system too. So should the need arise, with minimal effort, GM could exploit that with Volt. Although the system is expensive and inefficient, the battery-capacity could easily be reduced. The resulting weight-reduction would help improve efficiency as well as increase interior space. The lower production-cost could give it a chance to compete. The new look could attract more conventional buyers. After all, let's not overlook what's hidden in plain view. This new Volt was made to blend in, to look much like any other common car. In fact, the new exterior is so mainstream, it closely resembles a very popular we're all quite familiar with: Civic. (It also looks remarkably similar to a Kia Forte.) In other words, if things go especially sour later, GM does still have an option available for Volt.
- 9-11-2015 *The Shortcomings.*** Being unreceptive and knowing the end is coming, there's no reason not to stay on the soapbox: Back when Honda rolled out Insight, they knew it was too small and too expensive to become a competitor of any sort. Only 2 seats wasn't realistic. An all-aluminum body wasn't realistic. Yet, they continued on anyway knowing the lesson it could teach would be valuable. This group here had that same attitude about gen-1 Volt. They absolutely insisted we wait patiently for gen-2 Volt to address the shortcomings that were revealed & confirmed along the way. GM didn't address them though. 50 MPG. More leg & head room in back. MSRP below \$30k. All of them remain shortcomings, goals requested but not fulfilled. Instead, range & power were increased. For who? That wasn't the lesson taught. Volt is still too small and too expensive. Why?
- 9-11-2015 *The Reality.*** The stubborn and thoughtless replies kept coming, so I continued to let them have it: Reality is, the system in Volt was derived from Two-Mode. There's a blog on this website explaining the evolution in great detail. We even saw prototypes of that system with a plug, before Volt. GM has been working on high-efficiency design for much longer than you want to admit. As for cost-reduction, the simple choice GM decided against was to keep EV capacity as is. The resulting smaller battery-pack would have delivered a vehicle with a higher efficiency (due to less weight) and increased interior space, as well as reduced cost. Instead, we are getting a gen-2 that will allow Malibu, Cruze, and Equinox sales to continue to dominate for years to come.

- 9-11-2015 **The End.**** It's rather captivating to watch things fall apart. That's mostly because so much of it was predicted, shared, and denied. You cannot help but to wonder how they'll respond later. After realizing the same mistake were repeated, it will be a difficult situation. Or will it? Whatever the case, expectations were not met. The rest of us could see it coming. Oh well. It's not as if the wasn't a major effort to point out the concerns. Now, it's just pointing out the unanswered questions and summing up: That's horrible. A bunch of gassers? What about the future? Where is their leadership? Their vision? Who is the market? Typical. Do whatever it takes to avoid real-world data. Reality is, consumers won't have a clue nor will they care. They'll focus on facts... like price, size, and MPG. Prius is competitively priced, offers midsize seating with a large cargo area, and delivers MPG well above other hybrids. And reality is, looking at the entire fleet, that saves far more gas overall than Volt. Dismiss, ignore, insult all you like, but it won't change the reality that mine is currently delivering 111 MPG (average as of 512 miles). Leadership is finding a way to reach ordinary consumers. That's the future, their vision, and the market. Volt can continue being a specialty vehicle, targeted at EV buyers instead. That is GM's choice. Many had expected gen-2 to be different.
- 9-14-2015 **VW Plug-In Announcement.**** This is a rather unexpected twist. VW just announced that they'd be delivering 20 plug-in vehicles by 2020. Amusingly, I took that literally as just 20 total, not the count of models. Knowing that their hybrid went nowhere, adding a plug makes sense. It wasn't too much of a surprise that Jetta hybrid was almost dead upon arrival. Delivering 170 hp, the expectation was never for it to be competitive with Prius on term of MPG... which meant their own diesel sales wouldn't be harmed either, especially with a price of close of \$2,000 more. Also, note that it requires premium gas. As for the announcement, very little was actually revealed. That makes you wonder how they'll actually meet such a short schedule. Most likely, there is something close to production, beyond the concepts they've been toying with. After all, plugging in has been growing as an appeal factor. People are beginning to understand how that can help hybrids. Obviously, there will be a few EVs coming. VW already has that option for Golf. No detail is my concern. Vague has always been a problem. Cost is the other big issue. None of whatever is on the way will be affordable. That takes generations of refinements to achieve competitive pricing... just ask GM. Regardless, it is an endorsement for plugging in. That's a huge step forward away from guzzling gas and dirty diesel. My lifetime average for the 2012 Prius PHV is 72.9 MPG, with just a 4.4 kWh battery. Much potential awaits. Too bad we still have to wait. Nonetheless, it's progress having VW join in.

9-15-2015 **The Lookback.** It's hard to believe the dialog lasted for so long. Many give up after the daily blog has run for a day. We kept at it for a week. I re-read the posts. This is what stood out, worthy of further comment: *"For the Volt community who gave feedback. You know, the customer base. Crazy isn't it?"* Looking back, that's my favorite quote... a response to the who question. It's confirmation of GM not focusing on ordinary consumers for gen-2, coming from one of the most obstinate of enthusiasts no less. Rather than show any concern about showroom sales being lost to popular GM vehicles like Malibu, Cruze, and Equinox, just stay focused solely those already in the group showing support. Abandon hope of market-expansion for the sake of pleasing existing interest. Yes, that is crazy. We've been through RANGE ANXIETY, watching Nissan and Tesla overcome concern. We've been through VASTLY SUPERIOR, watching loyalty vanish as leases expire. We've been through BE PATIENT, watching disappointment as gen-2 details emerge. Wasn't the point to actually sell Volt in large quantity to ordinary consumers, those who would otherwise just purchase a traditional GM vehicle?

9-16-2015 **The Point.** Knowing reveals were on the way at the upcoming autoshow in Frankfurt soon, there was good reason to push. Jumping back into the fire on that daily blog revealed a chaotic mess. There is still no clear purpose for gen-2 Volt. In other words, who will it be marketed to? There's a huge difference between the way you'd go about attracting those considering a traditional car verses trying to appeal to an EV shopper. Yet, the group still hasn't addressed that. Some see Prius as a threat, since supposedly that's who GM targeted... which seems sensible, until you realize they are discussing the regular model, not the plug-in. Huh? Others see the Volt approach as the *"range anxiety"* solution, meaning those specifically interested in purchasing an EV but concerned about range are the target... which seems reckless, knowing that leaves it as a niche, not able to sell profitably in high-volume simply because the audience is too small. A poster summed up the situation this way: *"People don't want to hear things that contradict their beliefs."* That explains the lack of any agreement and wildly confusing messages. Wasn't the point to replace traditional vehicles? We were told Volt would out Prius the Prius. That would require it to share the same goal. It obviously didn't happen with gen-1 and now gen-2 looks the same way. The reason is simple... Frankfurt. More announcements of plug-in offerings were indeed made. In fact, VW declared they'd deliver 20 different plug-in choices by 2020. Pretty much all the automakers have battery plans of some sort now. They all know the instability in the oil prices and increasingly strict emission standards will be increasing the pressure to deliver cleaner more efficient vehicles. That, combined with growing consumer-confidence in the technology, means demand will grow for choices with a battery-pack. It's impossible to ignore now. Change is coming. Wishy-Washy isn't good start for gen-2. That's why Volt is already in a difficult situation. You don't want a limited audience with so many other choices on the way. Prius will be a major player. Next year is going to really exciting.

9-18-2015 **Canada.** We have learned the gen-2 Volt rollout will be nationwide in Canada without any delay. What the heck? Knowing GM's reputation for an ever-changing story and the business-blindness of supporters, I saw this as an chance to get up on the soapbox again: *"I wish the management of GM was as outstanding as the engineers."* It's really unfortunate how long it takes (many years) for some people to realize what the situation truly is. Ugh. I posted: The engineering aspect of Volt simply worked, there was nothing to prove after gen-1 got rolling. So, everyone shifted focus over to the business aspect. That's why the 60K goal ended up getting so much attention. There was not clarity of purpose though. GM didn't really know how to promote Volt. Opportunity was being lost. That's how the animosity for the other plug-in hybrids came about. Now with gen-2, that same feeling of business uncertainty and time slipping away is emerging. It wouldn't be much of a concern if intent was to join in as part of the movement toward plugging in, becoming one of the many choices helping to end the reign of traditional vehicles. We see Toyota, Ford, BMW, and Mitsubishi already making progress with plug-in hybrids. There's Honda and VW striving for that as well. Then on the plug-only side, we've got Nissan and Tesla well ahead of everyone else, with GM intending to become a big player too. That's why the positioning gen-2 Volt keeps getting questioned. What is it? Getting grief on a regular basis for asking how the approach has changed for gen-2 is getting old already. It's pretty clear there's growing frustration and I'm one of those easy to target as a scapegoat. What a waste. Finding clarity of what GM's goals are as early as possible will be greatly beneficial to everyone. Let's focus on that. The EV club I'm part of is very welcoming to anyone providing support for the shift to electricity. Any type of plugging in represents a huge step forward. It doesn't matter how the battery cells are used, just as long as there's success in making the production high-volume. That's where the major cost-reduction comes from. Lowering the price is key. We all know that extremely well. The plug-in hybrids with smaller packs come with a lower premium and don't require anything beyond an ordinary household plug. The plug-only vehicles require a large premium up front and require at least level-2 connection for plugging. So, it tends to make sense that GM made the business decision to position gen-2 Volt right in the middle, striking a balance between the other choices. Reality is though, the market is not that sensible. Purchase decisions (here in the United States, anyway) have been far from logical and in no way balanced. That's how we ended up with so many grossly oversized & overpowered guzzlers on the road. That's also why it is so important to find out what the intent with gen-2 Volt is now, before the market gets really messy when the other gen-2 offerings become available. What is the next step?

9-19-2015 **VW Cheated.** To the amazement of everyone in the automotive industry, we found out yesterday that VW cheated on emission tests. Apparently, special software was added to give false data. No surprise to me, one of the biggest antagonists on the big Prius forum included this tidbit on his post about the topic: *"It's not hybrid news..."* Since he thrives on debate, that was to be expected. I took the bait too, since we're all going to jump in on this new revelation anyway: Quite the opposite, this is huge positive news for hybrids. We were attacked for many years by diesel supporters with claims of how much better the *"clean"* versions would be, making hybrids a pointless technology. But as ULSD (Ultra Low Sulfur Diesel) rollout approached (required for *"clean"* diesel systems), the hybrid supporters noticed something was amiss with VW. There was a massive over-supply of 2006 models, enough to last well into sales the following year. This is my favorite quote from back then: *"The Detroit Free Press reports that Volkswagen of America will drop the diesel versions of the Jetta, Golf and Beetle models from its USA line-up for the 2007 model year due to their inability to meet the new, incoming stricter emissions standards nationwide."* When the newer diesels finally did roll out, the MPG wasn't as good as hoped. However, VW was somehow able to deliver *"clean"* without having used urea for emission cleansing. Hybrid supporters were surprised by that, but too busy dealing with misleading MPG claims to follow up. They saw reports on a regular basis that were blatant greenwashing attempts. It was dishonest and nasty. Now, all these years later, we find out VW never actually delivered what they claimed and owners of those *"clean"* diesels face the possibility of reduced MPG and reduced resale value. This is an amazing new twist in automotive history. The next round of emission regulations are on the way and one of the biggest opponents to hybrids cannot even meet the current level of clean required. It explains that strangely cryptic announcement from VW the other day. They provided a strong endorsement for plug-in vehicles, declaring they'd deliver 20 by 2020 but didn't include any detail. The vague nature of such a bold new approach for them seemed odd... especially since we've heard so little about the current VW hybrid. Now, for anyone who was suspicious about such an abrupt turn of attitude, there good reason to understand why.

9-22-2015 **Clean Diesel.** The response online has been explosive. VW is in a world of hurt now and there are lots of opinions about the situation. I decided to follow-up with more of my own: We had to endure *"clean"* diesel spin for years. They knew gas hybrids offered greater potential, yet the rhetoric continues on anyway. Sadly, some has continued on even after being exposed for not being as clean as claimed. We knew that the *"clean"* claim was misleading right from the start. That simply meant it met minimum requirements. Exceeding them, as the SULEV & PHEV rating indicate, was certainly not what *"clean"* diesel delivered. It basically just made diesel vehicles like ordinary gas vehicles. No one imagined the *"clean"* level wasn't achieved either. What we want is significant improvement. Watching Toyota push into new territory with gen-4 Prius should serve as inspiration for others, not result in more undermining. That potential should be obvious. Adding a plug to Prius pushes it far beyond what diesel could aspire to. Even with the current 4.4 kWh battery-pack, there's no match with either efficiency or emissions... not even close. Put simply, diesel shouldn't be used for passenger vehicles anymore, just like our effort with hybrids to end the production of traditional vehicles. Offering viable hybrids is the key. Keeping our air clean and relying less on oil is a big deal. Having learned there are some who don't share those values and caused harm on an epic scale should help us all take that next step.

- 9-22-2015** **11 Million.** As I was busy typing the previous entry, news broke about VW outside of the United States. Until now, we only knew about the problem here and some vehicles in Australia. The big unknown was about Europe. Diesel is far more common there and Germany is the home of VW. Did the cheat take place there too? Turns out, the answer is yes. The true number is uncertain, but the potential is for another 10.5 million. Ouch! How could any automaker deal with such a massive problem? There is no easy fix. Retrofitting a vehicle for urea treatment of emissions is complicated & expensive. Owners won't like the loss of some truck space either. The engine will almost certainly need to be retuned too. To make matters worse, there are owners who collected tax-credit money for their diesel vehicle purchase. How is that going to get paid back? Stock value as dropped about one-third so far. People are losing confidence. What a mess.
- 9-23-2015** **Upcoming Models.** Details are flooding in about the new Prius. All the information is from other markets though. Some isn't accurate either. Nonetheless, it is still telling to review what's collected and get feedback. Supposedly, there will be a regular model, an ECO model, and an AWD model. Currently, the regular model gets a rating of 32.6 km/L on the Japanese testing. Results come out more efficient than here, since the driving is so different. Regardless, it still gives you a relatively good idea of improvements on the way. We can consider the gen-4 a success simply by looking at the estimate for it on that same scale of 37 km/L. That's certainly more than a 10 percent increase in efficiency. The ECO model is expected to deliver 40 km/L. Cool! For the AWD model, the expectation is 35 km/L. We don't know how that will translate to EPA measurements, how much it will cost, or even how it will be achieved. It's still exciting though. We hoped for the best and it looks like that is what we'll actually get.
- 9-25-2015** **Crazy Days.** Details leaking out about several new models of Prius liftback on the way combined with the fallout of diesel is fascinating... and somewhat crazy. The CEO of VW stepped down. Several class-action lawsuits have been filed. EPA has announced plans to road-test (rather than just dyno-test) vehicles subject to question. That's all quite big. But what gets me is that several people have told me their interpretation of what's happening with VW. Each report comes from sources attempting to downplay the situation. Reality is, the automaker can't fix the problem. Even if reputation is restored back to where it was for gas vehicles sales, the damage is already done. Those diesel vehicles sold since 2009 either need hardware retro-fitted on the car to treat emissions leaving the engine or software to manipulate the engine to operate cleaner. The latter will sacrifice efficiency, which most owners won't want to accept. That leaves only the option of adding equipment the vehicle should have had in the first place. Ugh. That effort (time & expense) boggles the mind. Advocates of diesel will have a hard time dealing with so many disenfranchised owners, who will now take a close look at the other high-efficiency, low-emission choices available. So, regardless of the effort to make the public at large feel comfortable with VW again, it's too late for those directly impacted by this mess. Who would have ever thought things would play out this way... and in just a matter of days? Crazy indeed.

- 9-27-2015** **Hydrogen Attacks.** An extremely popular way of distracting is to bring up the topic of hydrogen. It tends to rather effectively undermine discussions. The choice is to ignore the antagonist and hope for the best or to address them very directly. None of the casual responses make any difference, since their goal is to prevent the topic at hand from progressing. They'll just keep at it. Interjecting new information into their argument tends to do the trick. It's difficult to evade facts without revealing intent. So, I gave it a try after having read some vague claim about efficiency conversion: How outdated is that loss data and where exactly will that electricity be stored prior to reaching the vehicle? I find it amazing how many people think the grid can just hold all the electricity we need indefinitely. It provides transport, not storage. Reality is, the sun only shines and the wind only blows at limited times. The energy captured must somehow be stored until it is needed. Hydrogen provides a means of doing that.
- 9-27-2015** **Count of Six.** This particular comment caught my attention: "*Audi is the 6th car maker to say they will make a 200+ mile BEV by the end of 2018.*" With the diesel fallout and the rapid increase of downplay, the topic variety in forums has rapidly expanded. We're seeing a look more of the old rhetoric return... without any new twists. It's basically the same arguments re-emerging. I don't expect much of that to last though. Their facts are so weak at this point, there's not much to bait for trolling attempts anymore. We are definitely in a state of change. VW prompted those hesitating to take the next move. Hopefully, that will equate to opportunity. I worry about token gestures, where big announcements are made but very little actually delivered. Here's what I had to say: From all the lessons learned over the years, that's a trap none of us should be gullible enough to fall into anymore. We've seen many, many token gestures. Sure, the automaker delivered, but what's the point if the vehicle isn't something people actually buy? GM had the 2 biggest disappointments, both were heavy hyped and neither panned out. Two-Mode was supposed to change the industry. Instead, it wasn't anywhere near as good as promised and it was very expensive. Volt ended up the same way. They were promoted as technology for the masses though. What will these 200+ mile EVs be like? If they're small and expensive, who's going to be interested? Sure, it's nice having the choice, but the expectation of them attracting ordinary car buyers will go unfulfilled.
- 9-27-2015** **Upgrade Plans.** It's interesting to hear thoughts of other Prius owners, some with an older non-plug Prius and some with a PHV already. They're considering their purchase criteria, before details are unveiled. That makes you really think about what's important. I jumped into the discussion thread with: My 2012 Prius PHV has been great. The 73.0 MPG overall average over the past 3.5 years (64,000 miles) speaks for itself, especially driving here in Minnesota. This weekend included a 176-mile drive. With 80% of the plug-in capacity still available, the average was 62 MPG (displayed). So, it holds it's own without even needing to plug in. That makes looking forward to the gen-4 improvements even more enticing. It already outperforms what the so-called "*clean*" diesels deliver. Errand running is great. We live only a few miles from grocery, hardware, and retail shopping, as well as recreation & entertainment. So, that's usually done entirely using electricity (during the warm months) already. Increased capacity isn't really necessary, though it could come in handy and there's an obvious benefit for other travel. The plan is to upgrade right away, when deliveries begin next year. I'm looking forward to refinements in the technology. Each of the other 3 upgrades over the years were certainly worth it. The plug adds a dimension to the already practical Prius platform.

9-28-2015 **Change.** We're seeing the downplay, rhetoric, and trolling really ramp up. That's a sure sign of change. Recent posts provide a very interesting read. They're all over the place. VW troubles continue to grow. Emission standards and testing methods are being updated. Tesla sales of its Model X are about to begin. More information about Prius has been found. Each is pushing discussions in different directions. Heck, even within individual communities (forums) we're seeing the dialog change. For Prius, that's just part of the generational shift, which is what you'd expect from any major upgrade. EV discussions are no where near that clear. Some say the 100-mile range fulfills most owners needs. Others say the upcoming 200-mile range offerings will be absolutely vital. It's polarizing in nature, much like the contradicting messages from those in support of Volt. Interestingly, emissions are getting more attention. The diesel fallout is helping with that. Sadly though, it likely won't change attitudes of ordinary consumers. All the mindset alterations are coming from those already haven't taken a step toward a cleaner environment. Nonetheless, it is progress. Breaking away from the status quo, by any means, is welcome.

9-28-2015 **Single-Minded.** That's one of the biggest challenges to overcome. We saw that in the past with Volt and we are seeing it a lot now with EV verses FCV. There's no reason electric-only vehicles and fuel-cell vehicles should be competing against each other. But with the mindset we've been taught to have, falling into that "*one-size-fits-all*" trap is surprisingly easy. I had to sound off about that yet again: How many times must CO-EXIST be mentioned before it is finally accepted that this isn't an either/or situation?

One solution will not fix all. We grew up in a society that worked hard for single solutions. It was always thought of as one technology replacing another. The duality of our future isn't going to come easy because of that. Fortunately, we are seeing glimpses of hope. Look at the computer market now. There's a wide variety of ways to interact with the digital world and it's for the most part working just fine. People have come to accept differences, rather than fight for just one approach. Transportation will have a similar outcome. The other choice won't be looked upon as an alternative, like some fuels are now. It will simply be the norm. Some people will have this. Others will have that. No big deal. Remember the goals, all of them. We are not simply replacing transportation technologies with the intent of using the least amount of electricity possible. After all, it is renewable. There is a pressing need to also reduce overall emissions, while at the same time not cause economies to fall apart.

9-29-2015 **Investments & Tokens.** Anger at Toyota for not announcing an EV right away is really stirring the pot. Other automakers can make a token gesture, just vaguely stake intentions to deliver one at some point, and all is fine with them. No commitment of any sort is needed, only an "we're in too" claim. That complete lack of obligation shouldn't be acceptable. There should be a goal spelled out... how many, for who, and when. That's why Toyota is focusing on the hybrid offerings first. We know the new Prius is coming nationwide within the next few months and will be targeted at the masses. What follows is anyone's guess. It could still be right on par with those other automakers making uncertain promises too. In other words, to some, diversity doesn't matter. All some care about is EV offerings now. That impatience and nothing-else-is-important attitude is really becoming a problem. Toyota is investing in hydrogen fuel-cells, for the long-term. Antagonists spin that as a "token" effort though, which clearly doesn't fit the definition of what token identified in the past. It would have to be at minimal cost with no plans to further advance the technology to qualify for that. Unfortunately, they see it as a big step in the wrong direction. It's that single-minded approach. Diversification is meaningless to them. Even though fuel-cell vehicles also use batteries and electric-motors, some just plain don't care. They want EV offerings as soon as possible, regardless of cost. How is rushing helpful? Know your audience. Ordinary consumers will just dismiss them as expensive toys for the rich. Gas is so cheap now, why would they even bother to consider an EV anyway?

9-29-2015 **New Thrills.** Certain individuals gobble up new opportunity for online discussion. Now is the time they are especially thrilled. With the diesel mess and fuel-cell advancements getting attention, it's fair game for them. Unfortunately, they don't play fairly. Today, it was: *"This is not fraud, it simply is another misleading fuel-cell statement."* I was annoyed and didn't want to let that go. So, I didn't: Notice the source of some misleading? The original post established an assumption, portraying an exception as if it was the norm. How many people read the statement and completely overlooked that? Here it is again: *"Toyota, Mercedes, and Hyundai claimed 1 minute of refuel time for each kilogram of hydrogen pumped into the FCV's tanks. So a 5 kilogram tank requires 5 minutes. In reality real-world drivers say it takes 4 minutes per kilogram. That means the Mirai's real-world refuel time is closer to 20 minutes..."* Notice it this time? Under all but extreme circumstances would an owner ever drive into a filling station with their tank 100% empty. The normal refill quantity would be around 75%. So, it wouldn't take as long to reach 100% capacity. They start with 25% still in the tank. Yet, that vital bit of info was not included. In other words, some people take advantage of vague statements and turn them into misleading expectations. Also, it would be absurd to assume the newest fuel-cell vehicles would settle for old refilling hardware. Yet, that's exactly what the poster hopes we'll do. Combine that with lack of clarity from automakers, you end up successfully misleading.

- 9-30-2015** **Rants.** Some of the rants against fuel-cells are already getting quite amusing. The one-size-fits-all portrayal share the same signs of desperation the Volt enthusiasts had back when gen-1 was all the rage. The technology-will-never-advance portrayal is just plain sad. It reminds me of the battery claims back when Prius was still new to most people. The rhetoric doesn't take timeline or impact into consideration either. Long-term projects should not be judged using short-term expectations. There's an extremely well established oil-industry that will fight back too. Thinking you'll be able to just tell them to take a hike goes well beyond naïve. Hydrogen will serve consumers that EV won't. The oil industry isn't going to miss out on the opportunity to take advantage of their transport, manufacturing, and distribution resources to capitalize on the new fuel as complications with their current endeavors grow. The abrupt fall of diesel passenger vehicles is a rather obvious example of unanticipated change with impact on a magnitude never imagined. More will come. That will show how EV alone is not the solution.
- 9-30-2015** **The Truth, part 1.** We're seeing an upswing on the attacks. A well known diesel support is quite upset and is now lashing out any way he can. His choice is to attach Toyota's fuel-cell advancement. This snippet really got me: "*...and you can't handle the truth.*" He was going on and on about tank refill time. It was obviously a desperate effort. But it was still enough to make you think about how to respond. What should the expectations be? How should they be set? Who should be setting them? I replied with: If a phonemaker sells you phone able to recharge in X minutes, but you don't have a high-speed recharger, what's the problem? If an automaker sells you a vehicle able to refill in X minutes, but you don't have a high-speed pump, what's the problem? Sounds more like denial of the true situation.
- 10-01-2015** **The Truth, part 2.** It took me a bit to come up with some analogy material, really good examples that would bring this particular rant to an end. Turns out, it was quite effective. He still hadn't responded after a day to this: What happens when you plug a USB 3.0 device into a USB 2.0 slot? What happens when you connect an AC wireless device to a N router? Slow performance from those devices isn't fault of the device manufacturer. It's not fraud, it's the need for good labeling and properly informed consumers.
- 10-01-2015** **Lawsuits.** We hearing about class-action lawsuits being filed on behalf of TDI owners. The legal action is to go after VW, to somehow help those diesel owners with the predicament they are now stuck in. It's really strange not knowing what they will be seeking. Online pop-up advertisements list details of the situation, but what to expect as an outcome is a bit of a mystery. There must be some filing deadline. With so much uncertainty and so many affected, the scramble is understandable. What can be done is anyone's guess. Clearly, this will cost VW far more than they are willing to spend. So, it does make sense that legal battles are being prepared. As an owner, I would simply want to continue driving the car I purchased operating the way it was delivered. Those after-the-fact alterations were never anything an owner would ever consider, especially knowing they will reduce efficiency to some degree. What an ugly situation.

- 10-03-2015** **Better.** The attitudes of those few antagonists we routinely battle on the big Prius forum are getting better. Today, it was: *"Of course hybrids will be part of the answer. But since they seem to max out under 4% market share, we need a better solution to pick up the slack."* My choice of rebuttal (to point out what better really meant) was: Speaking of making blanket statements... Drawing a conclusion already that hybrids maxed out is premature. Only now are other automakers working to deliver competitive offerings. Their participation is required for serious market expansion to occur. Up until this point, they've been mostly just watching Toyota to see how far the technology can be taken before investing on the grand scale themselves. Sure, anyone can make an expensive hybrid. Making one that is able to compete both in terms of cost, reliability, efficiency, and emissions is an entirely different matter. There's the economic principle of change to acknowledge as well. The general population waits years to purchase new technology devices. That's the way it is. They don't spend their money until the next generation has proven itself. For vehicle purchases, longer use-life and higher price-tag means decades of waiting. They expect product maturity before making a change. In other words, when the automotive industry shines their spotlight on plug-in offerings, it will indicate that hybrids are ready. This is why we thought the Volt enthusiasts as crazy when they expected sales to be competitive just 2 years after rollout began. Coming from a Prius background, we already knew there was a decade wait for it to even be considered a viable purchase choice. Sure, the technology worked, but ordinary consumers simply wouldn't be interested yet. Gen-4 of Prius will be the first to reach out into middle-market, hoping to attract buyers here who would otherwise just purchase a Corolla or Camry. That's a hefty goal, but it's a big step contributing to the shift away from traditional offerings. Reaching out to those buyers is vital, since the cars they purchase is where a bulk of the business-sustaining profit comes from. That's what will pick up the slack, not a better solution. As exciting as the newest technology is, it won't pay the bills. The so-called *"boring"* vehicles do, since they use refined older technology... which is produced in high-volume at low-cost... which makes it better.
- 10-03-2015** **Attack Ads.** We're getting misleading advertisements now. That's not an encouraging sign. From the one titled: "Chevy Volt Battery Technology: Time Capsule", here's a quote: *"This is the 2016 Chevy Volt. It uses state-of-the-art battery technology. The Prius uses battery technology developed 15 years ago."* The lithium-ion battery, which is what Volt uses, was commercially released back in 1991. That's 24 years ago. What else can be said. Newer isn't necessarily better for all applications and they certainly didn't explain why it could be in this case. It was just another older isn't a good attack, in this for of a television advertisement. I wonder what people seeing the commercial will actually think. Will they brainlessly fall for that? Will it result in more sales? Will they even care?

- 10-04-2015 Battery Cost.** Interesting discussions are emerging. Not all are well thought out, but at least there's attention getting directed in the right place. Who knows if it will make any difference. But at least cost are indeed going down, even if they are misrepresented or misunderstood. Here's a little bit of information to that affect: \$145 would be for the cell itself, not the casing, controller, or cooling. You also have to factor in a some amount for profit, since the final packaging obviously won't be sold for cost. \$200 has always been the magic milestone the industry has been shooting for. If that represents final consumer price, not production cost, it would seem that will soon be reached. The catch is, a price-point of that nature makes everything with a battery more competitive. (Remember, the NiMH patents just expired too.) That means ramping up the volume to make them a sustainable product, to break out of the niche. The big question comes down to who the expected buyers will be. The advertisements target those looking for a high-efficiency choice, not loyal GM customers. Conquest sales don't take the automaker to the next step, since their traditional production will continue on unaffected. The goal of replacement remains unfulfilled. Think about how important it is for the product-line to finally shift.
- 10-05-2015 Sonata Plug-In.** The official rating for the upcoming plug-in hybrid from Hyundai was just released. It will have a 27-mile EV capacity. There's a growing consensus that around 25 miles is the target to shot for. Remember how Ford strived for that? Heck, the thought is that Toyota will be too. Prius PHV had an original goal of 20 km. That was delivered precisely. The hope is for double that as a goal for the next: 40 km. That's 24.85 miles. Talking about close. Even the EPA has adopted that measure. 25 miles is now listed as a cost metric in the rating detail. It's a distance which takes full advantage of the capacity without requiring excess. Why pay for what you truly don't need? After all, we're talking plug-in hybrids, not all-electric. The intent is to use a highly-optimized engine. With the "*right size*" capacity, there shouldn't be a space sacrifice or the need for level-2 charging. In other words, this should be another one of the affordable choices that isn't dependent upon tax-credit subsidies. Hopefully, it will sell well.

10-07-2015 **No More.** It's over. There aren't any Volt enthusiasts anymore. Remember, they were those how saw the plug-in hybrid as the ultimate solution. Not only was it "*vastly superior*" in ability, it was also so compelling that high-volume sales would come easy. We had to endure their hype for years. Then when rollout began, the situation turned into disaster. Reality came crashing down so hard, the decision was to give up that fight and wait for the next. Everything would be resolved when the next generation came to be. There was to be a miraculous cost-reduction. They declared the goal of \$10,000 less achieved. That would have indeed made it a game-changer. Instead, we're hearing it turned out to be just \$3,500. The most common complaint of seating-room in back wasn't addressed either. Legroom was only increased 0.6 of an inch and headroom was actually decreased by 0.2 of an inch. Range was increased from 38 to 53 miles. The catch is, that sacrificed cost & weight. Turns out, it increases price too. Using an ordinary household sockets requires 13 hours for a full recharge. That means, if you go out anywhere in the evening, there won't be enough time to completely replenish capacity before you leave for work the following morning. Getting home at 10:00 and leaving for work the next morning at 7:30 is only 9.5 hours. You have no choice but to invest in a level-2 charger. Do you have a 220-volt connection available in your garage? Then of course, there's the competition. Volt was supposedly targeted at EV buyers. GM is really ramping up the publicity for Bolt. It will is expected to be available a whole year before Tesla's model 3. As an article on the topic recently stated: "*Volt will struggle to find an audience.*" It drives well and owners will be happy, but there simply isn't a draw. Even the look makes it just blend in. Those high-range EV offering completely overcome the range-anxiety concern. Volt is already trapped in a niche, nice for commuting but too expensive. And since there's no one hyping it up anymore, it's over. No more. We'll just have supporters who are interested in plugging. Rhetoric will still be stirred, but that continuous source of meritless cheering is gone. Yeah!

10-07-2015 **Getting Weird.** With Volt out of the picture and diesel for passenger-car use quickly soured, we are left wondering what comes next. VW has withdrawn their EPA application for 2016 diesel models. They simply won't be any sold here this coming year; instead, there will be massive recall effort. The latest is that some of the vehicles will also require injector replacement, not just emission equipment. Think of what that will do to mechanic work and resell value. What a mess. It's becoming somewhat of a concern too. VW is offering an incentive of \$2,000 to current owners to get them to purchase a 2015. There's a long list of vehicles eligible. The catch is, it excludes the hybrid. What does that tell us? Like Volt, there's the struggle to find an audience. What exactly do they want to sell going forward? With Tesla having made a big splash lately and both diesel along the so-called EREV sunk, it's an interesting new market. When details of the new Prius are finally revealed, we'll be looking at a reset situation. Starting over sure wasn't expected. We'll get to be part of the rollout with a fresh audience. What a great thing to look forward to!

- 10-08-2015** **Spin.** This post speaks for itself: I see a lot of effort being expended to evade the timeline. Those doing that want to draw a conclusion now, based upon work in progress rather than waiting. It's quite telling. The fuel-cell project has long-term goals. Along the way, of course there will be some gains & losses. That's how development on that scale works. You build test vehicles. Takes what's learned from them, then improve. Involving governments & consumers in real-world data-collection is a vital phase. But every time something like that emerges, the antagonists pounce. We've seen the same thing happen with Prius PHV. Consumers were offered the opportunity to join in on the limited-market rollout. We all knew it was a mid-cycle upgrade. We all knew the next would be improved and offered to wider audience. Toyota knew those willing to spend the money right away would be ideal candidates for early purchase. It's quite obvious the data collected from that will go a long way toward reinforcing success of the next. Notice that neither had a large production planned? Unlike Volt, which had a mainstream volume goal set for the second year, these were clearly stated as limited quantity & location. The spin of trying to make them more than they actually are isn't constructive by any means.
- 10-08-2015** **Religious Fights.** Looking back, the whole situation looks quite crazy. I'm amazed at what we had to endure, for no reason. There are a few of us who fought. It was, as many have stated, a religious crusade. The devoted simply would not give up under any circumstances. They stood strongly behind what they believed, even when evidence started to raise question. Who knew it would fall apart like this. I couldn't help but to keep the very active discussion filled with comment: That religion was quite intense. We fought the diesel people for years with their cherry-picked data. It never made any sense. Their technology barely passed emission regulation minimums (which now we find it didn't). Ours was far cleaner, earning a PZEV rating. Ours could also be augmented with electricity to deliver even higher efficiency and lower emissions. Yet, the fight continued on anyway.
- 10-10-2015** **Missing The Point.** It's an on-going problem. Some people focus so intensely on just the facts presented that they simply refuse to acknowledge anything else is important. It's rather maddening at times. They've made up their mind and just plain don't care that something could have been missed. So, the big picture continues to be disregarded. That's sad. Oh well. All you can do is present the information: Toyota's choice to "*right size*" the battery is still a wise one. They didn't sacrifice cost. That meant they could deliver something profitable & affordable without requiring subsidies or upgrades. Then when the technology allowed, they could deliver a larger range. GM did the opposite, gambling that they'd be able to have a competitor right away. It didn't work. Yet, they get credit for having made a better choice anyway. Admitting the challenges to meet still, they set a goal of reducing cost by \$10,000. That didn't work either. The reduction of \$3,500 while improving a variety of things is noteworthy, but still falls short of the need. It's really unfortunate so many continue to disregard need (replacing the fleet) in favor of arguing specific performance statistics. Selling a small number of conquests without changing loyal customer purchases misses the point.

10-10-2015 **Like In School.** If you don't do what was assigned, no matter what you deliver, it will be incomplete. GM thinks it can change the game... quite literally, but giving the "*game changer*" label to Volt. They felt some wants would justify not fulfilling need, since that would supposedly draw much stronger sales. That's what supporters hyped for years, both prior to rollout and following. The approach fell apart though. Sales did not materialize. Instead, it turned into a long struggle to retain attention. After awhile, people stopped caring. Volt has turned into an expensive offering for very few as a result. It works. In fact, both enthusiasts and owners couldn't be happier with that aspect. But since the assignment was to achieve mainstream sales, homework is far from complete... as with the analogy I provided: The assignment was to deliver a high-efficiency, low-emission, profitable vehicle for the masses. No amount of reasoning will earn the homework turned in an "A" grade, since that need remains unfulfilled. In other words, the goal to replace traditional vehicles is how success is measured. The point is to please ordinary consumers, not enthusiasts. The vehicle of change is the one people purchase in large quantity, not one that only wins engineering praise. It makes no difference what words are exchanged here. What happens on the dealer's lot is what counts. That's how the business is sustained. It's why none of the arguments that don't include all aspects of the purchase decision fall apart. Know the audience. Know the goals. Again, what was the assignment?

10-11-2015 **Complexity & Detail.** I particularly liked this perspective: "*People can make a case that the Volt might be lower total cost of ownership than a Prius but the details of that message are way too complex for the average buyer. It involves a discussion of gas prices, electricity prices, EV range, mpg, and driving patterns. Few want to delve into those details. All they see is the price tag.*" Being constructive can be quite a challenge. Then even when you do come up with something informative, the antagonists will just quote you out of context anyway. And sure enough, that's exactly what happened when I replied with this: It's even more complicated than that. Gen-2 owners will have no choice but to purchase a level-2 charger. Overnight is not realistic if you have any kind of life after work with just a level-1. A full recharge with level-1 takes 13 hours. If you have to leave for work by 7:30 AM, you have to make sure to start recharging by 6:30 PM. That means no going out after dinner to have that full EV experience they've been promoting so heavily. The price of a level-2 charger isn't ever included in any of those number spreadsheets. That combined with the cost to add a 240-volt line to your garage for the install isn't ever included either. It's another up-front cost most people are clueless about. So, making that case is really a challenge. And that's just on paper. In person, no matter how nice the driving experience is, the passenger experience is an entirely different matter. Volt is a compact. Prius is a midsize. That difference is quite obvious when sitting in the back seat. Yet, that doesn't get accounted for in ownership cost. That price tag gets ugly when the tax-credits expire too. With the way GM is now promoting Bolt, it's easy to see those credits getting used up long before the product-cycle ends. How will they competitively sell gen-2 Volt profitably and at high-volume without the subsidy? The situation just plain doesn't add up.

- 10-11-2015** **Misses The Point.** Is it worth summarizing at this point? Probably not. Moving on will take far more than just the hope certain outspoken individuals have. It's the quiet crowd this was more for, those many who lurk rather than participate: Toyota's choice to "*right size*" the battery is still a wise one. They didn't sacrifice cost. That meant they could deliver something profitable & affordable without requiring subsidies or upgrades. Then when the technology allows, they could deliver a larger range. GM did the opposite, gambling that they'd be able to have a competitor right away. It didn't work. Yet, they get credit for having made a better choice anyway. Admitting the challenges to meet still, they set a goal of reducing cost by \$10,000. That didn't work either. The reduction of \$3,500 while improving a variety of things is noteworthy, but still falls short of the need. It's really unfortunate so many continue to disregard need (replacing the fleet) in favor of arguing specific performance statistics. Selling a small number of conquests without changing loyal customer purchases misses the point.
- 10-11-2015** **Oh well.** What else can you say? I'm now witnessing the same "*cornered animal*" reaction. It's the behavior an enthusiast exhibits when having lost the fight, at that point when there's nothing else left. They'll lash out anyway they can. It most common comes in the form of a long, well thought out response. Complete with detail, it looks worthy of thoughtful reply. But in reality, it's an elaborate effort to evade. That's all they can do at that point. You've pointed out goals not achieved. They hear "*failure*", even though you never actually say it. What they supported did have the desired results. In other words, it failed. They'll spin & argue as much as possible. That will eventually turn hostile. The attacks will become pitiful & pointless. Going down with a fight is much better than admitting defeat... in their minds, anyway. I don't want to be part of that, yet again. So, I just wandered away with: It has been interesting to watch history repeat with such predictability. You wouldn't expect so well of a match. The same reactions from the same questions, despite different participants & circumstances. Recognizing the pattern means knowing the outcome. So, there's no real reason to continue. You'd think lessons of the past would have more of an influence. Apparently, that's not the case.
- 10-12-2015** **Greenwashing.** We're seeing the same old tactics return, again... Evading business goals. Quoting out of context. Vaguely implying someone else's references are yours. Pretending the market of the past was the same as it is now. Claiming the timeline was planned all along. Contradictions of previous statements. All that is so predictable and so easy to see. Yet, they do it anyway. The antagonists know they've run out of hope. There's nothing left to hype. It's that cornered animal response. Pushed any harder, they'll just lash out at you with personal attacks. Long story short, Prius PHV endured the greenwashing. Staying true to need allowed it to survive. Volt, on the other hand, catered to want. That made a mess out of things. Business cannot sustain on just that. Far too many consumers purchase based on need. That's where profit to sustain comes from. It's not as exciting as engineering. In fact, many call that dull & boring. Oh well. They learn the lesson the hard way.

- 10-12-2015 Lesson Learned.** The timing of this couldn't have been any better: *"If you're looking for sales, and I'm not sure GM is all that excited about selling the Volt, you want to look where you can get some volume."* This too: *"Pretty sad that, five years after introducing the Volt, GM is still flailing about."* Both quotes came from a single post. It was a short & sweet set of statements from one of the most *"vastly superior"* supporters. Put another way, it accepted defeat. Remember, that battle isn't Prius versus Volt, it's Volt versus Malibu, Cruze, and Equinox. GM's own loyal customers chose to continue buying traditional vehicles, rather than the fancy new EREV. The option offered for greatly improved efficiency simply wasn't appealing enough to get them to switch. GM knew it had a serious problem. That's how the Malibu hybrid and the CTS plug-in came about. Volt will continue on as a specialty vehicle. After all, there's nothing wrong with selling to enthusiasts. Corvette & Camaro have been that way for decades. Trouble is, they don't pay the bills. Business sustaining profit comes from high-volume sales... those ordinary vehicles, like Malibu, Cruze, and Equinox. It's what I've been saying since long before Volt was rolled out. Too bad certain individuals chose not to listen... until now.
- 10-13-2015 How?** Rather than asking the *"Who?"* question anymore, it has now changed to *"How?"* I expect much of the same behavior in response. No matter how objective you try to be, the emotion clouds judgment. That's too bad. Oh well, at least I try: Volt is experiencing an identity crisis. It attempted to dethrone Prius by becoming a popular seller among GM customers. That just plain didn't work. So, focus was turned to conquest sales from outside the loyal buyers instead. That didn't work either. Gen-1 just flailed about, not drawing attention beyond enthusiasts. That leaves us wondering what the changes are. What should we expect? Suggestions from devoted supporters were taken and a mix of them fulfilled by Gen-2. That spelled trouble immediately upon reveal. Even though performance aspects had been enhanced, the simple consumer needs of cost reduction (for lower price) and more interior space (rear leg & head room) were obviously not a priority. We're seeing the fallout of that already in the form of disappointed posts by those supporters. Meanwhile, marketing is a becoming disaster. The compact size prevents it from competing with the very electric-only vehicles Gen-2 hope had been set on. The upcoming competition (Bolt) is causing direct contradictions of what previous promotions had emphasized. The design of the gas-engine & gas-tank conflict with the message that either will be needed in all but rare circumstances. Meanwhile, the two types of offerings Volt was to prevent from being needed (hybrid & EV) are progressing toward availability next year. It's a big mess. How do you sell a vehicle that doesn't target any specific market?

- 10-13-2015 Hypocrites & Greenwashers.** They really stand out. With comments like this though, you have to wonder: *"The Volt is a transitional vehicle that bridges the stark divide between gasoline engine cars and engine-less cars at a reasonable price while retaining all of the advantages of full power EV driving, a path forward for efficient carbon reduction, and fast refueling on longer trips without need for massive new infrastructure."* What the heck was he really trying to say? Since it is sales which measure the progress forward, the purpose of a vehicle doesn't matter much if it only looks good on paper. The difference is made in neighborhood driveways and local streets. Without actual purchases by large quantities of consumers, what's accomplished? I chose my words carefully: Gen-1 Volt pointed out that "reasonable" price only applied to early-adopters, that even with tax-credit help sales were a struggle. Gen-1 also revealed that full-power EV driving wasn't the big draw, that people were more interested in using as little gas as possible. Gen-2 Volt offers greater EV range, but at the tradeoff of cost, weight, and size. That makes it a harder sale compared to the larger plug-in hybrids offering less capacity and highly-efficient blending. If you don't drive far enough to take advantage of Volt's entire battery-capacity, what's the sales draw? Gen-1 PiP demonstrated that faster engine shut-off was what owners most wanted. Their goal was to significantly reduce gas consumption, not to use as much electricity as possible. Seeing the benefits of blending made that easy. MPG was well above what a regular hybrid could deliver. Keeping engine use brief was key. Gen-2 PiP will deliver an engine even more efficient along with some level of increased battery-capacity. That will draw interest. Keeping cost as a high priority will allow it to be competitively priced. We'll find out next year what the targets were. The point is, it too is a transitional vehicle. As always, the catch is how many the automaker produces & sells. Technological achievement is validated by consumer acceptance, not engineering praise. Put your way, the bridge is only effective if people use it to cross. It must be used. Automakers are in the business to make money... which is what Gen-2 is supposedly for.
- 10-16-2015 This Week, diesel.** Looking back, it was quite a week. The disaster with VW continues to get worse. Most of the diesel updates here in the United States will require extensive work. Harm to reputation, not to mention resale value, is profound. With so many cleaner and more efficient choices emerging, there's no real hope for diesel anymore. There's simply no way to compete. Part of the growing trouble comes from the proposed solution. It involves the very thing I complained about many years ago: AdBlue. That's the urea liquid product used to treat emissions. Turns out, even the systems currently using it weren't squirting enough out to reach the level of cleansing required. Having to bring in your car to the dealer more often is something VW was attempting to avoid. Now, they'll have even more dealing with this new problem, since the diesels without that tank & sprayer need it too. Things just plain did not add up in the past. Finding out later that diesel owners who had harassed hybrid owners had been deceived is quite odd of a situation. They didn't question the facts we had disputed. They had cherry-picked data in their favor too. The final victory is hurtful to those who didn't participate in that. They are true victims. So, it is best to simply move on... just like with all the other wins of the past.

10-16-2015 This Week, anti. There are some who thrive on debate. They really don't care what you say. Their responses are to provoke discussion. So, by their very nature, the language is vague & ambiguous. That draws a lot of posting. The most recent has been implying that if you're in favor of NiMH batteries, you're against Li-Ion. Their intent is to polarize. The idea of a variety of choices being available, rather than one being an obvious successor, is something they can't handle. Diversity is not welcome. That's sad. Toyota is going exactly that direction too, offering choice. They clearly despise that. This week, specs of the upcoming batteries were revealed. The regular (non-plug) Prius will be offering both NiMH and Li-Ion. One is less expensive and more robust. The other is cost more, but is lighter, smaller, and offers more power. It's an interesting tradeoff consumers have never been able to decide between. That's coming next year. Coming next decade is the choice between electric-only and fuel-cell. If you're in favor of one, the antagonists present it as you are against the other. They hate the idea of co-existence. The very idea of apartment & condo dwellers not having access to a plug infuriates. EV is the only solution as far as their concern. Hydrogen, regardless of source, is considered a waste. That's sad. What I find amusing though is the attempts to misrepresent. Someone pointed out how I was against fuel-cells, but now in favor. They absolutely refused to acknowledge that my stance was taken well over a decade ago, based on the technology of the time. Things have changed dramatically since then. That exclusion of when was obvious greenwashing and he got caught doing it. Despite that, the effort to make that subject polarized continues. Endless online debate is what some enjoy too much to allow it to end.

10-16-2015 This Week, plugging. A meeting of the EV owners took place last night. As usual, we had a blast. That group is profoundly different from the troublemakers online. They readily admit shortcomings and welcome feedback. There is no brand loyalty. The effort is to promote cleaner, more efficient transportation. The fact that I have the smallest battery-pack doesn't matter, it's my effort to demonstrate how easy & affordable it is to achieve that goal. Size doesn't really matter. Heck, I'm typing this blog right now at the coffeeshop, which is 4.4 miles from home. I can reach it and travel back, using a 55 mph road, entirely with electricity. Goal achieved. No need for greater capacity in this circumstance. This group clearly understands how power & capacity will just naturally improve as the years pass. Heck, there were a few who have upgraded from older models. We heard stories of both Leaf & Volt differences over the years, despite being the same generation. That leaves them with a very objective look at the next plug-in Prius. They see the potential. None of that arguing we experience online ever happens in person. When we meet, discussions are about how to better educate. Our preparation is paramount. Quibbling over obvious shortcomings doesn't achieve anything. It's all about recognition of goals. They want the masses plugging in.

- 10-17-2015** **More Detail.** Those little tidbits of new information continue to trickle in. The latest is finding out there's a MPH bump up with the top EV speed for the plug-in model. True, you're better off in many cases using boost instead. But nonetheless, the faster does offer greater flexibility. For now though, it's mostly just speculation: *"Or, if we take the PiP as the half-generation improvement, it's 100km/h to 110km/h :) I know, it doesn't sound as impressive. It could also hint at the capabilities of the PiP since (it's safe to assume?) it'll use similar hardware to the Gen 4."* That's fun to ponder nuggets of knowledge we stumble across. Eventually, we'll nail down fact. But in the meantime: At the local EV club the other day, we had an extensive discussion about tweaks Nissan did to Leaf over the years. The 2015 drives much better & further than the 2012, despite being the same generation. Engineers were allowed to release an array of updates along the way. It's quite realistic for us to see a collection of performance improvements with the next Prius PHV. Toyota never stopped research & development, despite what the naysayers spin. Too bad so many people get hung up on maximum ratings. As a result, they totally overlook actual utilization. Put simplistically, what is the point of a 60kW rated electric-motor when you only have a battery-pack delivering 38kW of electricity? Making the two better match is an optimization easily not recognized. Yet, things like that are what contribute to overall improvement. We already know the engine has been improved, delivering a 9% gain in the winter. That's a big deal. Some will complain anyway, focusing on the fact that the engine still runs at times... even though the resulting efficiency is noticeably better. Both the regular model and plug-in will benefit. It's a well thought out, versatile design. We have many things to look forward to.
- 10-19-2015** **VW Electrification.** The only true option Volkswagen has at this point is to embrace hybrids and plug-ins. No amount of damage-control can help them beyond just recovering to status quo. They need something to break pass that. Even with a restored reputation, diesel simply cannot compete. The Prius PHV that I drive now has been averaging 73 MPG over the past 65,000 miles. It's quite obvious the automaker must take a step forward. The question now is: how far? We have already seen a variety of prototypes from VW. Heck, they even sell a hybrid. None of that was taken seriously though, since diesel was king. But not much more can be squeezed out just an engine alone. In fact, the current MPG was achieved by cheating. It's quite clear to everyone that a dirtier system can be more efficient. Sacrificing of gas for the sake of cleansing isn't something Toyota got much credit for. But now with the mess VW created for itself, there's new attention to non-carbon emissions... the kind that contribute to smog. Oh well. Better late than never.

10-20-2015 **To Summarize:** GM created Volt based on want. Executives & Enthusiasts expressed their desires and many were fulfilled. It was an engineering achievement worthy of praise. Awards were presented. Celebrating lasted for awhile. Then, reality set it. There was recognition that business need had been sacrificed. No worries. Gen-2 would address the goals which remained outstanding. All we had to do was be patient. To everyone's surprise though, the plan changed. Volt would remain the premiere vehicle it was designed to be and other vehicles would satisfy need instead. Suggestions to diversify would be taken, the very approach which had been strongly outspoken against would now become the plan. Rather than focus entirely on a single solution, Volt would be complimented by an EV, a plug-in hybrid, and a regular hybrid. Toyota stayed true to business need. That's why Prius was constantly the source of comparison. Even though Volt was declared "*vastly superior*", it could never escape being compared. And now that details of gen-2 plug-in Prius are being revealed, Volt enthusiasts are doing everything they can to avoid discussing it. That's quite telling. Still only including the regular Prius, how could that possibly help Volt? GM's own offerings... Bolt, CTS plug-in, and Malibu hybrid... will get more and more attention if that type of misleading continues. People will see the omission and move on. There's want & need, two very different things with very different priorities. No amount of spin will prevent the facts from being discovered. Let the data speak for itself. Geez. Different people have different priorities. But one thing is the same for all, the business must sell vehicles in high-volume at a profit to continue paying the bills. That's paramount to want. Need always wins in the end.

10-22-2015 **Progress?** We're seeing hints of it emerge. Comments like this are helping with the move-on process: "*My main irritation with the Prius is the EV mode is completely anemic. You can't accelerate at all (not even normal acceleration) in EV mode or it turns off. There would be a lot to gain in MPG if they had a usable EV mode.*" Dialog of that nature wasn't possible in the past. Even now, it still comes off as condescending. But carefully read, there's a little bit of a constructive element to work with. So, I took it as an invitation to inform: You just described the PHV model. Having a larger battery-pack and plugged-supplied electricity increases EV power quite a bit. I climb steep residential hills and accelerate onto the local highway (55 mph) without triggering the engine with my 2012. Here's my stats: 65,124 miles; 890 gallons; 5,535 kWh; 73.2 MPG. That's 3.5 years of ownership in Minnesota, where winters are quite harsh. So as you could imagine, that 9% increase in hybrid winter-operation efficiency from gen-4 will be a nice upgrade. Also, note that the gen-2 PHV will raise the top EV speed from 100 km/h (62 mph) to 110 km/h (68 mph). Above that speed, you'll still have the boost (electricity being used to allow the engine to run at a lower RPM for better efficiency).

10-26-2015 Contradiction, observation. The time to draw a conclusion has arrived. We're seeing the next step forward take place. But with progress, there comes winners & losers. The EV was argued against intensely. Volt was superior to Leaf, period. It was perplexing to witness such self-deprecating arguments to take place. How could the advancement of battery technology allow Volt to be competitive? The inevitable cost drop would make the electric-only choice more appealing. It was a simple matter of increased range. No more range anxiety. The approach Volt took was a dependency on batteries being expensive and low energy-density. An improvement in either would favor the EV... as well as the plug-in hybrid, which use a smaller pack and deliver high efficiency even without plugging in. Unlike BMW's i3, which uses a small engine & tank with a much larger battery, Volt was this odd configuration stuck in the middle. We watched an identity-crisis play out. Who would the gen-2 be for? With Nissan, Tesla, and even GM striving for 200-mile ranges that are actually affordable for middle-market buyers, the audience for Volt remains a mystery. That's where the contradiction comes into play. We're seeing certain individuals now say that the Bolt was expected all along, that Volt's purpose was to usher in EV choices. That most definitely is not what he said before. Contradicting their own claims is an implicit admission of defeat and an effort to move on. Cool.

10-26-2015 Contradiction, statement. This is what I ended up posting, on what used to be a daily blog for Volt: There was a strong fight against the BEV, plug-in hybrid, and hybrid. Don't remember how intensely those concepts were disliked? The very idea that they are now being embraced is quite a shift, to the point of being contradictory or even hypocritical. Voltec was the only approach to be followed. Nothing else was needed. We heard that sermon preached hundreds of times. Nissan was looked down upon, with great emphasis on "*range anxiety*" fear. Yet now, Bolt is accepted as a sensible move. With Bolt and Leaf and Tesla becoming the choice for those wanting to abandon gas, it leaves us wondering what the appeal of Volt will be. Why would you want a full size gas engine? What the heck is the 8.9 gallon tank for? How will ERD TT be explained as an EV feature? Ironically, the lashing out at those who were correct about how this would play out is the very thing holding back progress. Are they really going to repeat mistakes of the past again? The most obvious problem is the evading of goals. What the heck is the purpose of Volt? How does that fit with the rollout of Bolt? Why will Malibu hybrid be offered? It's the supporters who make a difference. Their purchase & promotion is what entices others to seek learn more. No clear message about Volt hurt gen-1 sales. It was a chaotic mess. Ordinary GM customers simply weren't interested. What will be the gen-2 draw?

- 10-27-2015 That Never Happened.** Confirmation of having entered the next chapter in this history was surprisingly obvious today. There was outright denial of any type of fight against diversification from ever having happened. It never did. Period. They claim to have absolutely no idea what I'm talking about. And yes, their own quotes to prove otherwise are easily found here in these blogs. What's the point of bringing any of that up though? An empty victory is still a victory. It's their way of moving on. We're not looking for spoils anyway. And for them, rather than trying to play the victim-card or hearing any more of the fruitless excuses, it's denial. Ok. That works. It's hard to believe the end has come. It's finally over. We had the one-size-fits-all attitude for so long, gambling business need by focusing everything on engineering. That failed... miserably... again. Two-Mode was the first to crumble. Volt is now the second. No other automaker hypes to that extreme or has enthusiasts who blindly celebrate like that. In other words, this is how a financial disaster plays out. You don't even bother to count your losses. You simply move on. That never happened.
- 11-02-2015 EREV vs PHEV, horsepower.** I wondered how long it would take for this nonsense would begin. When all else fails, labeling is the default argument. The latest spin is that more horsepower will win consumers over. Ugh. Don't they study the market at all? I sounded off with: How is that any different from comparing a traditional vehicle offering high horsepower? Even though they've been available for decades and clearly deliver a much more responsive drive, people continue to purchase the lower horsepower offerings anyway. It's easy to entice an enthusiast. Getting someone who is perfectly happy with less power and unwilling to spend more for it is a major challenge. That's why all the attempts to establish EREV versus PHEV categories haven't made any progress. As far as mainstream consumers are concerned, the difference doesn't matter. The criteria is arbitrary to them. They see purchase-decisions factors like PRICE, MPG, and SIZE as more important. They aren't going to be dropping the pedal to the floor. They aren't going to cruising at speeds well above the legal limit. They aren't interested in sport handling. Mainstream buyers have different requires. It's that simple. Know your audience. PHEV still deliver electric-only driving, just not under times of high demand. The gas engine assists.
- 11-03-2015 EREV vs PHEV, simple.** They weren't happy, not in the slightest. So, I fired back: The effort to separate EREV from PHEV has failed miserably. The criteria has been arbitrary. Nothing has been achieved by the labeling approach taken over the past 5 years since rollout began. Some of those claims of the past were contradictory too. Outlander offers 32.5 miles of EV range CT6 is expected to offer 34 miles. Prius PHV gen-2 offers 68.3 mph EV top-speed. C-Max offers 85 mph. How do those "weak" and "limited" criteria apply for PHEV? They resemble EREV when rolled out. It would have been far more effective simply stating the engine differences instead. EREV uses a standard engine as a backup to alleviate range-anxiety. PHEV uses a highly-optimized engine to supplement clean & efficient driving. It's that simple.

- 11-05-2015 EREV vs PHEV, engine.** That exchange the other day was intense. I knew revealing shortcomings in their claim would do that. It's how you confirm & refine. The feedback is quite valuable. Promotion of a technology becomes easier and easier as exchanges like this take place. So, I dove at the opportunity to sound off to this: "*The green media insistence on not accepting the EREV designation and not highlighting Volt's full EV capabilities vs. ordinary PHEVs (this appears to be changing).*" You could imagine my excitement to comment and the desire to want to post the descriptions again: That's because the category criteria has been so arbitrary and over time has become contradictory. The approach taken over the past 5 years to differentiate has clearly failed. Factors like short-distances, suburb-speed, and freezing-temperatures are fundamentals problem were not taken into account. They contributed to the confusion and lack of acceptance. It's time to move on and try a new perspective, one that actually informs about the non-electric side instead. Simply point out how the gas engines differ... EREV uses a standard engine as a backup to alleviate range-anxiety. PHEV uses a highly-optimized engine to supplement clean & efficient driving.
- 11-05-2015 EREV vs PHEV, emotion.** When the moderator post this, it's a golden opportunity: "*People can get emotional about these subjects.*" That was in response to the personal attacks that resulted from my previous post. Rather than trying to be even remotely constructive, it was an all out attempt to shoot-the-messenger. That's the confirm I was looking for. Not wanting to address what was posted in any way can indicate you identified the issue correctly; otherwise, they'd try to spin it in some way. Instead, it was the blog's webmaster adding his observations. I followed with: It's quite interesting to observe how riled up some people actually get. They'll even lash out with personal attacks. Meanwhile, the rest just wait, knowing it will eventually pass. Studying automotive history, you'll see the early hybrids went through basically the same thing. Civic was an ASSIST type hybrid. Prius was a FULL. Explaining the difference over and over and over again educated supporters, but did nothing to reach ordinary consumers. Seeing that, some supporters stopped providing the complete definition. They focused on just a single trait instead... hoping that would reveal the distinction better. It didn't. The same thing is playing out again. As much as the "*full electric*" seems an appealing draw, it really hasn't amounted to much. To make any new technology the next standard, mainstream buyers must show interest; instead, they've shown they simply don't care. After all, they have no idea how their current traditional vehicle works. Heck, with gas now below \$2 per gallon, why would they bother to find out? Know your audience. Ordinary consumers will do the same now as they did in the past. Engineering detail will get lost in the search for a good all-around vehicle. They'll continue to focus on the basics. The difference between EREV and PHEV is only a technical specification anyway. The average joe will see that efficiency is at the top of the 100 MPG scale while cruising at 65 mph. They won't care whether or not the engine is running. Forgetting to plug in after getting back home is the only real concern they'll ever have. Gas consumption will be significantly lower, regardless of what happens under the hood. All plug-in hybrids deliver outstanding MPG. The augmentation of battery with plug is quite obvious, a draw to even the most untechnical shopper. I filled my tank today. 7.024 gallons of gas took me 746 miles. Sure, I could point out the 81 kWh of electricity consumed displayed on the dashboard. But we know they won't be interested. They'll only want to know about the resulting 106 MPG. The next-generation promises to improve upon that, which is what consumers will be interested in... not a branding or category label.

11-06-2015 EREV vs PHEV, same page. The previous night's posting went well. This morning, it was this to stir the post: *"People made fun of the GM 2-Mode hybrid trucks and made the "I told you" comment when they stopped making but it appears GM never gave up and now we have the wonderful Voltec II power train."* What a great way to blur the supposed line between EREV and PHEV. These exchanges are proving to be fruitful. Evading certain realities is becoming more and more difficult. I was happy to contribute to that: Many, many here made the claim that Volt was a fresh start, a completely new design that should be treated as first-generation. They absolutely refused to acknowledge any of the expertise gained from EV1, Two-Mode, and BAS/eAssist was part of Volt. It was delay-tactic to make us wait for Voltec-II before placing judgment. We saw what was really happening. We knew Volt was really a second-generation Two-Mode. The reason for that friction was simple: COST. It was a major risk for GM to attempt to deliver an end-product first, then use subsequent generations to find a way to reduce cost. As a result, Toyota's approach was ridiculed & belittled to no end... always excluding cost-consideration in those claims. In reality, Toyota made the choice to offer more as cost permitted, improving each generation along the way instead... the opposite approach from GM. The end goals are the same and always have been. The difference is one depended heavily upon gas prices remaining high and tax-credits being generous. The other did not. It's really unfortunate so many fought so hard against what ended up happening anyway. Product diversity is absolutely essential for business-sustaining profit. Those *"one-size-fits-all"* arguments look silly now that GM is indeed delivering a hybrid and a plug-in hybrid, in addition to Volt. Oh well. At least we're all on the same page now.

11-06-2015 EREV vs PHEV, the past. It becomes very easy to validate the next chapter is going well when the past changes. Saying that another way, spin is in full swing now. Rather than claiming whatever didn't happen, those who supported that thing which failed to reach its goals will alter perception of prior events. That's why I document things in such detail as they happen. Referring back to them later, with written record of what actually played out along with the reactions at that time, is quite vindicating. After all, this isn't rocket science. For that matter, it isn't even science. It's just basic business. For a product to continue, it must achieve self-sustaining profit. That simple fact meant reality would eventually catch up with even the most stubborn of deniers. In this case, it's the disassociation of Volt with Two-Mode. I had to endure years of claims that they weren't related in any way, that Volt was truly a first-gen vehicle with nothing from the past contributing to its rollout. That continued too, right up until the details of the second-gen were released. That seemed a bizarre stance to take. Why wouldn't you want to build off of the past? That answer is obvious if you know the history, the past before this past. Two-Mode was expensive and not as efficient as hoped. Sound familiar? That's why so much importance was shifted over to gen-2 of Volt, that upgrade would overcome the shared shortcomings. Problem though. Seating space in back didn't increase, a request countless many made over the years. Cost didn't come down anywhere near as much as hoped, still not achieving the goal set for back in 2010. Improvements focused on engine & battery, nice generational upgrades had the other goals also been addressed. Instead, emphasis was on power... a quality no one ever complained about. In fact, that was a factor often praised. Why spend so much on something already meeting expectations well? Didn't any study the past?

- 11-07-2015 Irony.** By far, the most common insult to Prius PHV from Volt troublemakers was the supposed fact that it was just a "*compliance*" vehicle. That's a vehicle built for the purpose of earning EPA credits... practice used to offset emission shortcomings from other vehicles in the fleet. This was a big reason why they absolutely hated when I'd point out sales of other GM vehicles. Anywho, we know that the effort from Toyota was to advance the technology by real-world data collection. They needed to better understand how a plug-in hybrid would actually be used. Getting that type of feedback from consumers is priceless. It gives you a very good idea what to invest in for the next generation. That's why both GM and Toyota offered free connect service for 3 years. It's how the data was collected. Every single vehicle sold was routinely delivering lots and lots of driving detail. With that, you'd expect the next offering to better match consumer need... rather than want. Ironically, the revelation from that data was that consumers desire an all-electric driving experience... in other words, a system without any engine at all... not Volt. That's how Bolt came about, an approach GM was dead set against only a few years ago. Even more ironic is the reality that the new Volt is currently limited to "*compliance*" markets. Having availability of a premiere product match the very thing troublemakers had used as an insult in the past is quite humbling. No one should wonder why Toyota tries so hard to keep a distance. Being associated with the spin is good to avoid, especially when irony is involved.
- 11-07-2015 RAV4 Hybrid.** Patience is redeeming. Detail is now available. We now have something worthwhile to move on to. The AWD (all-wheel drive) RAV4 delivers 25 MPG combined (22 city, 29 highway). That's competitive with offerings of similar SUVs from other automakers. It makes the hybrid especially noteworthy. 33 MPG (34 city, 31 highway) is quite an improvement. That's the news we've been waiting for. 194 horsepower, 206 ft-lb torque, zero to sixty in 8.1 seconds, and a variety of goodies available... Pre-Collision System, Dynamic Radar Cruise, Lane-Departure Alert, Automatic High-Beams, and Blind-Spot Monitor with Rear Cross-Traffic Alert ...will make it a nice choice. It can tow too; capacity is 1,750 lbs. Starting price will be \$28,370 along with \$900 delivery. In other words, it will be very interesting to see how this new hybrid is received. With gas now \$1.86 per gallon in Florida, \$2.25 here in Minnesota, and \$2.45 on the West Coast, this hybrid will be entering a strange market. Having no competition helps. People know gas prices will eventually go up again too. We'll find out soon enough. Sales will begin in a few weeks.

- 11-09-2015** **\$500 from VW.** That's the offer TDI owners are getting. It's a prepaid Visa card they can use for anything, also included is \$500 of dealer service and 3 years of roadside assistance. But what kind of compensation is that? The very thing they purchased the car for (efficiency & performance) will be taken away. The conversion to become cleaner requires that loss. It's really sad... for the honest owners, especially since their resale value will plummet... far more than \$500. As for those who gloated about "*clean diesel*" and harassed hybrid owners, an apology would be nice. We put up with years of their dead-end nonsense only to find out we were right all along to question how their clean was actually achieved. It never added up. The approach seemed flawed and in no way guaranteed like the strict requirement for SULEV and PZEV certification. Simply meeting the minimum 50-state criteria was a weak attempt to be clean. And that was just clean enough to be compare with low-end gas cars. The ordinary ones, like Corolla, were clearly cleaner with their ULEV certification. Oh well. The truth has been revealed. We were correct. Of course, it didn't matter anyway. There was no way in the world a diesel-only car could possibly compete with a plug-in hybrid. My 73 MPG average is so much better than the 42 MPG some diesel owners were getting, it wasn't worth the effort to argue.
- 11-11-2015** **Shameless.** The topic of misleading through omission has surfaced again. Over and over and over again, we'd see some Volt owners gloating about their efficiency. Always being in terms of "*gallons*" and almost never hearing about "*kilowatts*" was frustrating. It was blatant greenwashing in the eye of many. Speaking out against that terrible behavior is happening a lot now. This time of change has some of the honest owners seeking a better way. Why the reputation of a few tarnish everyone else's? The unfortunate reality of it having been delayed so long is sad. We put up with that nonsense for years. But then again, so much hope was placed on gen-2 Volt, they didn't think having to play friendly with others would be necessary. That long sought after partnership is becoming inevitable. Many Prius owners were simply looking for an ally in the quest to squash traditional vehicles. We didn't expect a "*vastly superior*" conquest would emerge. Thank goodness that is over. Looking back, I state the situation as: Those particular owners had no shame. Even after terse exchanges many times pointing out the blatant misleading by omission, they keep doing it anyway. But what really soils the reputation of owners are the enablers who watch it happen time and time again, never bothering to speak out about the poor behavior. It's quite telling when you see that. A strong candidate for mainstream acceptance wouldn't rely upon such actions. The data should speak for itself. Using MPG alone doesn't tell the whole story.

- 11-11-2015** **Context.** It's fascinating to witness a foe trip over their own argument. In this case, it was the claim that I didn't provide context. What he meant was context for that particular comment. I pointed out the context of which the comment was actually made. There's a huge difference. He was treating the situation as if it happened today. I was more than happy to explain things were far from the same now as they were: Back then (late summer 2013) was a time of desperation for Volt hopefuls. Sales had not grown to expectations by year-end 2012. That meant the next 12 months were critical... and the first 9 had already went poorly. The attacks on Prius PHV had growth to an amazing level. Remember the effort to convince people that the entire plug-in capacity was only 6 miles? It was intense and an obvious sign things wouldn't get any better for Volt. The next generation was still 2 years away. Ford's Energi models were seeing growth. Leaf was gaining appeal, despite "*range anxiety*" and heat-degradation issues. Tesla was causing quite a stir. GM remained stubborn, insistent upon not offering an EV, any type of hybrid, or even a more affordable version of Volt. Inventory was piling up. The price got dropped by \$5,000. Sales didn't increase though. The "*who*" question was getting asked more and more. With BMW's i3 beginning to draw interest, there was good reason to wonder who Volt would appeal to. After all, early-adopter purchases were complete. Meanwhile, people were learning to tolerate the gas prices around \$3.35 per gallon as the norm. Remember what came just a month later? The disastrous second-generation BAS called eAssist was canceled and the Cadillac version of Volt was announced with a price of \$75,995. It was a mess. GM was betting the farm on Volt success. You can imagine the type of pressure that put on supporters.
- 11-13-2015** **Sonata Plug-in Hybrid.** It's available now. This offering from Hyundai come with 5 times the battery capacity. That 9.4 kWh is able to deliver an EV range of 27 miles. Pricing of the vehicle is \$34,600. Following depletion, the system is rated at 40 mpg combined. It should be very interesting to see how it is welcomed by our market, especially with Outlander and a new Prius PHV on the way. We wonder how Ford & Honda will respond too. As awareness & availability of plug-in hybrid choices grow, sales should pick up. It's such a painfully slow process to get all the automakers contributing. And of course, we have GM still sending mixed messages. Perhaps the isolation of Volt will allow the Malibu to reuse the CT6 plug-in hybrid configuration. Supposedly, they share the same hybrid system. Volt lacks the refined engine, so it should stand apart. Sonata seems to fit right in with the rest. That's a good sign. Hopefully, these crazy low gas prices offer a bridge to plugging. Rather than being in desperation, as back with the \$4 gas, we can get people to try them out without feeling like it's a big step. True, the 75 to 100 average MPG is a tough sell when gas is just \$2 per gallon, but at least opportunity still exists. It's not like there's an outright pushback anymore. The batteries themselves have proven themselves up to the chore.

11-15-2015 **Big Picture.** Even those attempt to be constructive sometimes miss the big picture: *"Hybrid tech germinated in the 20th century. They've ridden those coattails for almost 2 decades now."* He was attempting to summarize the problems with fuel-cell rollout, but didn't take into consideration the other issues we face. That's quite common of a mistake, especially when it comes to public funding. I interjected with the following: Plug-in hybrids (available at your local dealership) and lithium chemistries are still quite new, so are some technologies for combustion engines, like direct injection. Trying label something as old to downplay it won't work. You can't just turn a blind-eye to the heavy investment still taking place with traditional vehicles either. Also, notice where the oil industry is currently? The long timespan we enjoyed of relative stability is gone. A time of unpredictability has begun. We've arrived at the so-called "*peak*" everyone worried about. There's plenty of oil still, but getting it to consumers is a chaotic mess. There's missing & aging infrastructure. New pipelines will need to be built. We have no choice. Are we really going to ride the coattails of the 20th century with oil, repeating another 4 decades of what contributed to a planet now dealing with climate change? Wouldn't it make a whole lot more sense switching to a fuel that can be generated using renewable energy? We know that EV won't work for everyone. There are apartments & condos which clearly cannot accommodate plugging in. There are also countless old neighborhoods with detached garages and exposed power-lines that simply won't be able to handle the addition of large quantities of level-2 chargers. There's the reality that the oil industry won't give up without a fight too. There will not be a single solution for all. Having fuel-cell vehicles co-exist with electric-only vehicle will happen.

11-17-2015 Toyota Embargo. Patience is always required when it comes to Prius. This is especially true now. Tomorrow (well, actually very late tonight) we'll learn a lot more about the upcoming 2016 Prius. There were some people invited out to the West Coast to see it firsthand, ahead of the general public. They got a lot of information, including the opportunity to drive it and take video of the experience. The catch is, they have to wait for the official "ok" before revealing any of that. Toyota has an embargo; those who got to see it early are not allowed to release anything about that yet. So, we wait. The speculation is wild. A few minor leaks happened, of course. But we have no solid idea what to actually make of those incomplete tidbits. My guess is this generation focused on refining the system as a whole, rather than focusing primarily on efficiency. We know the platform will get a nicer suspension. The tradeoff is that costs more and it would add weight. It also has a wider stance and a lower center-of-gravity. That is what many had hoped, so... it would be great news to get a confirm. The system is likely more robust for plug-in support too. Even though the existing generation supported that already, there's always opportunity to upgrade. That's how technology progresses. Batteries, motors, controllers, and software all improve over time. It's a realistic expectation. How people react is an entirely separate matter. I'm quite curious about that. Remembrances of the 2010 bring back comments to mind about how radical is looked, especially the headlights. The back end is getting emphasis this time, though the front looks much more sleek. I like the new back. It really stands out, both day & night. That's the point. It's a family car that looks anything but, which will likely cause quite a stir. Critics prefer a traditional look, period. Breaking the mold with a radical look is too much change all at once. Fortunately, the critics aren't planning to purchase. Radical looks tend to grow on people over time. So, whatever the first impression, later on will be different anyway. I'm sure there will be some spin about MPG not being what was hoped for, even though we know there will be a standard and "eco" model, where the latter delivers exactly as anticipated. We'll find out those details soon enough.

11-18-2015 First Impressions. I did a search for newly published articles. The first I stumbled upon was from Detroit. It wasn't too bad. The observations were reasonable. I wasn't thrilled about the false information though. The writer made a comment about how the battery-pack had been moved to under the rear seats, so now the cargo floor could be flat. Ugh. It was always flat. He just assumed it wasn't. He also claimed this was the first Prius to offer a lithium battery. It's really the third. The one I've been driving (the plug-in model) for 3.5 years was first. The second was the 7-passenger wagon model in Japan & Europe. So, like I said, it wasn't too bad. To my surprise, the next article gave a "*pretty amazing*" comment about the rear lights. I guess the boring traditional look is on the way out. My only irk though came from Toyota itself. The rear legroom in back got reduced by almost 2 inches. Ironically, Volt supporters set the precedent for the smaller size, so anything they say would be a double-standard. I'm keeping my mouth shut, since they'll obviously try to spin it to make me appear hypocritical. Though, I could point out that front legroom increased by 0.7, making it 1.4 inches more than what Volt offers. Of course, they'll probably focus on the horsepower anyway. The new hybrid-system measurement give an impression of having been reduced, when in reality, we're getting ordinary incremental improvements where beneficial. That's what should be expected from generational upgrades. So, no change in 0-60 acceleration, but a noticeable improvement for 0-30 acceleration. We get active grille shutters now. There's a wide array of smaller improvements too. We'll find out more as the day proceeds.

11-18-2015 **2016 Prius Details.** Interesting timing. Along with the details we got today, we also got news of the price of a barrel of oil dropping below \$40. It hasn't been that low since 2002. As expected, the price of gas has dropped too. It is now \$1.99 per gallon here. Seeing that made quite an impression. Prius should be able to weather the pressure of cheap gas better than some other choices. Details of the 2016 model appear to confirm that too. The system will be getting generational improvements. The platform itself, that's different. Some improvements are rather dramatic. Rather than focusing heavily on efficiency, much attention was devoted to improving the drive experience. The stance is wider. The center-of-gravity is lower. The handling is more dynamic. Things like the new suspension in back make that obvious. Weight was traded off to make a car of greater appeal. Heck, even the look itself shakes the stereotype Prius itself created. It's not a sports-car by any means, but it is clearly not just a family transport either. As usual, it puts current owners in an awkward position. Prospective buyers on the other hand, they are quite different. There is much opportunity to take advantage of. It's like a fresh start, so much has been invested in making Prius draw in new interest. The plastic look is gone. The seating area is more spacious with the center console change and dashboard refinements. It's well thought out. Toyota obviously took suggestions from online comments very seriously. The consideration of what people were asking for, clearly outside of what the hybrid system delivers, is easy to see. That's a sign of maturity. Now that the original purpose of emission & consumption reduction has been achieved, it was time to focus on other elements even more... more so than some anticipated. But then again, with all the controversy related to MPG estimates, it's no wonder Toyota played it conservatively. Initial reports say MPG observed is much higher than we expect the official EPA values to state. More to come.

11-19-2015 **Hydrogen Traps.** Supporters of "green" are falling into them at a surprising rate. Rather than actually research their information, they just recite data of the past. They have no idea it's outdated. They have no idea it's limited scope. They even have any idea what the overall goals actually are. It's just "*electric is better*" chanting. So, when I get a post like this, I can't help but to be both amused & concerned: "*And you think building out a nationwide H2 network will be more affordable? lol*" His assumptions were obvious from the discussion, just blindly accepting claims at face-value. Much of it stems from not believing the co-exist is possible. It's a terrible mindset to assume only one solution will fit all. Yet, that's quite common. It contributes to the "*not reading*" problem. That's why some Volt enthusiasts only hear "*Prius*" even though the discussion is entirely about GM with no mention at all of Toyota. The same thing happens with "*affordable*" when it comes to fuel-cells. They don't bother to research existing infrastructure. They just assume existing electrical distribution is up-to-the-chore without the need for an overhaul... especially with at the level of expense some of us have already begun to deal with. Anywho, I posted: You clearly haven't actually read what I've been posting. There was no comment related to being affordable. It's taking everything affected into account. For quite awhile now, I've been saying that individuals, landlords, and private business owners aren't going to foot the bill. The large industries with something to lose will. They'll want in on the new fuel as oil demand falls. Think about how much easier it will be for those big players to setup that infrastructure, already having land, labor, and expertise available. The goal is to establish something sustainable that's clean. It doesn't necessarily have to be the most efficient or the lowest cost. Balance is more important.

- 11-21-2015 New Attack Attempts.** The troublemakers are re-emerging. The 2016 is obviously stirring the pot. In this case, it's another Volt owner who's hate for Prius is quite evident. I found it interesting to lurk upon his posts in the Volt forum about the same topics on the Prius forum. His intent is obvious. Of course, we can see that somewhat here: *"If you want a PHEV that you can just drive and not have to 'consider' when and where to use it as such, you'll need a better design than the PIP."* Needless to say, this is another one of those bomb & leave posts. If he doesn't get anyone naive enough to reply, he doesn't bother. When those of us well informed attack back, we rarely hear back. That was certainly the situation here. I clearly called him on his greenwashing attempt: It's 23°F outside. I just went out into the garage, unplugged the Prius, and drove to the coffee-shop. Top speed was 55 mph. Distance was 4.4 miles. Efficiency was 999 MPG. What part of that needed consideration? Spin of the past attempting to downplay the abilities of PIP fall on deaf ears now. We have proof those claims made were misleading. We're tired of that blatant greenwashing. Plugging in significantly boosts overall efficiency. It's that simple. Our driving results clearly confirm that.
- 11-22-2015 Identical Path.** We've heard this nonsense countless times: *"It is identical to the path Toyota took."* Anyone taking the time to do a little bit of research, perhaps just read the synopsis on wiki, would see that's not the case. In this situation, it's a well-known antagonists who is quite upset with Toyota and unwilling to listen to reason. So lately, the tables turned. He had been posting other people's own quotes to mislead about context. Upset by that, someone used one of his own quotes against him. His rant from a little over a year ago started with that *"identical"* claim and was followed by: *"They introduced a hybrid car which was not profitable and didn't sell a lot... Why not give them the same chances since Toyota is no longer leading the way for electrification?"* He was wrong, very wrong about Volt's future. Looking back, we were quite curious how he would respond. Sadly, he chose to abandon that thread which had been active for that entire duration. Regardless, I was happy to post this: No, it's not even close. Toyota limited initial sales to a quota and diversified right away, resulting in a profit by the final year of gen-1. That first offering was targeted directly at middle-market too. GM took a very, very different approach. GM also had a decade of battery & motor experience prior to Volt rollout... EV1, Two-Mode, and BAS/eAssist. Let's not forget about all the fuel-cell development either. As for giving them a chance, you still don't understand what *"leading the way"* even means. **It's the ability to get ordinary people to change.** Any automaker can create & sell a niche, which is exactly the GM chose to do. We don't see any high-volume plans for Volt in the future. In fact, GM is now promoting the very things they claimed Volt would make unnecessary. We were told for years that EREV was all anyone needed. It was the best of both worlds: EV without range-anxiety. No need for a plug-in hybrid. No need for an electric-only vehicle. EREV was the solution for everyone. This week the CT6 plug-in hybrid was revealed for our market and there was an announcement that the production-ready Bolt EV would be revealed in January. That's in direct conflict with the *"leadership"* we had been told about for years. Anyone who claims otherwise is in deep denial of what happened with Volt gen-1 promotion. We're tired of the excuses & spin. We simply want an affordable & profitable vehicle for the masses that's clean & efficient.

11-23-2015 567,000 Problems. That's what the count of non-compliant VW diesel vehicles has grown too, here in the United States. Oddly, the impact in Europe is quite different. Rather than the after-the-fact recategorization of "*clean diesel*" to a niche as an excuse to do so little, VW is choosing to not do anything at all. Here, they claim buyers understood diesel wasn't mainstream like gas, which implies they accepted consequences of whatever might happen. Over in Europe, diesel is more popular than gas. So, as far as VW is concerned, there is nothing to say. Everyone knows diesel is dirty anyway. With the many millions of VW vehicles in all those countries, the cost to correct & compensate would be overwhelming. We are witnessing the death of diesel for all passengers vehicles from all automakers. It's so bad, it's pulling down VW's reputation with gas vehicles too. Who could have ever imagined the end would be so abrupt and so undisputable? The VW owners here will suffer from lower resale value, as well as lower efficiency and lower power. All that "*fun to drive*" celebrating is over. It never made any sense. Even with all the cleansing hardware, diesel could just barely qualify as clean enough to meet minimums and efficiency wasn't competitive with hybrids. There's nothing left to promote them. Why bother, especially with plug-in hybrids delivering dramatically higher efficiency and a far quieter ride? The problem with diesel have grown to an unbelievable level. Wow!

11-25-2015 Thanksgiving. The holiday is tomorrow. A well-known troublemaker who has recently had a complete attitude-change posted a commentary highlighting this: "...*but being profitable at mainstream prices is a whole different story.*" That quote from him certainly caught my attention. It's quite a mindset shift from rhetoric of the past. So, I responded by giving thanks: Thanksgiving, for me, is seeing you say what I've been posting for the past 8 years here. Welcome to the other side. The wait for a partnership to begin has been a long one. A nice benefit of such a delay is the education picked up along the way, for all who participated. It was clear from that start what Volt was designed to be. The engineering praised by enthusiasts was simply too expensive to make it competitive. That's why attention shifted over to gen-2. Cost reduction, enough to make it profitable at mainstream prices (MSRP, no tax-credit or HOV incentives), would allow it to compete with the true competition. My local EV club recognized that competition right away: traditional vehicles. Showroom losses are painful opportunities missed. They've been working hard to generate a spirit of cooperation among plug-in owners. It starts with acknowledgement of overall goals. Don't let the implementation of technology interfere with the effort to shift from fossil-fuel consumption to renewable electricity use. GM's step to release a PHEV, that very thing the automaker (and this group here) campaigned heavily against in the past, is progress. EREV never really had a proper distinction anyway. All plug-in vehicles with an engine are a hybrid. They just vary in performance. It's like how gas-only vehicles have varied for decades. Mainstream buyers haven't cared about operational details or how a technology was labeled. They just take the vehicle for a test-drive to judge performance, then decide if the extra it costs for that is worth it. If price is too high, they move on. It's that simple. Now that "*being profitable*" gets discussed routinely without quarrel, what should happen? HOV incentives in CA will run out soon. Tax-Credits will expire in a few years. Gas prices will remain low. That's far from an ideal market to promote plug-in vehicles. That means plug-in offerings must become well established (in other words, mature to becoming profitable) in the meantime. We can see that Toyota just did a major overhaul to Prius. The gen-4 is basically a redefining of what "*hybrid*" means... including the plug-in model. That will encourage more to shift away from traditional vehicles. The hybrid version of RAV4 will obviously stir new interest as well. What about the other automakers? Think about what Nissan & Tesla will be doing. Will GM target a PHEV at mainstream buyers, some affordable model of Chevy? Will Volt's MSRP drop more? Will the hybrid Malibu be heavily produced & promoted? What about Bolt?

- 11-27-2015** **Ugly.** This is an interesting topic. The discussion was started by a current Prius owner looking to upgrade, but not pleased with what he sees. I homed in on this particular reply to sound off from: *"This is the first thread to call the new prius ugly. Could a trend be starting?"* There was a variety of approaches I could take with my post. This is what I decided upon: This seems quite familiar, much like what we went through in 2009... when gen-3 was first introduced. Gen-2 looked plain in comparison. Yet, there was a group who preferred it. After 6 years, there are some who look forward to a refresh introducing a more aggressive look. Keep in mind, there are some who didn't think gen-3 was stylish enough. It became the face of hybrids, working itself into a self-deprecating stereotype. Breaking away from that to introduce a more capable system to a new audience will naturally disenfranchise some of the current. Think about how radical the headlights of gen-3 looked like to that audience back then. Think about how "common" they've become since. Change is inevitable. How do you make a vehicle noticeable without losing its connection to the past? Something to compel new interest is needed. LED lighting offers a great deal of opportunity, something many automakers will capitalize on... eventually. The fact that Toyota is so far ahead of the rest makes their vision questionable. Will people really stick with the more bland design? How many have praised futuristic concepts in the past that will dismiss them now that the distant future they imagined has arrived? True, there will be some cosmetic aspects that don't catch on. But then again, there will be some that do. What would you prefer to drive? Gen-3 certainly drew a lot of interest.
- 12-01-2015** **89 Degrees.** We had our first snow storm this year, which represented the first true "normal" commute for Winter from the new house. Traffic was plenty heavy, enough to allow me to push the plug-in system. I hit the stop & slow traffic with a warmed heater. That meant I should be able to stay comfortable the entire duration, as much as 15 minutes before the engine would need to start up again for heat. Sure enough. I got through the crazy mess of crawling along the highway. That much longer than usual delay to cross the river was entertaining. I watched the coolant temperature drop and drop and drop. I got all the way down to 89°F before the engine started back up again for heat. It's not often I can reach tolerance like that. I usually reach my destination at that point or run out of electricity. Staying in EV that entire duration was nice. Keeping the engine isn't necessary, since blending is so efficient anyway. But in those circumstances when traffic is impaired by so much, the smooth & quiet is pleasant. Think of everyone else crawling along running their engines non-stop. Wasted gas. Added population. Easily prevented with a hybrid.
- 12-02-2015** **VW Trouble.** As you could imagine, Volkswagen sales for November were down. The disaster with their diesel vehicles has caused reputation damage. That's no surprise. There have been reveals of more people covering up more acts of deception. The fix will reduce both efficiency and "fun to drive". Those were the very aspects of the cars that drew people to them. It certainly wasn't the clutter of the diesel engine. There's the obvious higher fuel cost here too. What else can be said? It's a mess and harm has been incurred. The question is how will owners respond. Posts on the thread in the TDI forum are in excess of 13,500 now. So far, we haven't seen any type of shared outcome desire. There are pokes at EVs, the EPA, and lawyers filing class-action lawsuits. That's it though. They basically wait with an expectation of disappointment. It's an interesting end to a war filled with biased battles.

12-03-2015 Global Warming. There's no need to use the more informative name anymore. "*Climate Change*" is easy to see. Human contribution to it can no longer be denied. Human ability to deal with the challenges is no longer a hope for the future. That time has come. It's not 2000 anymore. Remember how different the world was, back when the first Prius sales began here in the United States? I do, quite clearly. Mine 2001 Prius was among the first delivered. I was one of the pioneers... who discussed what would happen in the future... which is now over 15 years ago. That future is today. A remarkable next-gen Prius is about to begin sales. Not only is it the leader of clean & efficient hybrids, it's also greatly improved in terms of driving dynamics. Body stiffness has been increased by 60%. That's amazing. For perspective, the newest Camry only saw an increase of 10%. The rear-suspension is another big improvement. The ordinary setup of the past has been replaced by a double-wishbone independent suspension design. That's a really big deal. The "*numb*" and "*disconnected*" feel of the past that enthusiasts complained about was very directly addressed. In fact, space & weight in the rear were traded off for the sake of that improvement. Combined with the lowered center-of-gravity and wider stance, drivers will notice the grip around corners and hard turns. That was a change which will draw in new interest. People will see the more sporty look and discover upon test-drives that Prius has transformed from a very practical family transport to a vehicle with some fun-to-drive appeal. The 0-to-30 upgrade should make that an easy sell. Long story short, we now have a tool to combat Global Warming more effectively with. There's no more excuses. Having the technology readily available, we can help lead the way.

12-05-2015 New Questions. Audience was by far the biggest question. That was not understood by those who supported Volt. As a result, the first generation was a disaster and the second is already struggling to capture new interest. The market is excited about the potential the 200-mile EV offerings. That's range well beyond that of any daily-driving need... which completely eliminates "*range anxiety*" arguments. It's quite clear now, since focus emphasis has already shifted over to long-distance travel. That's where a plug-in hybrid, like the upcoming second-generation plug-in Prius, will really shine. Both short & long driving will be clean & efficient. It's a balance of many factors of importance... hence, answering the many questions. "*Who*" is obviously paramount. If the masses don't embrace the technology, what's the point? "*How Much*" is vital. Sustainable profit without subsidies is required. That means no depending on tax-credits. "*Why*" should be obvious. We can't just keep spewing carbon & smog emissions at such massive rates. "*What*" should be obvious too. Electricity, whether it be from a plug or derived from gas, is the bridge to being both cleaner and more efficient. "*When*" is the catch. That concern about "*too little, too slowly*" was not taken seriously. As a direct consequence of Volt not capitalizing on opportunity back when it was available, we now see Bolt, CT-6 plug-in hybrid, and Malibu hybrid filling in its shortcomings. Deniers will say that was the plan all along. Evidence in forum-posts and blog-entries clearly confirm otherwise. The fiercely stubborn, blinded by engineering, did not see the true need or even who the competition actually was. I'm pleased to report, those battles are long over. That war was lost. We've moved on, now asking new questions.

- 12-07-2015 Defeat.** Accepting it can be quite a challenge for some. Volt uses parallel hybrid operation. It blends power from the engine to propel the wheels. Electricity is still taken advantage of, but it's not what GM promised... nor is it what BMW actually delivered. Now, it looks like Nissan will be doing the same. That pushes Volt even further into the hybrid category. Rather than having "*backup*" engine as the range-anxiety campaign promoted, it uses as engine for supplemental power. Nissan will truly take the backup approach, just like BMW did. That frustrates some, which this quote made evident: "*It's very obvious that Nissan wants to join GM and BMW in the range extender EV market (EREV), so they just designed a "copy".*" Not wanting to accept the obvious is sad. The approaches are different. What benefit is there to blurring categories? People don't care about definitions anyway. It annoys purists. Acknowledgement means accepting defeat, as far as they are concerned. I rebutted with: GM's original reveal of Volt presented the system as a series-hybrid. Actual implementation was a design that took advantage of blending though, where the engine provided some propulsion power rather than just electricity-generating. That's not the same as BMW or what Nissan is planning. Long story short, automaker decisions change over the years and labeling really doesn't mean much. It's the end results as a whole that count... MPG, MPGe, EPA rating, production COST, and of course SALES.
- 12-07-2015 82 Degrees.** That cold, snowy commute the other day was trumped by this evening's experience. Rather than the temperature being at freezing, it was balmy 45°F outside. We took the long way home. There was a beautiful neighborhood elaborately decorated for the holidays. The lights on the houses and around the landscapes were spectacular. We were both impressed so much, neither of us had paid attention to how long we had been driving around using only electricity. The coolant temperature had dropped to 82, even lower than the 89 that I witnessed the other day. To still have the heater blowing warmth for such a duration without the need to startup the engine again is great. It catches many off guard. They expect the engine to run far more often. But when you think about it, 82°F is quite warm... so much so, that's when some people turn on the A/C in Summer. That's more than enough warmth for the heater in Winter. Allowing the system to exploit that opportunity is what makes the MPG so impressive. Far too many see the small battery-capacity and dismiss. They don't think about other factors that also influence efficiency.

12-08-2015 Sales in Japan. They have begun for the 2016 Prius. Yeah! We'll be getting ours here next month. It's been a long wait. We knew it would be. There was no point to rush. Battery technology could continue to improve in the meantime. Other automakers could commit to their own hybrids without a lot of pressure. We can all see the sign of climate change. There's no denying the penalty for oil demand. It's an been an ugly situation, especially with the rough start for some automakers. The multiple disasters for GM has only recently been overshadowed. Both Ford & Hyundai misrepresented their MPG. That hurt. Honda's struggle is no secret. The big surprise though has been VW. Who ever imagined diesel would fall apart so spectacularly. Wow! The resistance hybrids has to deal with from diesel suddenly vanished, literally overnight. The timing couldn't have been better too... at the verge of gen-4 rollout. We eagerly awake first reports from owners. The importance of understating MPG is obvious. Far too many real-world conditions, like Winter cold, made the estimates misleading. So, it's easy to see how the early reports from industry experts were uniformly above the officially stated values. The new way of determining horsepower does the same thing. Lower values than in the past give the impression of degraded performance. That isn't what drivers observe though. But that does take factors usually not accounted for, like full passenger & cargo loads, into consideration. It's more realistic. Expectations are easier to met too. Though, it doesn't look as impressive on paper. Behind the wheel is more important anyway. That's happening now in Japan. Soon, it will be happening here as well. Sweet!

12-09-2015 Partnership. We're seeing cheap gas now. Under \$2 per gallon is a very real problem for those of us trying to promote clean & efficient choices. It's far more of a delay than any of us ever wanted, but at least there's a spirit of cooperation. Locally (here in Minnesota), there's a group of plug-in owners coming together to help promote plugging in. There aren't any superiority complexes to deal with. That's a profound difference from that of the past with Volt enthusiasts online. They really caused a lot of harm. It's too bad we had to go through all that nonsense. Oh well. At least that experience made it clear how important it is to have a partnership among owners. That was unheard of in the past. Old-School beliefs of automaker rivalries set a mindset of quarrel. Encounters were thought of as challenges. Each was expected to fight the other. The very idea of uniting against a common foe was fantasy. The thought of a Toyota owner joining forces with a GM owner was a joke. Now, who's laughing. That situation is being considered quite serious. We have guzzlers guzzling again. The small SUV is extremely popular. Even though battery technology is well proven and rapidly becoming affordable, the majority of consumers simply aren't interested. That's a very real problem. Partnerships are vital. We need to send a clear message of purpose. Volt enthusiasts in the past did everything in their power to prevent that. I'm glad that ugly chapter in history has come to an end.

- 12-10-2015 5 Years Ago, Dead.** Today's discussion on the long-ago daily blog for Volt was a reflection upon 5 years ago. With all the automakers... even VW... making commitments to hybrids and plugging in, the idea of standing out has vanished. Leading is an entirely different matter, but that's based upon sales... the very topic Volt enthusiasts have been quite distant from over the past 5 years. I was amused to see this posted: "*Well, exactly 5 years ago on Dec 10, 2010, we were commenting on this, LOL! GM CEO: 'I Wouldn't be Caught Dead in a Prius.'*" " I thought that nonsense was dead. Oh well. It was opportunity provided to comment. So, I did: That "*vastly superior*" attitude caused quite a bit of damage. Partnerships just forming now were delayed years as a result. Remember what we learned on 11/30/2010 about GM's production plans for Volt? It was to deliver 240,000 of gen-1. Much was learned along the way. Notice all the back-pedaling? GM will now be rolling out a full hybrid, the very thing the CEO back then wanted no part of. We'll also be getting an EV from GM. That too was heavily criticized against. It sure is nice how things have changed, but it certainly confirms the original concerns and emphasizes what was needed all along.
- 12-10-2015 5 Years Ago, Denial.** That was as expected. Oh well, again. This was the follow up: Denial of what happened then and denial of the situation now, along with some attitude, was very easy to predict. \$1.89 per gallon for gas is the reality we currently face. The market is quickly filling need with a wide variety of choices, some more capable than others for dealing with the obvious lack of MPG incentive due to cheap gas. Tax-Credits will expire at different times for different automakers too. The time for change has arrived. The new Prius is a fresh build, rather than an upgrade. So much of the operation of the vehicle has modified, it cannot be denied that lessons learned from the past have been acknowledged & implemented. Driving dynamics have been altered to appeal directly to the masses. The target is clearly mainstream. Profitable high-volume sales is the goal. Go ahead. Keep cheering for niche engineering. Meanwhile, don't deny that true leadership is the ability to get ordinary people to change.
- 12-10-2015 5 Years Ago, Easy.** Same old resistance. It comes from the "*trophy mentality*" mindset. The person thinks that because it looks good on paper, it should sell well. Great pep from electric-drive. Outstanding MPG from being able to plug in. Impressive price due to the tax-credit. Why wouldn't it be a winner? Factors like dealer overhead, salesperson commission, and consumer understanding get pushed aside. Volt is "*vastly superior*" to Prius, so there's no reason to be concerned about anything that Toyota learned. GM is better. After all, American engineers have achieved incredible accomplishments over the decades. Why worry about the business aspect? Ugh. His response was: "*Every post you will make from now till 2025 is easy to predict.*" It was intended as a dismissal... not sharing of valuable knowledge learned. Oh well, yet again. Here's how I responded: 15 years ago, I was saying the same thing. Deny. Dismiss. Distract. It won't change the reality that we need clean & efficient choices for the masses. Whether or not Volt joins in with the rest of the mainstream offerings is what we cannot predict. Again, the vehicle must be able to take on the true competition: traditional vehicles. That means production-cost must be low enough for it to draw large interest (from both consumers & dealers) and still earn a profit, without any tax-credit or HOV incentives.

- 12-11-2015 5 Years Ago, Alone.** No one else shared his sentiment. We have found the very last of the stubborn enthusiasts of the past. Hooray! I was tired of unwillingness to recognize need. Being part of our larger effort to end the reign of traditional vehicles is far more important than earning top honors for engineering. More and more, judgment of success is based upon subjective measure anyway... which, in a way, can be better than arbitrary measure... since the market is too diverse for any type of one-size-fits-all measure anyway. Looking back at the previous 5 years, it doesn't take much to see how much opportunity was lost. The market for plugging in was simpler than and gas was expensive. Now, there are a variety of new choices on the way and cheap & abundant oil will make efficiency a much harder sale. That's why the balance Toyota is striving for with Prius is so important. Rather than delivering a huge MPG improvement, this gen-4 will provide a modest bump. The tradeoff is not trimming as much weight for the sake of offering greatly improved handling. GM will be learning the hard way that heavy focus on the battery-capacity increase wasn't worth it. Some tradeoffs just aren't worth it. Remaining a niche will be hard to bare. To GM's credit, the automaker has recognized & acknowledged the issues related to sales by diversifying. That effort to offer choice is an important step in the right direction. Betting the farm on Volt wasn't wise. Look at the variety of hybrids Toyota offers. Look at how Ford has been struggling to offer choice... and Honda... and Hyundai... and VW... and Chrysler/Dodge... and even Nissan.
- 12-12-2015 5 Years Ago, Change.** The fallout from Two-Mode was so bad, disassociation was preferred response. Everyone knows now... 5 years later... that the system really did live on, but with a huge redesign to deal with the obvious shortcomings. Much of the problem derived from the setting of unrealistic expectations. GM's problem with "*over promise, under deliver*" was not addressed. Executives kept promoting too much. That's how the "*vaporware*" backlash with Volt came about. How could all that be achieved within just 3 years of development? The following 5 years of sales revealed it was indeed unrealistic. So, that begs the question of asking what is realistic. Looking at the other automakers, we've see an effort to target their own customers. Only GM neglected its own, sacrificing opportunity from within for the sake of conquest. Thank good that has finally changed. We aren't really sure what to expect, but at least we can see the change. It took 5 years for the turn-around to take place, but better late than never.

12-17-2015 **Hyundai Ioniq.** This coming March, we're expecting a new hybrid, new plug-in hybrid, and new EV all bearing the "Ioniq" label. Hyundai will rollout the new vehicle platform in those 3 varieties. Interesting new competition for Prius, eh? This is what one participant on the big Prius forum had to say about that: "*Maybe it's me, but I foresee a quite tough future for the cranky Prius IV with the Ioniq around...*" It's easy to get that impression, not considering the market as a whole. It's far too easy to fall into the trap of comparing vehicle-to-vehicle. I presented the situation from this perspective: A vehicle offering similar characteristics will compliment the other, drawing in a larger overall audience. In fact, growing the market cannot happen without some type competition. Sales plateau without a cross-competitor endorsement. It's easy to understand how increasing the size of a battery and adding a plug will improve the efficiency of a hybrid. Seeing more and more of those choices on the road will make selling them easier. Rather than competing with each other, they'll really be promoting the category. We'll have PHEV offerings from Toyota, Ford, Honda, Hyundai, Mitsubishi, and even GM. Those augmented hybrids will be compared & contrasted. Battery capacity will become just another aspect of purchase decision. Since each operates as a hybrid when plug-supplied electricity is used up, they'll still have an advantage over traditional vehicles. Adding a very small engine to an EV is another easy to understand design. Its purpose of serving as a backup power-supply when the battery is depleted is obvious. We'll have that EREV category, currently occupied by BMW alone, but Nissan plans to join in. The minimum cost, size, and weight differences from an EV keeps it competitive while also addressing charging concern. Of course, there's Volt too. The term "*boutique*" is being used more and more to describe it... since the design stands alone and there are no plans for anything to like it from other automakers. GM isn't planning on widening appeal beyond special interest either. Sales will speak for themselves. Remember, there's a race to profitability. When the tax-credits run out, these vehicles will need to face traditional vehicles head-on. That's tough competition when gas is so cheap. Right now, here in Minnesota, I saw \$1.79 per gallon today. Some in a few states have posted about even lower prices. That's a very real problem when trying to promote cleaner and more efficient choices. Having shared goals with other automakers will help a lot.

12-18-2015 Observations, new gauges. We're seeing a big turn-around. It comes as a result of observing. That can take years. Thankfully, the gen-2 upgrades provide an acceleration to the process... as this illustrates: *"My observations from this trip (and subsequent trips that I have taken) is that ERDTT will run the ICE until your coolant temperature reaches 145°F, at which point the ICE shuts down. Once the coolant temperature cools to 120°F, the ICE starts again. So my observation is that ERDTT maintains the coolant temperature nominally between 120°F and 145°F."* That came about from the new Volt offering coolant data on the display. Not having that in the past meant drawing conclusions on nothing but anecdotal evidence. Actually being able to watch an instrument showing real-time detail is a profound improvement. I joined in the discussion with this: The local EV club in my area has been a great source of information about the other plug-in vehicles. When we get together, we share detail difficult to get any other way. It's nice to see some of that popping up here now. After all, gen-2 offerings are taking a different approach. There's also far more choices that will be available. Anywho... With my Prius PHV, the range is quite different. Warm-up completes at 130°F and the heater will continue to blow out heat until the coolant temperature drops to 82°F. That's long enough to allow me to get through the entire river-crossing winter stop & slow on my commute without the engine having to start back up. Similarity to Volt is they both take advantage of engine waste to provide cabin warmth. That is indeed a nice benefit for overall efficiency. Sacrificing plug-supplied electricity for the heater isn't a good use of limited battery capacity. And yes, being able to see coolant temperature on the gauge cluster is great!

- 12-18-2015 Observations, ironically.** I now have a group intrigued by what I share. It's the same old information as in the past, but now presented in a using an alternative approach. The difference is they actually have something to contribute now. That's what makes an "enthusiast" become a "supporter". All those years of fighting principle blinded them to what is not rather obvious. The problem came from them not wanting to discuss anything whatsoever related to Prius. They were so fearful of Volt becoming lost in the crowd, it never dawned on them that the information exchange was really an invitation to join. It was fight, fight, fight. Ugh. Oh well. Now that the "*too little, too slowly*" has been overwhelmingly confirmed as having been a legitimate concern, all is acceptable. I can go on presenting the same data all over again; though, this time they are interested. This is how I responded to the positive feedback: Thank you for sharing details of that drive experience, especially those photos. That's really helpful toward filling in the information gaps... a major problem we had with gen-1 understanding. Remember all the tar & feather events? Quite a number of enthusiasts weren't aware of factors that influenced operation of the system back then. Pointing that out resulted in a lot of misinterpretation of intention... contributing to misrepresentation. Sure is nice to see the effort to get beyond that. It's the support we really need. The factors themselves still remain. The need for cabin warmth is a big one. Using the A/C has a heat-pump is only so effective. The less efficient choice is resistance-heaters, but that uses even more electricity. Turning to the gas engine by capturing its waste heat can be a decent tradeoff. The more informative screens really help with the understanding of impact. Other factors, like blending rather than pure EV all the time, are also very difficult to grasp beyond just the concept with detail. Seeing new data that's available to the driver in real-time is a very nice gen-2 improvement. We must keep in mind that the true competition is traditional vehicles, not other plug-in vehicles. That's why sales are so important. Watching customers leave dealers with a gas-only purchase is really a let down, something we (not the dealer) need to change. Topics like this are a big contribution toward that. Thanks!
- 12-19-2015 Observations, disbelief.** Ultimately, you want to have some of your much stubborn enemies become friends. Their unwillingness to give up is a strength. It's not good to hold them responsible for the damage their misunderstanding caused, since working with them is a powerful way to recover. To look back and see all those personal attacks, when they chose to completely ignore the issue at hand for the sake of shooting the messenger. It's a huge waste. But then again, collateral damage as a result of a paradigm-shift is to be expecting. There's always some type of cost when change is required. The goal is to minimize, not eliminate... which ironically, is the point of hybrids. They minimize gas consumption, but don't eliminate its use entirely. Evidence of the turn-around is to actually quote me. In this case, it was: "*We must keep in mind that the true competition is traditional vehicles, not other plug-in vehicles. That's why sales are so important.*" One of the simplest greenwashing techniques is to misrepresent by implying, rather than quoting. So, I was in disbelief as much as he was: "*Who are you and what have you done with John???*" The attitude of the past is fading away. I had really hoped gen-2 would usher in new understanding. Real-World data has always been the most effective tool. All you have to do is take the time to observe.

12-20-2015 Observations, revolutionary. Gas is only \$1.79 per gallon here. Diesel is rapidly dying for passenger use. There is a growing list of upcoming hybrid & plug-in choices from a variety of automakers. This is an unusual and unexpected situation. What was expected was for gen-2 of Volt to be revolutionary and for the gen-2 Prius to continue evolving. In other words, the belief was Volt would remain "*vastly superior*" as a symbol of leadership. Instead, we have a complacent market with everyone playing catch up... and Toyota still leading the way. Lack of clear direction has always been Volt's problem. Not knowing who the audience was meant continued confused messages of purpose. GM needed a mainstream choice, but enthusiasts kept begging for a niche. That's why it was so vital knowing who. Second generation requires clarity. That's how Prius was so successful. You can only make major changes when goals are concise. They still aren't for Volt, hence the mess it is in now and only a collection of small improvements were rolled out. Prius, on the other hand, had a clear message of competing directly with mainstream vehicles. That meant trading off huge efficiency gains for the sake of handling upgrades worthy of drawing lots of new interest. No more "*eco-box*" image. There was a clear effort to make Prius more than just evolve. It needed to be revolutionary. Changes had to be so noticeable that people would recognize this generation was different. With a reputation well established for reliability. Proving it was "*up to the chore*" for taking on salesroom floor opportunity was obvious. That's the observations I've made over the years. It sure is nice getting confirmation of that being exactly what Toyota was pursuing. Too bad those Volt enthusiasts who fought me up to the bitter end are only now seeing the light. It's quite amusing too. The spin is that my attitude has changed. I'm still posting the same messages though. Only now, they understand the importance. The trophies they sought have been earned. Volt did indeed deliver some impressive engineering; however, that wasn't the assignment. Each automaker needs to change their own offerings, to replace traditional vehicles with new clean & efficient choices. Being a "*halo*" didn't achieve that.

12-23-2015 Observations, fear. It started with Prius. There was fear it would extinguish Volt; which ironically, Volt had fire scares to deal with too. So, it needed to be "*vastly superior*". That meant comparisons to the only truly successful clean & efficient new technology would happen over and over and over again. Treating a vehicle without a plug and without a massive tax-credit the same as one that had both really bordered on the edge of lunacy. It simply made no sense. Yet, that was the formula agreed upon by enthusiasts. A small number of those online posters attacked and the large remainder were enablers. That's not the kind of observation we wanted to make. The desire was to form a partnership by exchanging knowledge & experience. Thank goodness that's finally happening now, long overdue. Unfortunately, the fate for Volt is already sealed. Rather than taking the opportunity years ago to steer the next-generation in the direction of mainstream, it became a confused mess. Today was great proof of that. The topic on the Volt daily blog was all about Bolt. It's quite remarkable how dramatic of a change has come. Some posts totally contradict intentions of the past. Others don't even acknowledge Volt as a player anymore. GM will (somehow) be delivering an affordable 200-mile EV. This is why I blogged so much about history as it was unfolding. The now hypocritical claims from years ago are difficult to believe, but well documented. They see this outcome as obvious. Really!?! There are still comparisons to Prius too. What the heck? I could understand the plug-in model. But how does the hybrid even remotely share the same category? Ugh. Needless to say, there's more to this than what meets the eye. HOV stickers in California are gone. The last "green" was distributed recently. That means a major purchase-incentive for Volt is no longer available. For Bolt on the other hand, there are a number of "white" stickers still. BMW's i3 qualifies for them, despite having a gas engine. That engine is tiny (650cc) and the gas tank is tiny (1.4 usable gallons). That makes it an EV with nothing but a short-range, limited-power backup. It's a true EREV. Enthusiasts of Volt lashed out when cornered in the past. Now, they've switched loyalty over to Bolt. Seeing Volt abandoned like that is bizarre. It's doomed to remain a niche without any way to draw ordinary consumer interest. Who will the support come from? The observation of what comes next will be interesting. The time to file a \$7,500 credit without having to wait until 2017 is quickly drawing to an end. The HOV stickers are already gone. Initial demand has been fulfilled. With the Detroit autoshow promising to stir interest with new plug-in offerings, what will happen to Volt? Remember, 2016 Prius sales are about to begin soon and the price of gas is at record lows.

12-24-2015 **Beyond Possible.** This 2-minute video-advertisement for the 2016 Prius from Toyota is making rounds on the internet. It shows Prius tearing around an industrial area, screeching tires while tightly maneuvering through abandoned buildings, and sliding sideways on graveled roads. Comments were made about how unrealistic that was: "*I think the add portrays a false expectation...*" You can't help but to roll your eyes from comments like that. The pointless things we've seen along the way should make this a complete non-issue. How many times have you witnessed a pickup pulling unbelievably massive loads? I remember one showing 32 refrigerators being transported on a flatbed, towed by a consumer-grade pickup. Why? Who in the world would ever do anything like that? There isn't even a rough equivalent. Same goes for all the SUV off-roading advertisements. How often does that actually happen? People are using their SUV, with heavy-duty suspension and massive tires, for commuting to work... sharing the same roads as everyone else. Why is that overkill acceptable, but not watching a Prius being driving as if it was on an obstacle course? Needless to say, some perspective is needed. We've watched far too many sedans racing across open salt-flats to have to accept a double-standard. This marketing isn't anything different from countless other advertisements... but with a twist. Prius can also point out that it's green too. Anywho, this was my post about it: We have literally seen thousands of commercials like that over the years. It's how cars and trucks have been advertised. Seeing that is the expectation. Whether or not you ever do that with your vehicle is an entirely different matter.

12-26-2015 **Observations, the problem.** The muddy mess of issues & solutions continues to get worse. Even though there are obvious signs of SMOG emerging around metro areas, the snap response to dismiss our pollution problems is to just write off "*climate change*" as human caused. Volt has become the lightning-rod for arguments centered around the issue too. It's really unfortunate enthusiasts focused so highly on "*gallons*" and basically ignored the bigger picture. They never bothered to help point out CARBON emissions are not the same as SMOG emissions. That fundamental difference is now hurting their cause. Of course, had they used SMOG as an argument point rather focusing entirely on CARBON, we likely wouldn't have as much of a mess to still deal with. Reading an article published a few days ago praising the gen-2 Volt, it was easy to observe the problem. There were 165 comments posted as of writing this. The nature of many arguments against Volt centered around being vague. The premise of "*cause*" instead of "*contribute*" is the primary inhibitor preventing any detail. The enthusiast obsession with absolutes makes it worse. People simply don't care as a result. The final nail-in-the-coffin though is the tax-credit. Dependency on that provides an excuse to reject. So, regardless of whether or not the automaker earns a profit from sales, that government-assistance cancels out any benefit as far as they're concerned. This an the aspect of business the enthusiasts fought against for the first 5 years of Volt availability. Now, consequences of that choice are revealing the problem they allowed to grow. Very few posts are constructive. Many on general-audience articles like this are political in nature (due to the obvious government involvement.) My favorite post was this: "*84,600 sales in 5 years, resounding success?*" It highlights shortcoming of engineering focus. No matter how impressive performance of any vehicle may be, people won't make their purchase decision on that alone. That's basic economics. Too bad enthusiasts refused to acknowledge that. Even with the \$7,500 incentive, they're wasn't enough interest anyway. The problem was (and still is) much more complicated.

12-26-2015 Observations, change. There is no precedent for gen-4 offerings. There is stereotyping though. That's a very real problem... unrelated to emission issues. People establish a mindset and stick to it. Breaking away from that is tough, as marketers are well aware. Campaigns to change pre-established views presents challenges. Advertising can be effective, but there needs to be something compelling to draw new interest. With the case for each new Prius, expectations have been for a more efficient system with a decent cost-reduction. In other words, the system would be further refined... making it even more appealing to those wanting to reduce emissions & consumption. The reality that Toyota would not have that focus anymore is perplexity to some. We've already observed many, many, many posts from those not understanding the overlying need. They continue to assume priorities won't change. That change is absolutely vital though. Gen-4 is designed to achieve that. This new Prius trades efficiency performance for handling performance. There's more power for city driving and the suspension has been upgraded. Combined with a lower center-of-gravity, this is a noticeable departure from what the first three generations of Prius offered. That's why the standout look was chosen. This new offering will easily be recognized as a Prius, but the styling is doesn't conform to the ordinary pattern we still see. The new Volt is the ultimate example of this. Gen-2 looks remarkably like a Civic and a Forte. The style was dumbed down (for lack of a better description) to look like other popular sedans. In fact, that's why it doesn't offer a rear-wiper, despite being a hatchback. GM decided to make it look like it's part of the traditional crowd to help promote sales. The catch is, that only works for earlier offerings. With just a second-generation design, refining the system and retaining an ordinary look can be beneficial. However, with a fourth-generation rollout, doing little to alter visual appeal can become a barrier. A bold, new look can draw lots of interest. People get too distracted by other factors to notice that importance though. Unless you study consumer behavior, it gets overlooked. Competition at different generational stages makes the understanding of what really influences behavior very difficult is hard enough. Change in a market with so much pressure to succeed often causes the obvious to go unobserved. Remember purpose. Focus on goals.

12-28-2015 Observations, audience. How many times and how many different ways can this be addressed: *"A plug-in hybrid that has to use its ICE before the battery is depleted is much less desirable."* I climbed up on the soapbox one more time: Know your audience. Ordinary consumers won't be interested in electricity purity, especially if there's a high-cost required to achieve that. If they did want purity, they'd just purchase an EV instead. The 200-mile capacity offerings will be targeting them. The strength of plug-in hybrids is balance. You still get EV, just not 100% of the time prior to depletion. Rather than sacrificing electricity for the sake of avoiding any gas consumption, the system takes advantage of having an engine available. Running that engine in the most efficient manner is key. Blending (using plugged-supplied electricity) for augmentation is how. RPM is lowered significantly and revving is reduced. Ask yourself how much more an ordinary consumer would actually be willing to pay for the purity tradeoff. Ordinary consumers won't care whether or not the engine runs at times. Heck, most don't even know what their current vehicle actually delivers for MPG. Seeing a plug-in hybrid deliver +100 MPG while cruising on the highway is what will draw interest. Late night local errand-running locally in EV has obvious appeal too. Remember, the audience is people on the dealer's showroom, those who would otherwise just purchase a traditional vehicle.

12-29-2015 Observations, support. Watching things fall apart for Volt just as the new Prius is about to arrive makes for interesting observations. It's weird how enthusiasts continue to draw attention like this. It's a repeat of what we saw 5 years ago. Wasn't anything learned? Reading general-audience automotive blogs, you can see the pattern. The behavior that closely resembles that on the Volt blog. Rather than Volt being a player on the plug-in team, it is still portrayed as superior. Ugh. Yesterday's stir came from details revealed about the 2017 model coming early next year. That's the one which will be available nationwide. Expectations were to get a variety of improvements here and there along with some type of price drop. Instead, only a premiere package was revealed. That's it. Basically, rollout was held to 11 initial states for incentive benefits. California was about to run out of HOV stickers. Sending the bulk of inventory there, especially when there is also both state & federal credit to be had, seemed to make sense. Though, there was the mystery of why production simply wasn't ramped up instead. After all, that is what Toyota did for gen-2 and we were told for years from enthusiasts that GM would also do that. The double-standards, the hypocritical claims, and the contradictions were quite informative. We knew issues weren't being addressed and that certain shortcomings weren't a priority. It's the denial though that's telling. Who the heck is going to support the technology? Remember, a big chunk of the success of Prius came from the empowerment of owners. They'd share their knowledge and experiences with others. That type of endorsement is far more powerful than any business entity could provide. Without that, who will interested consumers turn to? What will their resource be if there's a collection of enthusiasts reciting the same failed messages as in the past. Move on already. Geez! Notice how the new Prius traded efficiency for handling? MPG wasn't abandoned; it was simply not given as much priority. Owners pointed out and even demonstrated with their own upgrades how Prius could be improved to appeal to a wider audience. Toyota took suggestion and implemented it... without sacrificing cost. Volt is still expensive. Volt is still small. Volt still lacks common new-tech, like LED headlights. Heck, those are standard on Corolla. Why in the world aren't they offered on Volt? For a vehicle that was supposedly going to leap-frog Prius, it still doesn't show the potential to draw enough sales to actually do that. Rollout of the 2017 model will be overshadowed by Bolt hype. Who is the audience for Volt and where will its support come from?

- 12-30-2015 Observations, new topics.** There are some glimmers of hope. New topics provide that opportunity. When an Leaf attack began on the daily blog by Volt enthusiasts, my interest was captured. It was an opportunity to introduce a new perspective on what could otherwise be just a repeat of old discussions. This is what I homed in on: *"You missed the thermodynamics classes. All vehicle engines and motors are *air cooled* since all the heat is expelled to the air. The difference is the heat transfer mechanism. An active transport, such as liquid coolant used..."* His missed the point entirely. It's quite common. People will fixate on the wrong thing, often a symptom rather than the actual cause. I jumped in ready for battle with: Ugh! Everyone continues to miss the underlying problem: HEAT IS A WASTE PRODUCT. Using liquid to transfer that heat is really just a Band-Aid to deal with that unwanted situation, rather than preventing it in the first place. It makes no sense to disregard that waste. The goal should be to create more efficient operation, which will reduce losses from heat. Less energy consumed overall will increase range and/or decrease battery-size too. Not needing to add the complexity of extra cooling reduces weight & cost as well. Focus on the bigger picture. Don't get hung up on approaches that fail to address the ultimate need. That fundamental improvement still being overlooked is the real problem.
- 12-31-2015 Observations, look forward.** That basically killed the discussion. Posts wandered, totally off-topic. There was a solitary response to my post. It started with the typical *"no free lunch"* rebuttal. That's a dead-giveaway the person didn't take the time to actually consider what had been posted. Focusing on absolutes doesn't accomplish anything. What extreme ever represents an expectation or even a goal? I ignored that and waited until this morning to respond. I quoted this part: *"Obviously engineers of some vehicles decided that active liquid cooling for their batteries and electronics was worth the weight. Forced air cooling would likely require even more power, more room, and not capable of the same level of performance."* It was worth bothering with the *"always"* part in the first part of his post. My comments were: Not requiring extensive cooling is the goal. Decisions of the past were based upon technologies of the past. Look forward now. Notice what the computer industry did over time? They too had battery & heat issues. Designing more efficient processors and optimizing software reduced the power-consumption, which in turn reduced waste in the form of heat. As much as people here hate to consider Prius, you have to admit Toyota did its homework. The inverter/booster was made more efficient over the generations. The unit itself underwent major revisions, including size & voltage alterations, as well as upgrading internal components. The latest improvement was elimination of external wires. Rather than having to connect wires, it attaches directly to the propulsion system now. The traction-motor was made more efficient by making the wires thinner and wrapping them tighter. The electric-propulsion was made more efficient by increasing the number of power-carriers within the power-split-device and replacing the reduction-gear with a second power-split-device. There's the benefit of battery chemistry & manufacturing improvements too. The end result has been a system that uses less electricity to accomplish more... so much so, the newest battery only needs half the total capacity of the previous generation. That equates to less heat.

- 1-01-2016** **39 MPG.** Today was nothing but driving. We traveled over 700 miles. Much of that was straight west over roads with very few hills and very few curves. Specifically, the drive was from the eastern side of Minnesota, clear through the entire state of South Dakota, over to a remote town in the eastern side of Wyoming. After leaving the state, the speed-limit increased from 70 to 80 mph. Maintaining a cruise at 80 mph for hours on end isn't something I've ever done before in the Prius. Of course, we couldn't do it today either. But on the way back, that might be possible. Heading west means driving on the north side of the highway. They don't plow in South Dakota. There's no sanding or salting either. That means the snow blowing from the north over the road gets smashed down into the pavement. Over time, that builds up ice. Slowing down to 70 is the best you can do without over-braking. The small patches appear randomly and far apart. You can go a long way without encountering one. Then suddenly... you have to glide over it. Surprisingly, that's actually safe. Most are very short. Anywho, I watched the efficiency average drop. With temperatures around freezing while traveling at that speed, the 39 MPG average was rather impressive.
- 1-03-2016** **Too High, Too Fast.** This is a very real problem: "*Over the last year I've been trying to decide what I would do once my Volt lease was up. Buying it as a used car was out of the question for two reasons. The residual was way too high (at \$27,628) and electric-car technology is changing too fast.*" What would you do? Leases aren't anywhere near as generous nowadays either. Years back, low lease prices were used to draw in buyers who would otherwise just dismiss Volt as a possibility. Since then, MSRP price has come down and the used market is saturated with lease returns. As a result, those once considered "*conquest*" sales are becoming lost customers. They just move on to something else. Enthusiasts absolutely refused to acknowledge this was a possible outcome. How do you sell an outdated early-model plug-in vehicle? What do you buy as a replacement? It's an ugly situation saying "*I told you so*" to doesn't help you even feel better. We tried to point out the recklessness of those leases. Oh well. It's an everyone loses situation. That's why I'm glad Toyota limited both gen-1 of Prius and gen-1 of Prius PHV to small audiences. Heck, for the first 2.5 years, the only way to get a Prius was online order. Talking about not having any showroom presence. That was useful with the real-world data-gathering though. It kept the used models in check to. PHV has been limited as well. That problem of "*too high, too fast*" is an interesting retrospective on the "*too little, too slowly*" concern. That's why clarity of purpose is vital. It's unfortunate there are still efforts to keep intent vague. Some lessons are never learned.

1-05-2016 **1,602 Miles.** That round-trip sure was interesting. The stretch through eastern Wyoming and the entire length of South Dakota was with the adaptive-cruise set at 80 mph. With so little traffic this time of year and the road hazard free (no ice or snow and little traffic), it was smooth sailing. Of course, even at that rate of travel, it still took 16 hours to get home. Once in Minnesota, the speed-limit does slow down to 70 mph, but that really doesn't equate to much. Stops for food & gas are a welcome break from the almost turnless journey anyway. To our amazement, despite winter cold and going so fast, the average for that whole long weekend getaway came to 42 MPG. With only a single battery-pack charge the whole time, you'd think the plug wouldn't have made any difference. From an efficiency point-of-view, it really didn't. But from an enjoyment perspective, you bet. We drove through a park elaborately decorated with massive animated holiday-light displays. Being able to drive all of that using only electricity sure worked out well. Anywho, I had a good time and the purpose of the Prius was fulfilled. We were delivering a baby crib. The large cargo area made that easy. The radar to slow down the Prius when it approached a vehicle going slower on the highway was great.

1-06-2016 **Sales Perspective.** With the second-generation of Volt so new, there's obviously going to be peaked interest. Purchases would be strong simply due to that. But leaving out any mention of the tax-credit and posting this as the opening line in a sales perspective article is quite misleading: "*Chevrolet is back in the saddle again with a relatively healthy 2,114 Volt sales in December.*" In fact, some may call that greenwashing. I expect the typical spin to come from my post about that: The last-minute rush to purchase before year's end was expected. Buying before the start of 2016 means you can collect the \$7,500 tax-credit with 2015 filings; otherwise, you have to wait until 2017. Avoiding delay of an additional year is good incentive to buy right away. That "*back in the saddle*" assessment requires waiting for January results, especially since we all know the reveal of Bolt will have a direct impact to Volt interest. The minimum milestone for mainstream vehicles in this market is 60,000 annual (5,000 per month). A quick look at GM sales for December of popular cars show that is easily exceeded... Equinox 21,827. Cruze 16,849. Malibu 12,155. Impala 9,060. Sonic 7,293. Camaro 5,366. What are sales expectations?

1-06-2016 **Obsolete?** I questioned why that label was given, pointing out RAV4 was just due for a generational update. This was the reply: *"Are you saying there is a PHEV SUV in the pipe for Toyota? Toyota is all Fuel Cell, hater of plugin... at least that is what they are telling the public."* Sometimes, it's difficult to see the perspective from someone with only a tiny bit of information. They focus in on something trivial, not seeing what was actually at play. Knowing how to respond to the can be a challenge. I chose: Overlooking the obvious... that RAV4 is due for an update anyway... shows how effective the greenwashing campaigns have been. Toyota got labeled as an *"all Fuel Cell, hater of plugin"* by those greenwashers. Their most common technique was to post information out of context. Simply limiting perspective is an easy way to mislead. For example, when the first-gen PHV model production came to an end, they claimed the entire PHV program had been ceased, that support for plugging in had been abandoned. They were relentless too, continuing to make that assertion without any data to actually support it. The fact that Toyota didn't want to get stuck with inventory that would have to be marked down when the next-gen Prius was revealed was outright dismissed. They just kept on with greenwashing efforts. Another example is Toyota's effort to diversify. We all know that EV won't work for everyone. We also know that the oil industry will wage a massive campaign against them. To portray Toyota as a fuel-cell only supporter, the greenwashers did everything they could to suppress plug-in endorsements by changing the topic to fuel-cells. That desperation to mislead about intent was amazing. They were relentless. We've seen quite a bit of that in the past too. But there's no need to look back any further than 2015. Some have went to great extremes to build up false impressions... so effective, overlooking the obvious becomes common. In this case, we know Toyota is expanding hybrid offerings to every passenger model vehicle they produce by 2020. The hope of eventually being able to provide a package-option choice with a plug should be obvious. Gen-2 PHV is helping pave the way, just like the original Prius did for expansion to other models over a decade ago.

1-06-2016 **Desperate, no data.** It has been quite remarkable over the past few months. We've witnessed both VW diesel and GM's Volt fall apart. The grand plans are no more. Those automakers are moving on. We're staging the final battle. A friend of mine posted this: *"Bring us data - we don't need sheet metal art or bluster words. We need engineering metrics, facts and data. If you don't have them, be calms and wait until they are available. But don't prove you don't know anything by posting nonsense speculation. At least don't embarrass yourselves like VW. Better to be quiet and thought the fool than to post and remove all doubt."* He's tired of the nonsense and sees no sense having to endure it anymore. I jumped in with: Great words of wisdom. Sadly, we've seen this nonsense far too long. "SHOW ME THE DATA" dates all the way back to 2004, when the gen-2 was new and got routinely attacked with claims that didn't have any merit. The real-world detail clearly revealed greenwashing efforts. Post were kept vague to avoid getting caught. The rollout of Two-Mode and sales that followed were a disaster. Cause was obvious. Expectations were based on speculation, not actual facts. Real-World data brought hope to a sudden death. Volt is even more of a mess. It was as if nothing had been learned from Two-Mode. In fact, when gen-1 expectations fell apart, focus was shifted over to gen-2 instead. Repeating the same mistakes, yet again! With Hyundai's rollout of Ioniq, we're seeing the same careless hype emerge out of factless claims. They feed the speculation, becoming part of the problem.

- 1-06-2016** **Desperate, step up.** I've seen the pattern repeat so many times, it boggles the mind that the same old desperate tricks would be attempted. We see the cycle. Doing nothing to prevent it from starting up again is nuts. Yet, most participants online don't take that extra step. They settle for winning a battle rather than drawing the war to a close. Even with the wisdom of seeing the forest, most are unwilling to speak out beyond the moment. That big picture is lost. Some pointless trolling post will get a bite. A newbie will unknowingly fall for the invitation to become supportive of a greenwashing effort. It's misleading with recognition. The victims are clueless to what they contribute. Anywho, I simply put it this way: It will drag on for years of someone doesn't step up. After all, a growing problem in forums & blogs is enablers... those who don't speak up. The direct approach is quick and leaves no doubt.
- 1-06-2016** **Desperate, scapegoat.** The ultimate is a summary, where the troller (disguised as a faithful group member) makes claims about what you did over the years. It's quite obvious they are painting a picture of deception. The references are clearing from others. Lurkers won't realize that though. Veterans of the group won't care. They simply want someone personified as the cause of their peril. It's surprisingly vindicating. Their desperation is so obvious. There's no point in arguing. All you want is the confirm. I find it very amusing. They just make stuff. Looking back through my blogs, I can see exactly what was actually said. It doesn't match what they claim, not even close. Today, it was the desertion of Volt in favor of Bolt. GM is joining the very effort it had once fought intensely against. The reveal of production detail pushed the few (only a handful left) to the brink. We saw that play out. I drew it to a conclusion with: What was hoped for, what was said, and what actually came to be is well documented. It's not the never-ending spin we have to put up with here. What happens here is good confirmation though... of what worked and is still being waited for. The rhetoric simply doesn't hold up. Vague claims online don't accomplish anything. We see difference being made by watching the road, parking lots, driveways, and garages. Those are the vehicles of change.
- 1-07-2016** **Desperate, leadership.** It's interesting to witness an ending and a beginning. Bolt is taking the stage. Hyundai is working hard to get it. Toyota will begin deliveries of the new Prius shortly. Things really are moving on. A handful just plain cannot with that though. To them, I posted: Leadership is getting ordinary people to change. For 5 years, many here dismissed priorities and simply focused solely on engineering achievement. They assumed the impressive power & handling traits along with a \$7,500 tax-credit would be enough to entice. Consumers didn't respond well to that though. Yet, the accountability of automaker need was dismissed. Becoming a self-sustaining vehicle (high-volume, profitable sales) remained out of reach. Thankfully, the necessity of diversification is finally being addressed by GM... which seems to be going well. Unfortunately, it leaves the die-hard enthusiasts in an uncomfortable position. They will appear to be supporting a double-standard or be labeled as hypocritical for embracing that change... hence lashing out at a scapegoat. That's annoying, but not the end of the world. The required adjustments to achieve change are being made. True leadership is taking place... whether they want to accept it or not.

- 1-07-2016** **Desperate, denial.** The experience of failing is difficult to accept. From those with the most to lose, we get denial. The pattern is very easy to recognize. They just move the goal-posts and claim mission accomplished. It's rather sad. That's what the blogs are for though. You can look back to see what was actually claimed and hoped for. The disconnect is obvious. With this particular experience, it was best summed up with: "*Gen1 plug-ins have crushed Gen1 hybrids.*" All along... years prior to rollout... Volt would crush Prius. Over and over and over again, we'd here how sales would be far greater. When that didn't happen with gen-1, they simply shifted focus over to gen-2. When it became evident sales wouldn't even be close, focus shifted back... but rather the entire category, instead of just individual models. Whatever the cause, the comparison is a blatant attempt to alter circumstances. Way back when hybrids were introduced, there weren't any tax-credit or HOV incentives. Instead, there was a teeny-tiny tax-deduction and a massive effort to greenwash. Remember the early 2000's? Climate-Change was a joke, were encouraged to guzzle, and very few cared about smog-related emissions. Now, every automaker is scrambling to deliver something and battery-technology is well-proven. In the end, it doesn't matter. We know what happened and what was said. Those in denial just plain don't care. They'll do what it take to save face and be convinced they were right all along. Just make sure they don't ever look back and actually read old posts documenting history as it happened, not the way they claim to remember it. Ugh.
- 1-07-2016** **Moving On.** We've got other problems to deal with. The latest is Ioniq promotion. Accuracy is lacking. Much of it has come in the form of outdated information about Prius being used to make Hyundai's upcoming offering more appealing. Naturally, there's some vagueness contributing to the problem. But in this particular case today, the issue to refute was obvious. I posted the following in response to what was supposedly a rival introduction... It's frustrating to see how an upcoming new hybrid is compared to an older generation with the claim of competing rival. We've all known for months that Toyota is switching all but one of the Prius packages from NiMH to Lithium batteries. Yet, this was posted anyway: "*The newcomer also uses a modern lithium ion polymer battery as opposed to the older Nickel-Metal Hydride unit preferred by Toyota.*" It's bad enough we still have to endure attacks from disenchanted Volt supporters. But coming from a supposed automotive expert professionally writing an article, there's no excuse. That type of misinformation feeds greenwashing efforts. We've seen it countless times in the past. An article like that will get quoted as an authoritative source over and over. People will blindly believe those claims too, accepting them at face-value without bothering to do any research of their own. That's really unfortunate. In other words, we need to speak out. Making sure misleading "facts" aren't spread is a big deal.

1-08-2016

Fear. That's what pushed those final die-hard enthusiasts to the brink, lashing out at anything they could. Having something to blame was what they were desperate for. It's very easy to see looking back. No mention of the true threat... BMW's i3. That's the design they had been promoting all along. Problem is, that's not what got delivered. Volt fell short. Trying to bring i3 down has proven impossible. Having lost countless battles fighting Leaf made that quite clear the effort was futile. The i3 only has one weakness they could exploit... the gas tank capacity. A little bit of research reveals a shocking reality though. That limitation is strictly a matter of battery-capacity. To qualify as a proper EREV (as per CARB qualification for "white" stickers), the total amount of available gas cannot exceed travel range to that of the EV capacity. Electricity range must be greater. Any type of improvement of energy-density or cost-reduction allows the quantity of gas to be increased. That's inevitable. Better lithium technology is a hot research & development market. A ton of money is being spent to achieve exactly that. It's why i3 isn't mentioned anymore. Pretend it doesn't exist. Make sure people only focus on Prius. Of course, there's a problem with that too. Hyundai's promotion of the upcoming Ioniq is threatening to eclipse GM's hybrid technology by going after Prius. Who's going to notice the Malibu with 2 other players stealing the spotlight? No detail whatsoever is being used to defend Volt anymore as a result. Real-World data is absent now. Too much showing shortcomings is a very real problem. That sales thread provided a great example of how efficiency data has vanished. It's simply not talked about now. That's a fundamental difference from the past. i3 abruptly ended those debates. Hyundai will be joining in along with Mitsubishi later this year, adding to the choice of plug-in hybrids offered. There will be a next-gen Prius PHV as well. How do you sell a product supposedly "*vastly superior*" without anything to actually support the claim? Fear caused those enthusiasts to lose track of goals, to get distracted by wants which didn't contribute to progress. They got incredibly defensive... rather than just joining in the team trying to help change along. It's too bad. That type of persistence could have been a valuable asset. There's a lot of pressure against the clean & efficient tech market. We need them to help make things happen. Not giving up is a strength. Holding on to an implementation proven unable is counter-productive. Take what was learned and apply it to the next offering. It's flabbergasting how tightly into a corner some people can back themselves. Move on already!

1-09-2016

Tired of the Nonsense. Some of us are tired of the few troublemakers working so hard to upset. We're starting to take a terse stand in response. Why should we have to put up with that anymore? For example: "*YOU expected 3rd generation pricing and sales from gen 1 Volt, nobody else did.*" That's such a blatant distortion of history, I couldn't resist jumping on the chance to rebut it. From another, this got my goat too: "*It appears that getting the mainstream public comfortable with the idea of plugging in will take longer than any of us expected.*" His claim of appears is a joke. We knew about that a very long time ago, with quite a bit of confidence too. I climbed up on the soapbox with this single post to both of them: Any? Only me? That's called denial. Look back. This blog is loaded with daily topics where gen-1 shortcomings were eventually acknowledged and hope was shifted to gen-2. There was a some group of us who pointed out the concerns before Volt gen-1 rollout. We got labeled as Prius supporters and were outright dismissed. When we pointed out what gen-2 needed for successful high-volume sales, we got attacked for disturbing the "*be patient*" crowd. Ironically, it was the original posts which did the disturbing, not ours. But there isn't a label for an internal-troll, someone interested in retaining the status quo rather than embracing change. The disruptive nature of their activity is conveniently overlooked. Thankfully, GM listened... somewhat. We got the diversification which was long sought. Branching the technology to a variety of choices is a win for all. Hybrid, plug-in hybrid, and pure electric will all work to entice the switch from traditional to something with a battery. Unfortunately, Volt cost didn't get lowered to the mass-appeal level as hoped. The choice was to push it even further into the specialty category. The outcome is already becoming apparent. It will please enthusiasts. They'll thoroughly enjoy that configuration. Ordinary consumers will look elsewhere though. I had to endure countless posts boasting over the years about how gen-2 rollout of Volt would absolutely squash Prius gen-2 rollout history. That meant 54,000 sales the first full year, following the first few months of initial rush buyers. The second year here in the United States drew 107,900 buyers... without a tax-credit. Notice all the resistance to numbers now? That's a dead giveaway those boosters see that volume goal will not be met. As for "*my*" supposed expectation of gen-3 prices for the gen-1 offering, that's a crock. No one talked about gen-3 back then. For that matter, gen-2 wasn't even discussed until the huge disappointment that came about from the announcement of gen-1 pricing. Until then, enthusiasts seriously thought the "*nicely under \$30,000*" price goal for MSRP would be achieved... hence the vaporware fights. Some of us clearly stated how unrealistic that thought that was... hence the hostility toward that topic now. It's nice that recognition of the trouble adopting plug-ins is being addressed now. But we already knew all those years ago why it would take so long. Cost & Capacity should have been obvious barriers to mass-appeal. A small pack is very appealing if the cost is competitive. A large pack is worth the extra expense if capacity will cover driving range needs with certainty. Attempting to deliver both is much greater challenge than many cared to admit. There was a few of us though. That can't be denied.

1-09-2016 **MPG Mindset.** The automotive enthusiast magazines embraced Prius because it drew in readers. Online publishing was new. So was Prius. Rather than horsepower, it was technology that sipped gas. People gobbled up the articles their writers provided. It was a draw source to help a struggling industry... especially back then, when the price of gas kept breaking records. Now, times are quite different. The mindset isn't though: "---- , *you should be ashamed of yourself . So how many MPG did you receive during your drive with the 2016 Prius? The main reason why consumers will purchase a 2016 Prius. You never told us did you.*" That was from a Prius forum member, who tried to shame the magazine publisher for not continuing to capitalize on the old single-mindedness approach. I wonder if he'll realize how absurd that was to do. We want change. He unknowingly was holding it back, insisting on the status quo. Ugh. Somewhat befuddled, I ended up posting: Haven't noticed the change yet, eh? MPG is not the highest priority anymore. This market has other preferences finally being addressed. It was really unfortunate how hybrids got stereotyped as delivering MPG by sacrificing of other appealing ownership traits. With all the other automakers jumping on board to offer there own hybrids and MPG being all over the place anyway (since driving circumstances vary dramatically from person to person), other aspects of the vehicle are now getting attention. Expansion to reach more consumers requires it. Toyota has embraced this. Drawing in a wider audience is what's needed at this stage. Once 50 MPG is achieved, increasing appeal by upgrading driving dynamics is a no-brainer. Now, you've been told.

1-09-2016 **Contradictions.** We get them routinely, especially from those who have posted for many years. It's rare though to actually catch that happening on the same forum topic less than 2 hours apart. I'm very curious what his response will be after having been called out on it. This is how it started on the big Prius forum: *"I don't see the Prius as expanding reach. Hybrids have acquired a 3-4% market share, years ago, and then plateaued. It is the king of using gasoline efficiently. But has not been able to expand the market share of hybrids for years."* When I pointed out my disappointment in his lack of confidence, I got this: *"Really? I've been cautiously optimistic and have even stated a hope that the gen 4 would help break hybrids out of the 3-4% rut they are in."* He first says is doesn't see it; then he states a hope that it will. What is that hope based upon? You'd think someone so active in online forums would know that sending mixed messages causes a world of trouble. But then again, that is what stimulates discussions. They aren't productive though. My guess is he'll just dismiss this as not understanding what he meant anyway. It sure is nice to have such a great example though of how problems online come about.

- 1-09-2016 Diesel Disaster.** The nightmare for VW keeps getting worse and worse. Last week, the estimate of unfixable vehicles here in the United States was revealed as roughly 325,000. That comes from taking into account the cost of the vehicle verses the cost of the upgrade to make it clean enough to meet regulations. That got people talking about buy-backs. Recently, that guess of quantity came to about 141,000 vehicles could be eligible. That would offset the environmental impact, but what about the other vehicles? What about those who get the upgrade, which will come at the penalty of reduced efficiency, reduced power, and reduced cargo space? Needless to say, the situation is a disaster. In fact, it's so bad, diesel for use in passengers vehicles is quickly dying. There's no appeal, especially with gas so cheap and diesel more expensive than gas. That plug-in hybrids absolutely devastate MPG in comparison anyway. A diesel cannot even remotely compete in that respect. Emission levels are obviously much lower overall with the plug too. A week from now, we'll have a ruling from CARB about the proposed solutions. That should be quite interesting.
- 1-09-2016 Who?** Pointing out the problem of audience can be fulfilling. Hopefully it will from this: *"I think we all had hoped that the gen IV would blow us away..."* Since it's so easy to lose perspective on a dedicated forum, a dose of reality is helpful if nothing else. My guess is some simply have no idea what the ordinary person thinks. Being well informed from online sources has the consequence of forgetting what it's like not to know. Anywho, I replied to that with: That's the confusion. We have already bought into Prius. We don't share the same priorities. We don't matter. To appeal to others, expansion of reach requires consideration of their criteria... not ours. Look at it this way, growing the market means appealing to those not already in it. The greatest potential is snapping up those shopping the showroom floor. They are people who couldn't care less if gen-4 delivers more than a solid 50 MPG. As far as they're concerned, that benchmark is so far above the efficiency they currently experience, more doesn't matter. Put a check in that box and move on. The criteria they'll focus on is what it looks like from the curb, which clearly the new Prius excels at. Do they want a blend-into-the-crowd ordinary look or something that looks sleek & modern? They'll look at what the driver sees behind the wheel. There's 2 impressive screens up on the dashboard, clearly an advanced interface for those drawn to electronics. There's a big screen that's fast and will interact with their phone. There's a wireless charging-pad for the phone too. Also, the cargo capacity & convenience is outstanding, no battery interference whatsoever, just a vast open area with fold-down seats. Aren't those aspects that will stir interest with only a brief look? Then there's the driving experience. The refinements to the hybrid system combined with the obvious body-stiffness and suspension improvements won't leave potential customers on the fence. Isn't this upgrade what they've been wanting all along? Other vehicles sell well for similar reasons. Why wouldn't appealing to those same traditional buyers the same way not attract them to Prius?

- 1-10-2016** **Chrysler Pacifica.** We just found out Chrysler will be offering a plug-in hybrid... only they will be calling it just a "*hybrid*" to avoid confusion. Ironically, that will likely be the source of many misunderstandings. It will indeed have a plug. The system will include a 6-cylinder 3.6-liter gas engine, two electric motors, and a 16 kWh lithium battery. The expectation is that it will deliver 30 miles of EV range. The anticipated rating is 80 MPGe. Will people really understand? Who knows. It's a minivan. Concealing a fairly large battery-pack below the seats isn't too terribly difficult. In fact, it fits entirely below the second row of seats. The third row will retain the stow & go ability (folding down that seat to make a flat cargo surface). There's enough room still for that. So, there is no practicality tradeoff... quite unlike most of the plug-in hybrids we've seen so far. Prius choose a smaller pack for the sake of not giving up storage space for large cargo. C-Max Energi certainly did. Volt gave up seating room. The sedans have tiny trunks. So, this new offering is a welcome addition. It will be available late this year... around the time Prius PHV rolls out. Makes you wonder when we'll finally get details on that. I bet it around Earth Day.
- 1-11-2016** **Change.** Last week, there were technology reveals at CES (the big tradeshow in Las Vegas). This week, there were more technology reveals at NAIAS (the big autoshow in Detroit). From both, we learned about upcoming vehicles. The effect has become quite apparent. After reading a surprising number of posted related to the tax-credits available to GM on that daily blog for Volt, I joined in with this: Dramatic change as a result of Bolt details being revealed. Interesting. The mere mention of \$7,500 tax-credit dependency stirred much anger among Volt enthusiasts... back when EV was the very thing Volt was designed to prevent the need for. Now, it's being discussed... in a somewhat civil manner. Solving "*range anxiety*" was the goal for Volt. The hope was cost would drop so much prior to gen-2 rollout, that would make it a top-seller. Instead, it remained so expensive to produce that gen-2 would continue the dependency. Catch is, the system as a whole is expensive. Cost of just the battery did indeed drop... so much so, the once unaffordable EV with substantial range is becoming affordable. That has left Volt in a position of uncertainty. In fact, many here have given their endorsement for Bolt. Their support is now for the very thing that had once been shunned, what Volt was supposed to compete against. In other words, Bolt is so appealing, it is getting even the most staunch advocates to rethink goals... which brings us back to tax-credit dependency. What are the goals? Year-End sales results brought the automaker total for Volt, ELR, and Spark EV to 95,403. That doesn't leave a lot going forward. In fact, it seems fairly realistic to see the phase-out being trigger by the end of 2017. That's only 2 full years of sales, then the tax-credit gets reduced to \$3,750 for 2 quarters. Following that, just \$1,875 for 2 quarters. In other words, nothing by 2019. How will sales be then, especially with the pressure Nissan & Tesla will be dealing with? Their tax-credits will be used up sooner. Their innovation to overcome having no more subsidies available will be even harder on GM, since the Nissan & Tesla responses won't be known until then. What will be the response to that? Let's not forget about the upcoming plug-in hybrid from GM either. That could bring about tax-credit expiration even sooner.

1-12-2016 **VW Plan Rejected.** The news is big, really big. EPA says it's not enough. CARB says it's vague and too slow. Supposedly, solutions have been in the works since 2014. Cleaner systems on a few of the other VW diesels show the automaker was well aware of design & approach differences. Yet, we keep hearing that this was a misunderstanding. How? Some of us Prius owners were questioning claims for years. It just plain didn't make any sense how both power & efficiency could be so much better than competing diesels. There wasn't even any reason to mention the extra effort Toyota took to make Prius quite a bit cleaner by trading off power & efficiency. Why didn't Jetta need urea treatment? Something didn't add up. The other automakers selling diesel had smart engineers too. The difference was troubling. Now, we know what the true story was. The federal & state governments here don't like it either. Steps beyond retrofitting those vehicles are now getting a lot of attention. Talk of buybacks is growing. Compensation in the form of rapid EV sales is a possible consideration, but that really doesn't seem realistic either. Damage to reputation, as well as the environment, is enormous. Downplay has dwindled away. Now, the die-hard supporters are attempting to raise doubt that the fixes may not impact performance or mileage. How could they not? What sort of miracle are they hoping we'll believe. It will be expensive and it will have an impact. This isn't rocket science. Cleaning emissions requires tradeoff. Not having a battery-pack available means altering the way the engine operates is the only option available. Exhaust will be altered enough to be cleansed properly by an after-treatment. Needless to say, this is seriously souring the appeal of diesel cars... which were already struggling to compete.

1-14-2016 **Import From China.** How bizarre. We just learned the upcoming CT6 plug-in hybrid will be produced in China and shipped over to the United States. For an automaker recently bailed out by the United States government (some debt never got paid back and huge losses were taken from the stock purchase) to conduct business that way... what can the flag-wavers say? The "*American Built, American Fueled*" looks even worse. Of course, with the majority of Volt came from Korea and a substantial amount of electricity & gas coming from Canada, it was never an honest portrayal anyway. Nonetheless, it was the message conveyed. Now, that precedent stands in direct conflict with this next-step by GM. Initial comments posted expresses anger, dismay, and disappointment. For me, I'm intrigued. The move is quite unexpected, even from the automaker who keeps changing plans, is often ambiguous, and is known for sending mixed messages. I'll take the apparently "*lame*" approach from Toyota instead. At least the results have been fruitful. Who knows what this will result in. Bizarre is the only way I can describe it, here. For there, local production & sales in China could be a very good thing. With pollution so unbelievably bad there, this does offer a glimmer of hope.

- 1-15-2016** **What Is It? Definition.** The really lengthy blogs are the result of change happening, finally. With so many new-tech offerings in the works, all to reduce emissions & consumption in some manner, patterns are emerging. That's when definitions become apparent. You can see the categories and the vehicles which belong. This was an attempt to provide some substance to the discussion: *"As an analogy, it's like switching to LED light bulbs in your house. Some people may obsess about going 100% LED, but the reality is that using incandescent bulbs for your refrigerator, clothes dryer, attic, etc., the amount of energy saved by switching these bulbs just doesn't make sense. That's why range extended EVs work so well. And in 5-10 years, when Li/Ion prices drop to \$50/kWh, we'll see range extended EVs that go 100 EV miles. Think about that. With 100 all-electric miles plus a range extender, how much gas would you really use?"* If you think about it, the trouble with Volt lost between categories becomes apparent. I hoped to continue along that thought with: That's why the EREV definition only uses a minimum-sized engine, the approach BMW took with i3. Sorry, but it simply doesn't make sense having a larger engine, knowing battery energy-density will be going up and production-cost going down. That's why the PHV designs are augmentations (package upgrades to add capacity and a plug) of hybrid models; they use a smaller battery-pack and will use the engine somewhat routinely. That's also why clarification about Volt intent has been asked about, especially since the reveal of details for gen-2. It's currently between categories. Will it's battery-capacity increase and engine-size decrease?
- 1-15-2016** **What Is It? Important.** The significance of knowing who the targeted market is comes down to finding out what the supposed goals are. The response to my post led to this: *"Guaranteeing the same performance/characteristics in RE mode as CD mode is important."* That's an enthusiasts claim. The mainstream consumers asked about their need certainly didn't ever specify that. They sighted cost, size, and range as being important. Performance following depletion hasn't been any sort of priority for the masses. Either you get enough range to cover virtually all driving needs or you get a system that operates as a hybrid afterward. That's why sales of Leaf stayed on par with Volt. That's why I kept nagging about who. This was my post in reply to that claim: That's the description of a PHEV (plug-in hybrid). The selling point of an EREV is there's a gas engine as a backup, just in case. With Bolt offering a 200-mile range, getting only 53 miles from Volt puts it in an awkward position. It will be considered a PHEV, especially with the inevitable upgrade to i3 offering around 100 miles of EV range. Note that the capacity of the gas tank comes into play too. If the vehicle offers far greater range from gas than it does electricity, it may not be used primarily as an EV. For an EREV, that guarantee is what's important.

1-15-2016 **What Is It? Spin.** Ultimately, you'll get someone quite upset with the outcome to change a definition. Rather than just acknowledge the mistake and move on, it's a choice to deny what happened. They'll do they're best to spin the situation. For example: "*The i3 is more BEV-with-backup than EREV, as we take it.*" Suddenly, it's all about our perspective. That's an attempt to disassociate past comments, predictions, and hope of the past. He wants the you to believe there was a consumer perspective that was different from the very beginning. I gladly pointed out that line of reasoning was pointless: We didn't matter. That was the lesson to be learned from Volt. Put another way, definitions of the past didn't match either intent or outcome. Bolt is helping to change the mentally, moving us away from what clearly didn't work. Sales approach will differ from gen-1 offerings. People won't care about the differences based upon labels that never took hold. They'll base purchase decisions upon cost & benefit, just like they did for decades prior to vehicles that use electricity.

1-15-2016 **What Is It? The Point.** Goals were always the focus for a reason. Who the heck is this vehicle designed to appeal to and how many are intended to be sold? It's that simple. Enthusiasts fought intensely though, in the end, always directing attention over to Toyota to distract from GM woes. In the long thread today about what Bolt actually is, the topic of Volt kept coming up. That's a new problem for enthusiasts. They can't use Prius as a scapegoat anymore. GM's effort to diversify & compete is causing the struggle to internalize. That stings. It's what I had been doing all along. The competition is other vehicles on the showroom. They had an extremely difficult time accepting that. Soon, they'll have no choice. In the meantime, it's conclusion like this: "...which is the whole point of the Volt." Still dealing with the twisting definition of EREV is amazing. To change goals that often and assume no one will notice. Ugh. Anywho, that was a response to my own reply. So, I followed up with: That was your response to this question: "*Why not favor EV and demote the role of the gas-engine to just backup?*" There's a clear conflict of understanding at play here. The purpose of "backup" is to have a means of continuing in the event of a unexpected situation. In the case of hardware, it is never as robust or thorough as the primary. Cost of that level of redundancy is unrealistic. It's not necessary either, since it is only for limited use. The point is to ensure operation doesn't come to a complete halt before restoration of the primary. For example, some businesses and some households have backup generators. Neither has the purpose to continue on as usual. The power available is only enough to keep items secure, people comfortable, and perishables from spoiling. Capacity is minimal. Duration is short. Scope is limited. As pointed out, that importance of Volt needing to deliver "*the same performance/characteristics*" was guaranteed. That clearly conflicts with "*backup*" purpose. The gas-engine is overkill in that regard, much more than needed to get you to your destination. i3 stayed true to the approach of keeping to a minimum. That leaves Volt in an awkward position, especially now that Bolt is so heavily promoting the upcoming lower cost of batteries. So, we ask for clarification. What is the point?

1-16-2016

What Is It? Attack. Making the issue personal is undeniable evidence of desperation. It's an expected outcome when an enthusiasts become disenchanted. They turn to antagonism, lashing out at whomever they can place blame on. It gets old and is quite transparent. Everyone can see the behavior. Yet, they continue it anyway. In the on-going discussion about "*compliance*" as to whether or not Bolt will sell profitably at a high-volume, he posted this: "*As always, the only definition that seems to matter to you is your own.*" The reason for making it personal was so obvious. Volt underwent the same scrutiny. Sales beyond early-adopter were a struggle. Gen-2 is following the same pattern. He isn't happy. I'm the scapegoat to place blame on. Whatever. Since he invited me to respond, I did: Haven't noticed how that definition got labeled as my own since everyone else abandoned it? Reality is, BMW delivered on the goal GM originally strived for, but didn't. So, the question of why was repeatedly asked. Over time, the answer changed... despite the fact that the definition didn't. Sales results were the reason. We were told a no-compromise (tradeoff after depletion) design was essential and that GM did a fantastic job of delivering it. I agree, they did. Kudos to the engineers. As for the enthusiasts, they absolutely insisted that level of performance was all that would be needed to attract customers. That approach failed miserably. In other words, they learned the lesson the hard way that turning in homework that wasn't assigned won't get you an "A" grade, regardless of how well done it was. That's why attention has shifted over to Bolt. Even though gen-2 of Volt did deliver improvements, it wasn't the assignment... high-volume profitable sales... hence this topic of discussion: "*Not a compliance car, GM says 2017 Chevy Bolt can meet demand of over 50,000 per year.*" We've seen this before. The very same thing happened with gen-1 of Volt. That's why the original goal was reiterated. Knowing why the question was asked before is how you find out what's different now. Clearly, the fear of "*range anxiety*" didn't draw consumer interest the way GM had anticipated. Nissan's upgrade of Leaf to deliver an official EPA range rating of 84 miles made it a strong competitor for Volt. BMW's rollout of i3 with an 81-mile rating along with a range-extender left Volt in an awkward position, which gen-2 did not address. Instead, we've seen the shifting of support over to Bolt with its 200-mile range and no extender. Meanwhile, the rest of the automakers have been announcing their plug-in plans. The most impactful has been the recent reveal from Chrysler... a plug-in hybrid with the same capacity battery-pack as Volt, but in the form of a large people/cargo mover (minivan). It will be available by year-end. Also coming later this year will be the Mitsubishi plug-in hybrid (small SUV), which is already a popular vehicle in Europe. We will be getting gen-2 of Prius PHV from Toyota later this year as well. Heck, even GM is experimenting with the approach of augmenting a hybrid by adding battery-capacity and a plug. That brings us back to the ultimate question. With GM stating it has the capacity to deliver up to 50,000 orders for the 2017, what does that mean for Volt? The answer tells us about definition, it explains why.

1-16-2016 **What Is It? Oil.** Sometimes, the online battles do end up stirring some constructive exchanges: *"But the public is fickle, and has a short memory. Will low gasoline prices be the predominant factor in car choices? Will energy independence and environmental concerns take precedent? Can the smooth quiet electric drive seduce the public away from fossil fuels?"* I was elated to have something worthy to join into that discussion: Notice how the rhetoric has faded away? We no longer have to deal with blatant greenwashing anymore. The Volt fires and Prius PHV capacity were good examples of people spreading false information with the intent to mislead & confuse. That's gone now. We've moved on to addressing the harder questions. Low gas prices... clearly, they are having a major impact. The barrier they create toward the adoption of plug-in acceptance is huge; however, unforeseen consequences of *"drill baby drill"* are now starting to become apparent. Over-supply of oil is harming the very market it was intended to help. Environmental concerns... has become an interesting topic. VW diesels were supposedly able to meet minimum emissions standards. At that level, they were emitting 5 times as much as an ordinary Prius. Few seemed to care though. That made marketing even cleaner vehicles basically impossible. But now that it's been revealed that those diesel vehicles were far dirtier than claimed to be, the topic of air-quality is finally getting proper attention. Energy independence... is a mess. Changing the status quo is tricky and there's quite a bit of support for keeping things as is. Drilling more oil has backfired and has been some pushback of renewables by the electricity industry. What else can be said? The *"too little, too slowly"* has been overwhelmingly confirmed. Smooth & Quiet drive... hasn't worked as a draw. For decades, that's what the luxury choices offered. Ordinary consumers purchased expensive guzzlers instead, ones that trembled & roared became top-sellers. The allure of EV is lost among the masses. The *"know your audience"* advice cannot be understated. This is why the topic of *"compliance"* is such a big deal. If we can't even provide well-stated goals here, there's no way mainstream buyers are going to care. Simply ask yourself: How will these new offerings be marketed?

1-17-2016 **What Is It? Compliance.** Another long, drawn out thread that didn't address the topic itself. Asking whether or not Volt was a compliance vehicle never really happened, since it was always promoted as mainstream. Of course, it irritated enthusiasts to no end when you pointed out what that actually meant. So, bringing up the same thing for Bolt did what? You guessed it. So, I pushed to have looked at it from the other perspective. The so-called *"compliance"* vehicles are those produced by automakers to fulfill some type of legal requirement. Typically, it has been to earn enough clean-credits to continue business in the state. This would often be costly for the automaker. They'd lose money just for the sake of meeting the qualification. Is that what either of those GM vehicles with a plug are? The same can be asked about Toyota. The catch is, the plug-in Prius was a mid-cycle release. We all knew the next-gen upgrade wouldn't require the wait of a full generation, since it was rolled out halfway through the product-cycle. Neither Bolt nor Volt fall into that situation. Both will have a full cycle. So, it makes sense asking what the expectation for that duration will be. But rather than focus on any specific count, I simply posted: In other words, if it isn't a *"compliance"* vehicle, what is it?

1-18-2016

Colorful Adjectives. Posts like this always annoyed me: *"I agree, the 11 mile range is a total joke and pathetic. Not only that, they take sooo long to charge for a pitiful 11 mile range even with an L2 charger. That probably explains why they have plunged in resale value. Toyota better have at least 25 to 30 range especially now that they have a lot of competition."* It portrayed a misrepresentation. The use of "joke" and "pathetic" makes it worse. Range was never a concept meant to be applied to plug-in hybrids... since they blend. The goal has always been to boost MPG. The resulting reduction of emissions and increase in efficiency was the result of increased battery-capacity and a plug. There wasn't any intent to deliver an EV experience to the level of purity-at-all-costs until depletion. Sadly though, that's what many assume. Some of that is the result of successful greenwashing by Volt enthusiast... hence the obvious animosity. But what are you going to do? In this case, I posted: Applying 2016 market expectations to a design targeted at 2012 consumers is what? Think about how the mindset was back then. Back when PHV was first rolled out, battery-capacity was expensive and it required seating/cargo compromises. Toyota worked hard to deliver a design that had the potential to earn profit and would not require interior room sacrifice. It was a careful balance effort to address tradeoffs of the time. Market change is why there are generational upgrades. Insulting an approach of the past that clearly achieved the goals it was set out to fulfill isn't constructive. Toyota delivered what the market had been asking for and it performed well. What other hybrid of the time offered so much space inside with a solid efficiency boost and a production-cost kept in check? None. As for resale value, all the plug-in values have dropped quite a bit. That's simply the nature of first-gen rollouts. It was an expectation that selling on later would include a big depreciation hit. We hope the technology advances quickly enough for that to happen. Slow growth is not a desired outcome. Hopefully, the early buyers understood that. As for competition, there's more to selling plug-in hybrids than just battery-capacity. Cost to produce (not selling price) will have a significant influence on how sales are approached by both dealers & consumers. There's also the practical nature that's appealing, the same things people look for in other vehicles should be present in the choices offered with plug. The true competing vehicles are what can be found next to the plug-in on the dealer's showroom floor. Remember, appeal of offerings from other automakers falls off as generations advance.

1-18-2016 **Changing Definitions.** Long after the fact, a changing of definition can be a sign of trouble emerging. But if the trouble has already arrived and you've been dealing with it for awhile, what's the harm in tossing around some ideas? That's what happened today: *"EREV provides equivalent performance in _both_ CS and CD modes (Chevy Volt). AREV (Augmented Range Electric Vehicles) provide _degraded_ performance in CS mode (BMW i3). PHEV provides _degraded_ performance in CD mode (Prius Plugin)."* I didn't like idea of breaking away from simplicity. Come up with a label to identify the obvious... like EV or Diesel. The meaning should be meaningful. Those were not. For kicks though, I took the time to toss back some consideration of the suggestion: An introduction of revised definitions and a new label to clarify the existing category confusion... interesting. That makes sense for technical comparisons, but how would they translate into real-world driving? The idea of degraded performance only applies if you are actually using the system to the fullest. For example, the 0-60 acceleration only matters if you drop the pedal to the floor. If you don't, the number doesn't serve any real-world purpose. It's the same with the top-speed. Ford's Energi plug-in hybrids have can go up to 85 MPH using only electricity. Whether or not the engine will go faster never even comes into play, since that's a EV speed faster than many people ever real-world drive. What about city, suburb, and local highway travel? Using a plug-in hybrid with a lower top EV speed wouldn't be differentiated. A gen-2 of Prius PHV can drive up to 68 MPH using only electricity. How would a label be associated to that resulting real-world MPG? Notice how Chrysler is planning to call its upcoming plug-in hybrid just a hybrid? If they don't ever offer one without a plug, what difference would the label make? Shopping on their showroom floor, the choice of *"hybrid"* or *"traditional"* will be unmistakably clear. In other words, what is there to gain by applying new labels... or any at all?

1-20-2016 **\$28.46 Per Barrel.** That was the closing price of oil yesterday. At the moment, the price is even lower. My guess is we'll dip to \$26 something... especially since I saw a gas station this morning with an advertised price of \$1.59 per gallon for gas. Anything below \$30 for a barrel of oil presents a serious problem. Even the worst-case scenarios don't go that low. No one ever imagined the situation where over-supply would get so out of hand. The belief was that we'd drill more oil locally, resulting in a significant reduction of what we import. The assumption was the importers would reduce their pumping to match up with the shift in demand. That's rather naive. Those countries depend upon a continued flow of their oil to foreign destinations. After all, some depend almost entirely upon that for their income. Look no further than our coal-producing states to understand the problem caused by supply/demand shifts. With the scale this is at, signs are beginning to show that we have serious trouble on the way. Gas prices staying low for the next few years sounds like a blessing for consumers. But in reality, that will harm businesses depending upon that revenue. Scope reaches well beyond the oil industry itself. Damage from lower prices will have a terrible ripple effect. Sorry for delivering the bad news, but that is why hybrid penetration has been so important. We need to keep demand basically on par with population growth. The increase of vehicles on the road combined with the resulting increase in time required for commutes shows obvious need. It should go without saying that this hurts renewables too. Wind & Solar cannot compete at such a low cost. Dirt cheap oil is bad, really bad.

1-20-2016 **Direct Confrontation, why?** That recent "*What Is It?*" argument came about from trying to figure out what Volt was, if it's not a "*compliance*" vehicle. There are some staunch enthusiasts who viciously defend reputation. No matter what, they have to be right. They have no purpose to actually achieve anything of substance. It's baffling. Anywho, the very same pattern is emerging with Bolt, already. This ultimately came up in the blogs: "*Oh, GM... Why do you do this to yourself?*" Immediately, that resulted in defense posts. I jumped in with: It's hard to believe the same mistakes get repeated. It's the mindset of management. That's why the enthusiasts here praising Volt engineers (who did very well, kudos) had no clue what was coming. Their focus was limited to just the propulsion system. Technical success cannot overcome the misguided approach taken by the business side. We saw this with Two-Mode, with Volt gen-1, with Volt gen-2, and now it's happening yet again with Bolt. The pattern should be obvious at this point. It's unfortunate. But what are you going to do? Seriously. I heard over and over that gen-2 Volt rollout was going to surpass gen-2 Prius rollout, to an embarrassing degree. Based on what? Great engineering isn't enough to compensate for poor executive decisions. Sorry, but reality is that's not going to happen for gen-2 Volt. It's why I ask what's realistic. Setting more appropriate expectations works out to be a win for everyone. When has the "*over promise, under deliver*" not been very painful? Ambiguity from "*available*" wording isn't encouraging. So again, what should we expect? For some perspective, the first month of sales of gen-4 Prius in Japan has resulted in over 100,000 orders. Think about how cheap gas is now. Despite that, demand is shockingly high. How was that success accomplished? What must other automakers do to achieve reception on that scale?

1-21-2016 **Direct Confrontation, excuses.** A long string of excuses followed. They all emphasized the importance of being patient and waiting. It's the same old story. The target is always moving. Some just don't get it. Fortunately, many more do. I pointed that out: Our plug-in owners club met this evening. Among the crowd, there was a 2016 Volt. It is nice looking car, but dang is it ever small for headroom in back and the cargo area. The owner (who had it shipped from CA to here in MN) was in full agreement when I pointed out just how closely it resembles both Civic and Forte. GM's choice to make it blend into the crowd is an obvious move to give it mainstream appeal. Our guess GM's gambling the lithium cost will come down very soon, giving it the opportunity to stand on its own competitively. As for you, the attitude against Toyota and fear of anything constructive being said about GM in an imperfect light is not shared by other owners. (Thank goodness!) I had many there make comments about how effective Toyota's contribution to high-volume lithium-cell production will help the overall market. They also complained about the mess gen-2 Volt rollout has been. We had a lengthy discussion about how to get accelerate plug-in acceptance. None of this nonsense of having to wait many years. We are working to find ways to attract customers now. Our push is shared by a state representative, who was there speaking with us at the meeting. Her presentation was great. The political issues & support are being well addressed. We're also sponsoring a room at the upcoming Minneapolis Autoshow... dedicated entirely to plug-in vehicles. This is a major effort to stir interest and a fantastic venue for doing that. It's really too bad you constantly fight back and don't embrace the idea of a wide variety of plug-in owners getting together to overcome the true competition: traditional vehicles. They know all too well the subsidies are a short-term benefit that will have painful consequences if the technology cannot become profitable soon and sales achieve large numbers. They also know that regular (no plug) hybrids contribute a great deal toward changing the way people look at the benefits of batteries. As much as I tried to get you to see the light. It's just not worth the effort. The plug-in owners club made it quite clear there are many people who do and many more who soon will.

1-23-2016 **Direct Confrontation, sad.** The choice to make it personal was vindicated: "*No, what is sad is you trying to change history. We all wanted more Voltec. Since day one. What you always were trying to sell was that GM put too much EV range in the Volt and the wimpy range in the PiP was the way to go. Well GM did come out with a Gen2 Volt and they listened to the customers, who wanted MORE EV range.*" He pushed aside need. He just wanted to celebrate. Twisting events and disregarding facts only takes you so far. The victory was hollow and continues to be. I responded with: Interesting perspective. The range claim is a distortion of what I said, if anything. These blogs here and my own clearly confirm that I said a second model of Volt should be offered, one with less range to reduce cost & weight while increasing interior-space and depleted-efficiency. I often find that people misquote me, thinking I said something in the past and it was actually someone else. With so many attacks from anonymous posters, that shouldn't be much of a surprise. Think about it. As for the range in PiP being enough, that's just plain wrong. From day one, back when the aftermarket prototypes started appearing, I said the same thing... Toyota would aim for a target price and adjust range accordingly. The specific price range was even mentioned routinely, to ultimately deliver a package option \$3,000 to \$5,000 more than the no-plug model. That means we expect a considerable capacity increase with gen-2, since the battery-cost has dropped quite a bit over the past few years. With respect to listening to customers, you've lost touch, just like GM. The question of "*WHO*" was asked over and over and over and over again. For range-increase to be a customer priority, that customer would have to be an enthusiast. Ordinary traditional vehicle buyers most definitely are **NOT** asking for more range. Evidence of that is absolutely overwhelming. Cost reduction for competitive pricing is by far more important. Just think if GM had targeted gen-2 at those customers, the people SHOPPING THE DEALERS SHOWROOM FLOOR. You've lost your mind if you think the loss of those sales aren't important. So much opportunity is being lost... That's the only way any automaker will be able to sell their plug-in vehicles profitably at high-volume without the tax-credit. All those excuses you posted above about being patient tells us your focus is different, that you want a very appealing plug-in that doesn't see direct competition with traditional vehicles as important anytime soon. That's sad.

1-23-2016 **Direct Confrontation, debate.** Someone else joined in, another one of those unhappy enthusiasts looking for someone to blame: "*...and I will shun him. He is not an honest debater.*" The very concept of debate online is flawed. There is no moderator to oversee & judge. Interjections of off-topic subject matter are not penalized or even pointed out. Posts simply wander aimlessly. I often get attacked for attempting to restore the discussion back to the topic... getting called a "*broken record*" and being told my posts are "*mind-numbing repetition*". Those are the same people who hate accountability. They don't care about paying the bills. They only want to win battles. My words to deal with the nonsense were: Why is there a debate about who potential Volt buyers are in the first place? It seems absurd for GM to set a goal of mainstream sales (5,000 per-month average with annual sales of at least 60,000), then back away from that twice... especially when the need is there. It was understandable with gen-1. Some of us, including myself, pointed out the reasons why that was unrealistic... and got shunned for doing it. But why get shunned again for gen-2 having the same struggle years later with the same goal? There is obvious upset about how much attention Bolt is drawing away from Volt and that several automakers are rolling out new plug-in hybrids this year... Hyundai Ioniq (hatchback), Kia Niro (SUV), Chrysler (minivan), Mitsubishi (SUV). The fact that BMW is now working toward delivering double the range for i3 compared to Volt isn't exactly welcome news either. Using me as a scapegoat, redirecting attention to Toyota, and claiming I don't support any other automaker isn't constructive. Why a debate? Answer the question of audience. Who is the market for Volt?

1-23-2016 **Direct Confrontation, who?** That response of "*Who is the market for Volt?*" deeply angered the defender (a well-known veteran member who posts often, stirring trouble by claiming to challenge trolls): "*Look in the mirror. Then look at the Volt and imagine a Toyota emblem instead a Chevy one. SOLD!*" It always makes me wonder how many readers notice the transparency of that behavior. It's an obvious provoke to serve as cheer-leading. The hoped for outcome is simply agreement. There is no expectation of any actual progress, hence defend. I choose offense, hence the direct confrontation: You're saying gen-2 Volt is an enthusiast vehicle then, continuing to remain a niche until the next generation. Interesting. If you had said my Mom or Grandpa or Aunt or Father-In-Law, that's an entirely different group of consumers. They represent ordinary people, consumers who are perfectly content sticking with traditional vehicles. That's a hard-sell getting those who don't consider performance as a priority to pay so much for it. They simply aren't interested. Continuing to avoid acknowledging it, rather than face that reality and finding a way to deal with it, is your choice. Good luck. Personally, I'm baffled how you can watch so many sales be lost to GM's own customers. Each month's statistics show Cruze, Malibu, and Equinox absolutely devastating Volt, despite the generous tax-credit. So much opportunity is being lost, right there on the showroom floor. It's quite disheartening. Making fun of me and Toyota won't fix that. Leadership is the ability to get ordinary people to change. Sales are the measure of that progress. No amount of spin will hide the fact of traditional vehicles dominating interest still. Remember, the overlying goal of the tax-credit money is getting the business to a position of having sustainable (on-going high-volume profitable) sales before they expire. That **BEFORE** cannot be stressed enough. Time is quickly running out for Volt. What can be done to help in the short amount of time still left?

- 1-24-2016 Direct Confrontation, purpose.** Simple, or so you'd think. Who is the market for Volt? It doesn't seem like that question would be so complicated to get an answer to. It's a fundamental to know. How can you properly fulfill a need if you don't even know the source of the requirements? It's why Volt has had so many problems and the other high-tech, high-efficiency choices have not. It's actually quite bizarre for it to be so unique. The others just plain don't have that trouble. Leaf has a clear audience. In fact, that's why Bolt hasn't struggled. It's obvious who GM is attempting to appeal to. Same with Prius from Toyota. Tesla, we easily see that too. There are several upcoming plug-in hybrids. With each, the targeted group is apparent. We see pricing. We see styling. We see intent. Without a clear purpose, you end up with a mess. Direct confrontation of someone trying to support it ends up a disaster. They struggle to reason. They end up convinced you are somehow wrong. There's no way to win.
- 1-24-2016 Direct Confrontation, finally.** The discussion had lingered for days, rather than dying after just a few hours like usual. Out of nowhere, a new poster appeared. We'll never know who it was. That person had attitude and was quite to the point: "*Groundhog day :(Maybe this year Feb 3 will come for John and he stops this nonsense.*" They get tired of having to be held accountable for past claims. The anonymous identity is a way of relieving the stress. After all, who wants to admit their own beliefs were based upon incorrect assumptions? Anywho, I was happy to post: Dislike for business accountabilities will always be there, even if I'm not. That "*nonsense*" is what pays the bills and keeps the automaker viable. Sorry, but that's the reality of the situation. Set expectations, then do what it takes to achieve them. Dismissing the message of status doesn't actually accomplish anything. Refusing to state goals or even identify the target audience is clear indicator of problems. Allowing the status quo to continue is how history ends up repeating.
- 1-24-2016 Direct Confrontation, unqualified.** It was easy to see an end approaching. The point of direct confrontation was to achieve some type of closure... hoping to do that by identifying root cause through an extra hard push. I got lucky. It actually worked. Seeing a theme emerge was a relief. The pattern held. People tend to justify an outcome, convincing themselves that was the goal all along. I'm not the type. That's why I state intent right from the very start. If what was set out to accomplish doesn't happen, I'll know with certainty... since I have my own blogs documenting thoughts, beliefs, and hopes of the time. Heck, even milestones along the way are often included as guides to ensure focus is not lost. That's not the kind of people I have to deal with though. The specific group of individuals fighting back are quite different. Turns out, they aren't qualified to participate. The inability to answer a few fundamental questions reinforced that observation... which was really more like an epiphany. Some people simply don't have the background. That's why they had no idea what I was talking about. It made my response easy. Rather than risk stirring the pot any more, I just suggested: Take a business class... economics, accounting, marketing, etc.

- 1-25-2016** **Direct Confrontation, how.** Providing some sort of template to follow is always helpful. You really don't want to risk insulting someone who really doesn't understand the problem. After all, they're stuck making the same mistakes. Finding a means of breaking them out of that harmful repetition is priceless. I'll attempt that by proposing how: State goals... timeline, quantity, cost, profit... then work to achieve them. The classes teach the importance of those goals and how to respond when milestones are missed. Clearly, that isn't what has happened here.
- 1-25-2016** **Direct Confrontation, confirmation.** It was overwhelming. The rudimentary nature of the response I got was treasurable: "*Words. Words words words. Words?*" There isn't anything more senseless to say than just posting gibberish like that. It was childish and obvious. The stereotype of being clueless was confirmed. My choice was to not bother responding. That was the conclusion I had been looking for. Rather than provide some type of logical reasoning, what he posted bordered on throwing a tantrum for not winning. Wow! So much for trying to have some type of constructive exchange. He was polite. Though, the anonymous post in between was very suspicious. He was thoughtful. Though, the statistics posted had blatant omissions. He was persistent. Though, the strong-will turned into desperation. I'll give him credit for trying. But in the end, this was excellent confirmation of an effort turning sour. Good intentions. Unforeseen consequences.
- 1-25-2016** **The Next Step.** With the Volt craziness behind us now, is it possible to get off to a fresh start? I tried with someone else, another who was rude & insulting... having also loss a long drawn out series of battles. The war is over. What should the next step be? I was impressed by his attempt: "*What you must remember is that cost was the most important feedback GM got about Gen I, and most of these suggestions would have would likely made Gen II much more expensive.*" The problem was time. He absolutely hated me for pointing out it was limited, that delay would be costly. Opportunities being missed made it worse. Over the years, he could see I was right. That became a distortion of what had originally been suggested... thinking I wanted that from the very beginning, rather than just hoping for a mid-cycle upgrade or for gen-2 to deliver a better aligned purpose. Frustration will cloud memory. Written blogs serve as a cruel reminder of what actually happened. It's not worth pointing out those facts of the past though. The hope is to move forward. That means looking to the future, this new year specifically. So, I did, but also included a reminder: The suggestion of offering a second model with a smaller capacity would have lowered cost. Increase in volume from that choice and the obvious improvement due to reduction of size & weight combined with smaller price tag would went a long way toward gaining market-share and advancing the tech. Notice how many automakers are now planning something in that smaller capacity category... Hyundai (Ioniq & Sonata), Kia (Niro & Optima), Mitsubishi (Outlander), Ford (C-Max & Fusion), Toyota (Prius), Honda (Accord), and Chrysler (Pacifica)?

- 1-26-2016** **Easy To See.** The hate from that new person became quite undeniable. Attack posts popped up today. One started with this: "*Again, WTF are you talking about? Goals? More nonsense? There's a surprise!*" It then went on with a rant about Prius. Reading it was amusing. The expression of frustration was immense. There was some parroting too. That's the ultimate. The person will simply just recite back what they found most aggravating from you. It confirms you struck a nerve... which wasn't the point, but that does serve as verification that a shortcoming was correctly identified. When something is incorrect, they'll explain why. Having nothing whatsoever to respond with speaks for itself. As for the not knowing what I'm talking about, it's clear the person doesn't have a background in business. That's to be expected. Some things you know a lot about, some things you don't. It's important to know what subject areas you aren't well informed of, then listen. Posting insults and questioning purpose is most definitely not constructive. That pattern of behavior is easy to see. Today, that was epically true.
- 1-27-2016** **Understanding, Past & Future.** How would you respond to this: "*I still stand by my assertion that most people simply don't understand plug in hybrids, and this will most likely keep them from ever becoming *mainstream*.*" My choice was sighting an analogy and pointing out consumer behavior: Many automakers are betting against that belief, since it has recently become outdated. Technology improves so rapidly, it makes sense. After all, the typical consumer expects that. The computer industry has seen this many times. Many who missed the early generations have no idea there was even any issue. For example, USB 3.0 and Bluetooth 4.0 connections: both are fast, seamless, and reliable. The mainstream buyer is clueless to barriers/limitations/issues of the past. The upcoming next-gen hybrids with plugs will take advantage of high-density, low-cost lithium batteries. That opens up opportunity which hasn't existed until now. Another is wireless charging. The convenience of simply parking over an induction-charger in your garage cannot be understated. The connection is effortless. Consumers are becoming comfortable with smart-phone apps too. Being able to check on the status of their vehicle, along with getting a slew of handy statistics, is both enticing & empowering. Again, this is something that wasn't available until recent. Looking at hybrids specifically, the MPG value is all consumers have ever focused on. They couldn't care less about EV purity. If the vehicle has an engine, they expect to see a very high number for MPG. The plug-in hybrids deliver exactly what they expect. That meeting of expectations is what will draw mainstream interest.

1-27-2016

Playing Catch-Up. Most of the problems stemming from the antagonist Volt owners came from their lack of experience. It was all new to them and they were too naive to believe mistakes of the past could be repeated. So when the question of electric-only or plug-in hybrid comes up, they really don't have much of a background to support an argument either way. That's why the struggle with Prius was so intense at times. They just plain did not understand the influences of market acceptance outside of their engineering knowledge. The logic they were applying didn't correlate with the way people actually behave. Oh well. At least we can see progress being made, as slow as it is. They are indeed catching up. Too bad so much time was wasted waiting for that. They made it worse by refusing to accept what was actually happening. This is what I had to say about the topic today: With respect to what makes more sense, EV or Plug-in Hybrid, it boils down to when the purchase will be made. If it's just an individual making the choice for a purchase tomorrow, there are very few options actually available. With over 17,000,000 of the vehicles sold last year here without plugs, inventory is very slim. This time next year, the story should be quite different... though, gas will likely still be cheap. Cost has a huge influence on EVs right now. If you're willing to pay a higher price, you'll get decent range. If not, you'll have to be very aware of your driving needs and plan accordingly. The upcoming range-increase, cost-decrease next-gen models will directly address that. Until then, buyers must carefully study the choices. This time next year should be engaging for plug-in hybrids. Finally, there will be many more available, new models and a next-gen to draw consumers. That variety of endorsements from automakers combined with the growing pressure to deal with the upcoming tax-credit expiration for some will push the market too... hopefully, in a helpful way. Whatever the case, it will make the rollout of affordable 200-mile range EVs a situation the industry has never faced. Making a purchase even later, who knows? The problem of not having a place to plug in will likely become a driving factor (pun intended). There are many properties with challenges preventing easy access to electricity. Perhaps the end of tax-credit opportunities for automakers will be followed by increased/renewed tax-credits for homeowner & landlords. A shift of focus at that point would stimulate further growth. After all, the intent of the current tax-credits is to help automakers become established. If they squander that money, it's their loss. Upgrading infrastructure provides benefit too. In other words, it's complicated. That complexity will hinder interest. Consumers will still be strongly attracted to traditional vehicles until simplicity arrives. The choice will eventually become a no-brainer. But right now, many don't care about efficiency... or sadly, emissions. They choose neither.

1-28-2016

Automaker Pushback. 3 Leaf, 1 Volt, and my Prius PHV shared the plug-in parking area at the ramp today. Sadly, that's considered impressive. For a parking facility with an 85 kWh solar-array (which is just plain sweet), only having 6 chargers for the 1,600 parking spots is disheartening. It's through no fault of their own. They've been quite supportive. It's the automotive market. Interest for plugging in simply isn't there, especially with gas so cheap now. Reading today's article about automakers pushing back against MPG increase requirements should be no surprise to anyone. It's magnitudes easier to sell a guzzler than it is a high-efficiency, low-emission vehicle. The larger ones with lots of extras return a generous profit. Since they are so inexpensive (relatively speaking) to operate, deliver great power, and offer generous seating & cargo space, people gladly pay the premium sticker-price. For the small "*economy*" cars that offer just a basic profit, automakers produce them because they provide steady income for sales & service. The "*green*" vehicles don't fit either category. Unfortunately, not everyone is in agreement that those vehicles are the competition. Much of the cooperation disconnect comes from approach. Which is more effective, a large quantity with small impact from each or a small quantity with large impact from each? Time and time again, the computer & device markets have shown us that small impact results in greater overall change. In the automotive industry, look no further than ethanol usage. Having nearly all of the gas vehicles running on a 10% ethanol mix has resulted in dramatically more ethanol displacing gasoline than the flex vehicles capable of running on an 85% ethanol mix. Change is difficult, especially for the masses. Finding ways to work around their natural urge to resist is a challenge, but can be very rewarding. So, what does that mean for fuel economy standards? Knowing those are going to be fought, the reality of that pushback must be clandestinely dealt with somehow. Take the subtle approach. Hybrids (both with & without plugs) advance battery production. Their high-volume is a win for electric-only vehicles, even if those remain a niche until energy-density increases enough to deliver range similar to traditional without compromise to interior size or vehicle weight. That means hybrids have a better chance of getting the industry to actually step away from guzzlers. It's more of a gentle push while actually achieving a lot; though, the true impact scale won't be recognized until much later.

1-29-2016

New Rhetoric. It's not as bad as it sounds, I think. Seeing this yesterday gives an impression of much worse: "*You know when you are talking about Prius' it is all about self righteous indignation.*" There's hate from a few Volt owners like that still, thankfully they are far from the norm. Unfortunately, he went on with: "*The only way I could drive the Prius and not want to hit myself in the head with a hammer...*" That's the kind of stuff which contributed to the group-think in the past, allowing greenwashing to flourish. That led to facts being voted down, where readers simply didn't care anymore. It was something of amazement to see. An opinionless statement conveying nothing but information about the topic of discussion would get outright dismissed. Sadly, we see that on a regular basis with politics. People have grown use to choosing not to acknowledge what they don't like. Remember how popular Volt was claimed to be? Many of those early-adopter sales were achieved with great lease bargains. When those leases expired, many moved on to other vehicles. The claimed "conquests" were lost as a result. It was a short-term victory. What kind progress was that? As that technique for drawing sales began to slip, the bargain pricing was shifted over from lease to heavily discounted long-term sales. That actually did seem better; however, it overlooked profit & tax-credit sacrifices. In the end, hope was refocused on the gen-2 rollout... which brings us to where we are today. Gen-2 Volt has been compared over and over to Prius. The catch is, those reports totally disregarded the new Prius... which has only been available for roughly 2 weeks and in very limited locations. Thankfully, the very first article actually comparing 2016 to 2016 was published this morning. Both new generations. Finally! It asked: "*Which green bestseller is right for you?*" I was intrigued by that title. Sadly, all it did was say both have improved over their predecessor, gave a little history, then provided a few details. That was it. Disappointingly, the same approach as in the past was taken... pretend there's no such thing as a plug-in Prius. In fact, there was even a bit that of greenwashing with: "*The conventional hybrid Prius doesn't plug in at all.*" Rereading what was written, this made it worse: "*For the first time, the Prius Liftback offers two different battery packs.*" Coming from a self-proclaimed green-car website, they should be called out. That's blatant misleading. The plug-in model obviously has a different battery-pack. They've written a number of article about the plug-in Prius. Heck, they even published one with this as the opening line: "*Today, why the next Toyota Prius Plug-In Hybrid could be a game changer...*" If anything, they're extremely vague. That's a major contributor to problems. It's what feeds the rhetoric... which we are now see a ramp up of.

- 1-29-2016 Diesel Mess.** Remember in the past how businesses did things for good will, taking an extra step simply for the sake of being nice? True, it did help their bottom-line in the end, but there was a very real up-front monetary cost to the gesture. They saw value in reputation. Strengthening that by taking unnecessary effort went a long way. With VW, we see them fighting the law to get us to accept their "good enough" claim through argument of detail. It's very clear that spirit of the law was violated. Whether that was intended or not doesn't matter. The violation happened. Now, they are making it worse by fighting instead of trying to negotiate an acceptable compromise. Being "legal" wouldn't make it right anyway. Even if they do get Europe to accept weaker standards, that doesn't address the growing emission problem. Air pollution must be fixed. Allowing dirty cars to contribute to smog issues is not helpful. We've had to tolerate that nonsense for far too long. Diesels just barely met minimum requirements. Hybrids like Prius are the opposite extreme, earning the highest emission-rating for any fossil-fueled vehicle. It's sad the problem could get so out of hand. It's disheartening to see some people defending those actions.
- 1-31-2016 First 2016 Reports.** It's exciting to read them. Here's my view of the situation: Gen-3 still doesn't get reported correctly, after all these years. There are too many circumstances to keep in mind when trying to kind posts simple. So, don't expect anything clearer for Gen-4. That's just the way it is. Fortunately, being a hybrid like Prius it doesn't matter anyway. Whether you are in fuel-cut mode or EV doesn't make a whole lot of difference at highway speeds, since the energy flow changes so frequently. The system is smart enough and flexible enough to exploit even the tiniest of efficiency opportunities. Gen-3 has a top EV speed of 100 km/h (62.1 mph). You won't see that unless you have the plug-in model though. The reason for that is a simple matter of battery power & capacity. Without plug-supplied electricity, there isn't much of an overall gain. Without the plug, EV is restricted to 40 km/h (25 mph). That's only available when the system is fully warmed up, but the advantage is you get more power than Stealth mode (the other EV mode). That has less power and the system still needs to be warm, but the top speed is 74 km/h (46 mph). Gen-4 is sad, since I don't have one yet. It's a new twist. I was a pioneer in 2000, 2003, 2009, and 2012. Each time, my purchase was among the first in the country. This time, I have to wait and live vicariously through others. Though, I can point out that leaks online indicated a top EV speed with the new generation for the plug increased to 110 km/h (68.35 mph). We also learned that both mechanical & electrical operation has been made more efficient. What this means for the regular Gen-4 is interesting to read about through the experiences of new owners. However, we really need someone with an aftermarket gauge to report actual RPM values. Anecdotal observations are only the first step. After all, we don't really know what "EV" truly represents. With the current plug-in model, miles driven with the engine off (0 RPM) while in HV mode are not counted as EV... despite the fact they are traveled using only electricity and with the engine motionless. Keep reporting to use what you find. Thanks.

2-01-2016 **Suggestions.** With the inevitable tax-credit end approaching, we do get a little bit of discussion about it now. It isn't necessarily constructive, but at least there's something. I particularly liked this comment: "*It doesn't seem fair to essentially punish GM or Tesla for being pioneers in the market.*" Naturally, my response didn't exactly get a warm welcome... despite providing an suggestion of a new approach: It doesn't seem fair to punish automakers striving for maximum penetration either. If the goal of tax-credits is to help the tech reach as many consumers as possible, why don't automakers get the choice to divide up the subsidies in terms of money rather than quantity? Everyone who purchases early on is a pioneer. \$3,750 would benefit twice as many people than \$7,500. The recommendation should be to allow current automaker subsidies to end. Focus new funding on infrastructure instead. Give new subsidies to those who will struggle to get a level-2 charger installed, those who wouldn't otherwise purchase a vehicle with a plug. In other words, the current subsidies are just the low-hanging fruit. What's really not fair is ignoring those who follow.

2-03-2016 **Explosive Reaction, shocking.** Within just 7 minutes of posting, I had already got 9 negative votes on my comment today. It was on that daily blog for Volt. Things are really falling apart with respect to sales and that's what the topic was today. That has been the expectation for awhile. So much hope had been deferred to gen-2, that they forgot how quickly things fell apart shortly after gen-1 was rolled out. Shortcomings are very difficult to overcome once the transition from anticipation to on-the-road takes place. The problem of not matching priorities becomes all too real. Want cannot compensate for need. They know it now too. I was shocked how quickly that was confirmed. Whoa!

- 2-03-2016 Explosive Reaction, choices.** My shock turned into this: Reading through the comments posted 2 days ago about the inevitable tax-credit expiration expected sometime mid-cycle for both Volt & Bolt, it's easy to see the signs of trouble apparent already. That discussion thread started with complaints about fairness. It then turned to flag waving. It was followed by the fuel-cell red-herring. How is any of that constructive? Over and over again, it has been posted that the true competition is traditional vehicles. Those cars and small SUVs sharing space on the showroom floor are what draw people away from the high-efficiency, low-emission choices. With gas prices so low and no expectation of them to rise much for years, there's a lot of pressure keeping things status quo. The market for change simply isn't there. That's why sales results of Cruze, Malibu, and Equinox get posted every month. They are what's holding Volt back, not other high-efficiency, low-emission choices. It's time to face that reality. No amount of advertising will change that either. What stirs interest on the showroom floor is quite different to what people find appealing while watching television or hearsay or online. We knew Volt sales would be inflated due to year-end rush for the tax-credits. We also know the 2017 model coming soon is only a minor upgrade and that winter sales are typically slow, but availability will increase. So, expectations have been a little screwy. January 2016 sales are especially interesting. Cruze did well with 14,362 sales. Malibu just beat that with 14,746 sales. Equinox was the strong seller. With 18,574 sales, there's no denying demand is hot for small SUVs. That's a particular problem for Volt, being a compact car. Bolt will offer more interior space, which reinforces market preference for more room. Ford had always hoped to capitalize on the opportunity to sell more small SUVs by offering a hybrid version. After years of struggle though, it was dropped. Toyota experimented with the large interior aspect in this market by offering Prius V, a wagon model. Results were a mix. Sales were much higher than Volt, even without any tax-credit or HOV incentives. But growth was flat. So, attention has been turned to the small SUV market. January is first month for RAV4 hybrid being offered. 1,973 were purchased, without incentives. Watch what happens with demand for it over the course of this year. That may be our best indicator of mainstream preference. Remember, the goal is to become business-sustaining. That means high-volume profitable sales. There cannot be reliance on tax-credits. There should not be a dependency on low gas prices either. For the vehicle to truly be competitive, it must be among the top-sellers on the showroom floor.
- 2-03-2016 Explosive Reaction, problems.** What more can be said: Personal attacks and an attempt to draw attention away to another topic. Wow! Clearly, sales are becoming a major concern. What I find as the biggest confirmation is how Prius was always used and continues to be the basis of comparison. That never made any sense. It was entirely new. GM already had a wide array of experience when Volt was rolled out... EV1, Two-Mode, and BAS all taught the GM engineers & executives a great deal about battery & motor technology. Now, there's suddenly a panic. Volt isn't measuring up to Prius either. At this point in gen-2 history, sales had already exceeded mainstream minimum... by quite a bit... and without a tax-credit. What should the outlook for Volt be? For that matter, what should we expect from the "Voltec" family?

- 2-03-2016 Explosive Reaction, growth.** Not wanting to deal with the issue is far from new. The usual reaction is to redirect attention. For example: *"I'm not sure why you specifically comment on GM all the time when Toyota is staring you in the face."* I was happy to take the bait from that defender (internal-troll), since there was a very real curiosity what kind of reply would come from it: Toyota's rollout of both the gen-4 Prius and introduction of RAV4 hybrid just happened within the past few weeks. Inventory is getting filled as quickly as possible. The approach to draw new interest has been discussed many times. How much more do you want? Toyota's heavy investment in hybrid technology is what will get them past the low-hanging fruit. That's what will get traditional buyers to purchase a high-efficiency, low-emission choice. The platform offers easy & profitable transition to plugging in. It's a strategy to reach the masses. That low-hanging fruit is rapidly disappearing. Volt will not be able to rely upon early-adopters and tax-credits for too much longer. Notice how that reality was brushed aside rather than discussed 2 days ago? How is that not staring you in the face? In other words, what strategy will GM be taking to grow sales?
- 2-03-2016 Explosive Reaction, next steps.** Having the low-hanging fruit situation pointed out was quite unwelcome. No one has ever stated it that way before. They were so obsessed with the "early adopter" excuse that no one took the time to consider when the next step would need to be addressed. An abrupt announcement of that time having arrived definitely stirred so emotion... in an already volatile situation. I pointed it out this way: The reality of there not being much low-hanging fruit left has clearly struck a nerve. Heavy bets were placed upon gen-2 of Volt delivering and neither an EV nor a plug-in hybrid being necessary. Yet, we see Bolt and CT6 are on the way. I suspect GM will move on, leaving Volt as a niche much like Camaro & Corvette have always been. Ironically though, it will have to shed a mainstream look to achieve that... which is the direction gen-4 Prius has already taken, but the expectation for that is high-volume sales. The upcoming expiration of tax-credits, continued low gas prices, and increasing choices mean something must happen in the near future to enable Volt sales to grow. They must reach a point of competitiveness soon. Reaction here is confirmation of both pressure & worry building. With so many choices on the way, it will only get worse. What should the next steps be?

- 2-03-2016** **Intent.** Overcoming blindness from having invested so much in a philosophy that proved unsuccessful is a challenge. That's why dealing with it head on today, facing it directly was a reasonable tactic. Out of that came this: "*Based on that criteria I'll just take a look at these *niche* vehicles.*" He was quite angry. I didn't care: This is pretty basic stuff. An automaker chooses which vehicles will provide business-sustaining profit and which will be favor some specialty criteria. The one type will be produced in high-volume, the other limited quantity. Both are perfectly reasonable, since they balance either other out. GM and supporters see how Volt's look was toned down and made to blend into the crowd. Looking very similar to other popular picks is fine, but the expectation is for it to sell the same way. You're working frantically to convince us that's not the case, telling us the opposite of what is so obvious. No amount of spin or distraction will mask intent. To be the "*game changer*" that Volt was to intended to be, it has to actually change the game. If ordinary people don't buy Volt, mission not accomplished. That's why "*mainstream*" is so important. High-Volume sales are essential. I've never encountered anyone so truly desperate to defend. You clearly don't understand the purpose of having a mainstream target, the reason why such a specific minimum was chosen.
- 2-04-2016** **We Knew.** The argument continued on to the next day. I just kept telling it like it is. No reason to dwell in the past. The goal is to move on to gen-2 offerings. A way of effectively doing that is to just summarize. So, that's exactly what I did: We knew from the beginning that Prius PHV was a mid-cycle upgrade intended for real-world data collection. Expectations were never beyond modest sales. Heck, the first full year had a planned quantity of just 13,000. That resembled the same thing Toyota did here with Prius back in 2000. Both quantity and availability were intentionally limited, it was also a mid-cycle upgrade. No one seems to remember any of that history or how successful that approach was. We'll end up with a second-generation model designed for mass-appeal, just like the transformation that regular model experienced. It might not look like the gen-4 Prius. It may not even be called Prius. What we do know is that it will be an improvement based upon what Toyota learned from the previous.
- 2-04-2016** **What do you see?** Attempts to get constructive dialog going can be a challenge. The personal attacks usually get ignored. But in this case, the desire to move on means addressing them directly. I was rather curious what the reaction to more information would be anyway. So, when that opportunity presented itself, I posted this about myself: I see a person who has and continues to support affordable choices for the masses. That's why tax-credit and profitability gets brought up on a regular basis. It's vital for the automaker to quickly find a way for their tech to become self-sustaining. We see all of the following plug-in hybrids on the way: Hyundai (Ioniq & Sonata), Kia (Niro & Optima), Mitsubishi (Outlander), Ford (C-Max & Fusion), Toyota (Prius), Honda (Accord), and Chrysler (Pacifica). Each is striving for sustainability. Heck, that's also the case for the EV offerings: Nissan (Leaf), Tesla (Model 3), and even GM (Bolt). Volt is the only standout, without a plan to be competitive. What do you see?

- 2-05-2016** **Bashing.** It's quite interesting to see just how desperate a person can be. How far can denial be taken? The point of gen-1 is to move on to gen-2 or whatever the successful trail ended up to be. Holding on to the past at the penalty of not progressing to the next is futile. Yet, there are a few who do. It's tiring. It's annoying. It's a waste. I still took the time to deal with it anyway: Spin of history by pretending the purpose was different, we're quite familiar with that. Volt did it a lot. Prius goals were very clear. So were those for Volt. Prius achieved them. Volt did not. Volt gen-1 was supposed to be a "*game changer*" that would out Prius the Prius. It didn't, not by a long shot. So, we ask purpose of Volt gen-2. But rather than get sensible feedback, some type of goal laid out with a timeline to show there is clarity of intent, we get more Prius bashing. It's really unfortunate. Notice how most have shifted over hope to Bolt now instead?
- 2-05-2016** **Misplaced Hope.** Seeing to this was unpleasant: "*With current Li/Ion prices, it almost seems like the pack is free after the tax credit.*" It's the equivalent of betting big that non-hybrid SUVs are the future. Just like low gas prices, we know the tax-credit will end. What then? How do you sell that inventory you were dependent upon when prices go up significantly? The dependence of that \$7,500 will be quite painful. Oh well, it's not like they weren't informed well in advance: Popularity would mean business suicide. Each automaker must carefully consider how to promote their plug-in technology. So when those tax-credits run out, they'll still be able to retain high-volume profit sales. The catch is, they must achieve that level of consumer interest prior to the expiration. Toyota gets mocked continuously for rolling out their gen-1 plug-in hybrid in such limited quantity, despite the fact that they were able to collect vital real-world data without using up a lot of tax-credit. That leaves them far better positioned than GM, who is facing an inevitable subsidy loss right in the middle of both Volt & Bolt product-cycles. What was learned? Turns out, people value seating & cargo space more than they do range. Knowing the preference, automakers are working to deliver exactly that. Heck, even GM is experimenting with that now too. Look no further than the upcoming CT6 plug-in hybrid for confirmation of that real-world data collecting. Volt worked out well for enthusiasts. It really is a nice car in that regard. It simply doesn't appeal to the masses. Heck, Prius doesn't either... but at least it sells at a much higher rate, doesn't depend upon tax-credits, and is profitable. The new generation will expand appeal as well, making it a true contender for drawing away interest from traditional purchases. RAV4 hybrid was rolled out to draw even more interest. It represents the very diversification Volt supporters have wanted for years. There is hope, but low lithium prices are only a piece of the puzzle. All the plug-in hybrids must find a way to become self-sustaining quickly. Because once those tax-credits are gone, that goal become much harder to achieve if there was a heavy dependency upon them.

2-05-2016 **Small SUVs.** The concern about "*too little, too slowly*" fell on deaf ears for so long, it was disturbing. The common-sense rules of business were simply ignored. The most obvious was resistance to diversification. When you'd point out something beside Volt was needed, it was taken as an attempt to label it a failure so it would be discontinued. That was paranoia at it's best. Enthusiasts would lash out any way they could to defend. The situation is finally changing: "*Bottom line is, GM should forget about making more plug-in cars and instead make a plug-in Equinox or something of the like. That's where the market is going.*" Of course, it took until the first hints of trouble with gen-2 to emerge before that attitude changed. Nonetheless, it is progress... though, painfully slow. Anywho, this was my reply: Equinox is GM's top-selling non-truck vehicle. 18,574 purchase last month provides good perspective. No matter how enthusiasts want to spin the 996 Volt purchases in comparison, true supporters know the need to diversify is now. GM really should focus the next plug-in hybrid effort on something in that category. RAV4 is Toyota's equivalent situation. Seeing strong potential for the small SUV market... especially with gas prices so low right now... they introduced a hybrid model. First month's sales were in January. Even without full availability (or any tax-credit incentives), the initial purchase count was encouraging. 1,973 is a good start. The jump from 25 MPG combined to 33 MPG combined without any sacrifice is proving to be a draw. Lithium battery improvements along the way will make adding capacity & plugs an easy transition. The catch is having a market with the base prior to that. Volt didn't, hence the stem of much of its struggle. Not having a hybrid counterpart of any sort is a lesson GM learned the hard way. Enthusiasts mocked Toyota & Ford to no end for their approach, only to find out later that would have been quite beneficial. Have you considered the position Ford is in now? They had Escape as a hybrid, a small SUV. They abandoned that in favor of the next-gen system being offered in a sedan & hatchback instead. That expanded to offering a capacity increase and a plug. Think about how much Ford must now be yearning to reintroduce a small SUV hybrid. The market is going in that direction, but there will still be a demand for the cars too. This is simply how growth will take place. The reach out to entirely new customers will be the taking advantage of the draw small SUVs offer.

2-05-2016 **Vue Hybrid.** Remember the Saturn Vue hybrid? Back in September of 2009, an article was published highlighting the 28 MPG no one will ever get. That's because the effort was canceled after getting an official EPA rating. It got that close to launch. Two-Mode was falling apart at that point. I continued to remind people to not forget the success GM had with the Two-Mode plug-in mule. The next step, adding a plug, got hyped quite a bit by GM... but never got anywhere. It was a constant source of news, since the story kept changing. In the end, Volt was chosen instead... a compact car rather than a small SUV. Now, we see the rise of small SUVs... some as hybrids... some even with plugs. The fact that GM is getting left behind, the supposed leader of the plug-in movement, is not rubbing enthusiasts the right way. That's why there's been an escalation of tension recently. That history both opens up old wounds and reveals new opportunity. Response has been mixed as a result... quite passionate though. I'm quite intrigued how this will play out over the next few months. New offerings in the need-to-improve-small-SUVs category from other automakers are on the way.

- 2-05-2016** **Compromise.** There was more lashing out. The very word "*compromise*" makes some people cringe. They don't see it as an effort to find balance. They see it as a loss. That's really unfortunate. In this case, it was worse. He was angry. Unwilling to allow the nonsense to continue, I turned it right around: Calling business accountability "*slanted*" perhaps does date back that far. Like it or not (obviously some definitely not), that's reality. As exciting as range & power may be, it's just plain not what wells in high-volume sustainability. It's been that way since before many of us were even born. Mainstream consumers focus on the practical nature of their purchase. Need wins out over want. That's why the small SUVs are such a hot item right now. Want is the desire for the massive guzzlers of a decade ago. Need is to downsize. Offering a hybrid system and a plug is a compromise many will accept. They like it.
- 2-05-2016** **Who?** It was interesting getting asked this question: "*Do you work for, or are you compensated by Toyota?*" Since it was from the moderator, I knew that was a sincere act of wanting to know more. Why would anyone be so persistent on a GM forum, especially someone who owns a Toyota? I answered with: Nope, I'm just a consumer with well-informed contacts and a devotion to supporting the masses... hence the continued push to get past this first stage of tax-credit dependency and catering to enthusiasts. With a strong business background and a career as an engineer, the spin here is a draw. Participating with the local plug-in owners group adds to the exposure, getting to interact with Volt owners quite different from certain particular ones here. It's been an interesting experience over the past 15 years. Back then, it was totally unheard of for anyone to make such an effort to help change along. Now, it pretty easy to find others wanting to overcome old barriers of the past... like cross-automaker cooperation, targeting the market itself instead.
- 2-05-2016** **Bumping Heads.** Sometimes, you can tell the tide is changing. Even with this, I still had a feeling: "*He is part of a PiP 'users group'; but PiP represents the trailing edge, not forefront, of PHEV progress.*" So, I posted this: Haven't you noticed that we sometimes actually agree? Your focus is on the fore-front, considering leadership a measure of technical achievement. My focus is on the trailing-edge, considering leadership a measure of mass acceptance. Those are two fundamentally different approaches both ultimately trying to achieve the same goal. It means we will always bump heads, opposing each other based on perspective but not on purpose. Progress will be made when you accept that and focus on what we have in common instead. Toyota isn't interested in breaking new ground all the time; instead, their primary focus is on how to get the technology out in large quantity inexpensively. Notice how drastically different that is from GM, whose long-term intent is the same but doesn't wait until the technology is affordable? Toyota upgrades as cost justifies, along the way. GM delivers the end-product immediately, hoping cost-reduction will follow. Notice what Ford & Hyundai have been doing? No, which is the point. They decided to lay low until something viable can be delivered. Why get involved with the bigger players attacking the problem from two very different perspectives. That is yet another approach, also with the same ultimate goal. See how this works?

2-05-2016 Chapter's End. The final battle in this chapter came to an end. I pushed to make it happen. Knowing the story wasn't over, it was easy for me. A small group of particular die-hard Volt enthusiasts didn't realize what was going on. They thought there was only a single chance, that failure meant death. It was their battle cry for 5 years... don't like Volt die. That was the reason why my purpose kept getting questioned and why I kept having to asked their goals. Seeing more was to come didn't happen until today. Fear based on assumption overwhelmed rational thought. I've see this before, hence taking a very different stance. The end of Two-Mode came about from the announcement of Volt. Supporters could let it go at that point. With Volt, it was the announcement of Bolt. That's easy to see now. Stages in between are too. Ford's rollout of Energi was a major set back. Recently, the same panic erupted from Hyundai stirring emotion with Ioniq. RAV4 hybrid's initial success made it worse. I took advantage of that to introduce a moment of reflection. Multi-Front battles often lead to a finale with online conflict, if pointed out properly. Sure enough, that worked this time. Thank goodness. In this case, a simple observation of what's available now and what's coming is all it took. GM has delivered what it originally promised back in 2010. It took as additional 5 years, plus a little more waiting. That's far longer than anyone imagined, but that "40 mile" range is realistic. Enthusiasts just plain didn't want to admit the extra 25% capacity required to achieve that in Winter. They didn't want to admit that it will still take a few more years for overall cost to come down enough to compensate for the upcoming loss of tax-credits either. Getting them to look far enough ahead to actually see future potential, instead of dwelling on all the lost opportunity, was quite a challenge. It got ugly, really ugly. Thankfully, that's over now. Phew! The story isn't complete though, only this chapter.

2-06-2016 **Suggestions.** Wanting to encourage & solidify this end, I went all out with the posting:

It's a well-proven practice in my career to review a project upon completion. You note what worked and what didn't. I see good reason to do that here.

Voting down facts was probably the most counter-productive activity. Rather than just trying to hide what isn't liked, a suggestion would be to address it as directly as possible. Don't leave any opportunity for the topic being brought up again. That means provide concise reasoning. Vague replies make it worse. Excuses validate a problem. Responses of dismissal only encourage reposts.

Anonymous posting was another major problem that never went away. What a pain. Sadly, replies without substance made it worse. Defenders become the source of further tangents by not making an effort to get back on-topic. The suggestion is to simply state purpose. Counter there disruption. Knowing what the desired outcome is makes those distractions easier to end.

Making it personal and diverting discussion with automaker attacks, that was a huge waste. Instinct compels us to discredit. We feel it works well as a deterrent. In reality, it doesn't accomplish anything. In fact, it tends to reduce effectiveness of following posts. Casual readers tend to lose interest and abandon the thread. The suggestion is to prevent is simple. Don't do it.

Identifying goals is among the most powerful tools for progress available to us. We've seen great things emerge from learning opportunities. You try something. If it works, great. If not, move on. Remember, the market itself changes as time advances. The best suggestion for dealing with that situation is to embrace shortcomings. Failure is an option. It's only an end of a chapter, not an end of the story.

Endorsement for both plugging in and lithium batteries went extremely well. Notice how successful the idea of using electricity became early on? Everyone was in agreement about that being a major objective. It allowed us to very effectively focus on how to best achieve that. We followed the suggestion of trying to deal with next-step barriers by focusing on the future, rather than dwelling on the present.

Bringing up history can be a powerful decision-maker for what to do next. If something was attempted repeatedly but resulted in disappointment each time, don't do it again. That seems like such a straight-forward suggestion; however, the trap of dismissal is very easy to fall into. As painful as it might be to address mistakes, those can be the key to success the next time around.

Celebrating success can be a source of renewal. You need something to keep the group engaged. But if you focus on that past achievement too much, that very thing becomes what holds you back. If you focus on what comes next too much, that hope becomes a liability when circumstances change prior to rollout. The approach should be to seek out a balance. Providing compliment with complaint can be a very effective means of advancement when a suggestion is included.

The need to acknowledge the market as a whole was a lesson learned the hard way. Far

too often, past rivalries interfere with attempts to overcome barriers simply by losing perspective. Focus solely on particular groups allows the bigger picture to be overlooked. Making an effort to redefine foes & allies based upon objectives goes a long way. That suggestion should not be taken lightly. It's a difficult change of mindset. We've been trained to not think that way.

Finally, the very concept that a single solution will solve all problems is fundamentally flawed. Yet, that is what we do... over and over again. Commonplace successes we've witnessed that support differences are easily forgotten, not even noticed or considered. Just look at how uncommon the vehicles we drive actually are. Sizes & Shapes vary dramatically. Heck, even our preferences change over time. Why can't what powers them be different too? We need to embrace diversity. It's a suggestion that will take us a long way.

That's what worked and what didn't. Let's make a big effort together to start out the next chapter on a good foot.

2-06-2016 **9 Years Later.** Remember back when gas prices were climbing into new territory? GM had given up the anti-hybrid "stop gap" campaign and revealed Volt to the world. It would be vastly superior to Prius in every way, the answer to our car problems. Ugh. The nonsense started immediately. It only took a day for vaporware talk to emerge, questions of how that could actually be accomplished. My initial thoughts were: *"I don't believe that is a cost-effective solution for the masses for many, many years still."* The explanations why angered supporters. What I saw as realistic, they saw as fighting words. Having experience in that area made no difference. I was the enemy, because that knowledge came from the supposed competition. Watching Toyota strive for affordability taught me a lot. They turned and were basically hostile ever since. Reading through that history I documented as it unfolded, writing down observations as they happened, sure provides an interesting perspective now. Looking back is quite different from preserved day-to-day thoughts. I was right... oh more accurately, I correctly sighted past events as being highly likely to reoccur. Sure enough, they did. Volt has been a disaster... not the car or the technology, it was the business aspect. This was a great example of a *"solution seeking a problem"*. We were told all about *"range anxiety"*. Capacity was too expensive. The approach Volt offered would overcome that. Catch was, if battery cost came down enough to make Volt affordable, why not just sell an EV to people instead? That type of plug-in hybrid made no sense. It required cost to remain high... but then couldn't be sold in large quantity because the cost would be too high for Volt too. It was a mindset doomed from the start. Augmenting a hybrid was a business model supporters wanted no part of... which ironically, would have addressed the issue well enough to make prices affordable. Other automakers see that potential and hope to capitalize on it now. GM sees battery cost having dropped so much, they're planning to offer an EV which will overcome the *"range anxiety"* problem. No need for Volt. We'll have Bolt instead. What a mess! So much time wasted. Oh well, at least that chapter has come to a close. GM is now planning to introduce a hybrid and an augmented model now too, just like what was suggested 9 years ago. Volt will remain an enthusiast vehicle. It didn't die after all. It just won't leapfrog either. This is yet another example of not understanding the difference between want & need.

2-07-2016 **Friendly Rivalry.** The hope was always to find one. When there were only two hybrids available, Prius & Insight, things were a mess. Honda had delivered something that wasn't competitive. Insight was a 2-seater with a manual transmission and an aluminum body. It had nothing in common with the 5-seat automatic sedan called Prius. Yet, the two were constantly compared. Being the only choices for purchase back then, it was all people understood. GM had the opportunity to avoid that with Volt. There weren't any other plug-in hybrids offered. That was it. Gas was expensive then too. Enthusiasts were smug though. GM didn't care. There was enough conquest potential to prove the technology viable. That's all GM cared about. Enthusiasts didn't want to see that reality. They saw their population growing. It didn't matter that money-losing leases and tax-credit dependency made it happen. They just to claim victory over Prius. That was disappointing... and frustrating. Now, we see Volt struggling for an audience. Almost all the low-hanging fruit is gone now and there's a rivalry growing between Toyota & Hyundai. It's looking to be friendly too. That was the very thing people like me had hoped for 9 years back with Toyota & GM. The situation got ugly quick. Ford entering the plug-in arena made it worse. The struggle grew more and more difficult. There's an unspoken fear growing that Toyota will "*leap frog*" what GM offers. That was the hope Volt enthusiasts taunted Prius supporters with, saying it with belittling attitude. I won't do that. In fact, it's the very reason I'm extending a hand in friendship. I'm putting my hope on the chance that we can establish a friendly rivalry instead. That should be just a matter of focusing on goals, what I had attempted to do countless times in the past. What's different now is rollout is in progress. The reality of low sales can get people to change. Someone offering to help is what they will seek, especially someone with extensive experience to share.

2-07-2016 **Influence.** The comment was made about now knowing how much we actually have. Could you really ever find out? I climbed up on the soapbox again to share some insight:

Realistically, it doesn't matter. The end result is the same. The benefit is they get confirmation of it being an acceptable decision much sooner. There's a lot at stake. That helps a great deal.

With Prius, we established a direct line for feedback with Toyota. They shared information with us directly, a few times with tidbits even before the dealers. We got confirmation the forums were being monitored for suggestions. The next-gen rollout included some of what had been discussed. It was a great exchange.

I was always baffled that this group wasn't able to achieve the same thing with GM... which is why I kept on pushing. There were several here who insisted we should just be patient and hope for the best. I'm not that type of person. I also know that reacting afterward is far more costly than being proactive. Interacting with users during the development is priceless.

25 years into a career as an information engineer (software developer) and having a father as a mechanical engineer taught me a great deal. I learned the value of feedback long ago. I established a group beta-testers, who gave candid and well thought out suggestions. It was a very productive relationship.

Way back in 2003, we knew the design of the hybrid system for Prius was able to deliver speeds of up to 100 km/h (62.1 mph) using only electricity. We also knew that would be incredibly expensive. Yet, there were some who experimented with added capacity anyway. When the next-gen rolled out in 2009, we could see the design continued to support that ability to take advantage of additional electricity. It was still too expensive. A few aftermarket providers didn't care. They tried attracting consumers, despite the high cost. Toyota saw that, but waited until a configuration actually affordable would be possible.

That approach had trouble from the start. It was exactly what enthusiasts had requested, but it wasn't what supporters saw as appealing to the masses. The reason was simple: Volt. It wasn't the configuration hoped for (since the engine ran often in the winter and the wheels were powered directly at times), yet it wasn't marketed as a plug-in hybrid. So, people focused solely on range rather than results. Toyota took advantage of the feedback early on, keeping availability limited to select markets. It gave them an opportunity to learn more about how widen appeal without trading off price. In the meantime, energy-density and production-cost of batteries would continue to fall. When Ford joined in offering their plug-in hybrid, there was no reason to expand. Observing their progress (which also had challenges), would provide a great deal of valuable information.

That history will, of course, be spun to make it look like goals weren't accomplished. But sales expectations were never set high in the first place for the plug-in Prius, quite unlike Volt. It was also a mid-cycle upgrade, rather than an entirely new vehicle requiring a full 5-year cycle. The cost & risk was profoundly lower for Toyota than it was for GM.

Reality is, few will care. Many here will deny that even happened anyway. So, there's little chance ordinary consumers will bother trying to figure any of it out.

The point is, what was set out to be achieved will be accomplished. So what if it was a round-about way of doing it. Taking an economics class will teach you what to expect. Market reactions are difficult to gauge. Both consumer & competitor will do everything they can to resist change and influence outcome. Still reaching the finish-line without having incurred great expense or done anything inappropriate is what counts.

2-07-2016 *The Real Question.* I was asked this: "*The real question is, what do we expect can be done beyond what has been done?*" It was a new twist on addressing goals. I was happy to contribute thoughts to that: Don't expect. Suggest. There's growing worry of the inevitable tax-credit expiration, right in the middle of Volt's product-cycle. Yet, notice how no one wants to actually address that? It's a sign of trouble on the way. We need to push for a solution. Don't let the opportunity now slip away. An example from Prius history is the improvement to the ride quality. It wasn't necessary for the audience Toyota had targeted. So, focus was put on diversification instead. We got a smaller and a larger model of Prius, along with a plug-in. We just got a small SUV as well. But with gen-4 Prius, the hope is increasing appeal to draw in a wider group of consumers. Stiffening the body by 60%, giving it much better suspension in the rear, lowering the center-of-gravity, and adding quite a bit of sound insulation will go a long way toward helping to achieve that. Those were all suggestions from current customers. Look at what people made discouraging remarks about. Would changing any of them draw in new customers? Ask what people commonly seek out when shopping for a vehicle. What doesn't Volt offer? Consider the rest of the market. Think about what sells well. Why haven't we got a small SUV variant?

2-07-2016 **The Challenge.** A former foe has accepted my effort to become a friend. We are trying to find some common ground. This my latest exchange in that effort:

Nice summary and good question. The past is what it is. Our focus is now 2016.

GM just delivered gen-2 Volt. How should it be marketed? Having an engine was a strong draw in the past, since it eliminated concern of range-anxiety. But with next-gen EV choices targeting 200-miles, that will become a much harder sell. A range of 53 miles simply doesn't compare. It does top other upcoming plug-in hybrids though.

Hyundai, Ford, Toyota, Mitsubishi, Honda, and Chrysler all see the appeal of 25-30 miles for plug-in hybrid range. Ask yourself: Why? People will still get an EV experience, but MPG high values will likely be the draw. Price has proven a major deterrent. Will consumers care if the engine runs from time to time if they can buy something competitively affordable?

Toyota has an advantage in place with respect to reaching affordability. The regular model of Prius brings about economies-of-scale benefit. Motors, controllers, and battery-cells all see cost-reduction as a result of high-volume production. The plug-in model will benefit as a result.

Toyota also has an advantage with respect to reputation. The hybrid system is known for its reliability. The hybrid system is also known for uninspired performance... until this evening's Super Bowl commercials. Toyota is taking advantage of Prius past to point out how much the newest generation has improved, emphasizing this upgrade changes how people will think of Prius.

Perhaps that is what GM should do... find something to revitalize Volt. What is the strength now to point out? Maybe range is the selling point. Oddly, offering the most capacity may not have a negative impact on other plug-in hybrids. It could serve as an endorsement for the category.

What do you think?

2-08-2016 **New Perspective.** The feeling is great when you can look at a situation from the other side. The fighting is over. Yeah! I finally have the ally which I sought for all those years ago. This was today's post: Gen-2 Volt ushers in a new perspective. Gas prices have plummeted, but so has battery cost. Audience has widened, no more early adopters. Competition has emerged, namely Bolt. It's a changed market. The worries (and greenwashing) of lithium fires has vanished. Impact of heater use in winter is well understood. New awareness of emissions (diesel cheats) has been raised. The situation is quite different from years back. Hybrids, Plug-In Hybrids, Electric-Only, each with its own take on how clean & efficient travel should be achieved makes understanding them a challenge. That all have battery & motor use in common though, which allows us to finally establish cross-automaker bonds. 2016 will introduce several more next-gen upgrades. That should make things easier. The catch is we must all make an effort to convey the new information. Don't let outdated data obscure the effort. Those next steps are worth it. We're all in it together now.

- 2-09-2016** **It Worked.** What an interesting conclusion. He recognized that I would never give up. I complimented him for having the strength to survive all that. We can now make an effort together, combining resources and perspectives to finally make some progress. One individual wasn't happy. You're not supposed to become friends with a former foe. Attempts to lash out failed. No one cared. It's his loss. Support for Volt has moved on the second generation. What happened in the first simply doesn't matter anymore. We all know several goals weren't met. The point was acknowledgement. Without any type of acceptance, there's no way to take the next step. Who knew it would take so darn long? Oh well. Being able to move on feels great. It's too bad so much effort was wasted. But then again, that was rather predictable. And what does it matter anyway? Failure is an option. You can't win them all. Learning what worked and what didn't is the point. Having to try again is just part of the life. It's unfortunate that certain mistakes cost so much, especially when parts could have been avoided. At least it's over... with all things, a reconciliation. Cool.
- 2-11-2016** **Niche Market.** The spin from some EV supporters is that hybrids never amounted to anything. We see that routinely. For example, this conclusion: "*...you must keep this in mind, HEV is still a tiny fraction of Toyota line-up and is much less profitable than ICE cars for Toyota.*" Just like any other greenwashing attempt, being vague is key. Do everything you can to avoid detail. I know that all too well. Providing actual numbers brings the argument to a screeching halt. That's exactly what I did. It did indeed achieve that outcome too: 10% isn't exactly tiny, especially when you look at the actual quantity. The question is, how profitable must hybrids be? Keep in mind that the gen-4 just introduced reduced production cost a little more. Here are the counts for 2015... United States sales = 452,152 hybrid of 2,499,313 total is 18.1%. Europe sales = 208,464 hybrid of 873,844 total is 23.9%. Japan Aqua (Prius C) = 215,525. Japan Prius (regular) = 127,403. Japan other hybrids = 50,000 (estimated). Worldwide = 10,150,000 sales total gives an estimated 10.4% hybrid.

2-11-2016 **The Catch.** I had fun with this one: *"GM will not lose much on the 2017 Chevy Bolt EV, as long as the Bolt EV gets sufficient national marketing, and the dealers cooperate with their own marketing, salesperson motivation, and customer test drives. People will not buy the Bolt EV or any new GM vehicle if there isn't any news or promotion about it."* (followed by) *"So, if GM pulls out all the stops and markets the Chevy Bolt EV as it should..."* It's a disaster in the making, just like we saw 5 years ago. What can you say? I posted: The catch is, GM must make a solid commitment right out the gate. Without an ample supply available, the rest won't simply happen. In other words, that's how they get dealers to cooperate and salespeople motivated. Seeing the inventory at a level capable of on-going sales is what drives the business. This is why that measurement of *"mainstream"* sales was deemed so important and continues to be a source of irritation for some. Contracts with suppliers to guarantee inventory all the way through is what helps to drive down costs. It's risky though, especially since those Bolt sales will take away from Volt tax-credit opportunity. All automakers face commitment issues like that. With the gen-4 Prius hatchback such an improvement over the previous generation, Toyota is faced with the dilemma of whether or not to upgrade the wagon model. Is the production effort worth it... especially in a market where gas here is just \$1.44 per gallon? We've been seeing sales of small SUVs climb. That loss of interest in MPG presents challenges for even a small hybrid SUV. That's why the gen-4 Prius took on such a standout look. Performance improvements alone aren't enough with such fickle buyers. We know gas prices will remain low for the next few of years still. We know the tax-credits will get used around mid-cycle for both Bolt & Volt. We know other automakers will stir the market in unpredictable ways. Difficult choices must be made. What should GM do?

2-12-2016 **Placing Blame.** Ugh. Change isn't easy. A mindset for such a long duration is difficult to overcome. Today, it was: *"If your football team is down 55-0 in the 4th qtr. and you call in a new assistant coach – does that mean if you lose the game, it's that assistant coach's fault?"* We need to focus on next steps... look forward. Asking who is at fault is looking backward. Here's my take: Considering who is to blame is the wrong question. Remember, just about everyone from both management & development had left the Volt project prior to it being rolled out. For that matter, many of the outspoken supporters vanished shortly afterward too. Placing blame is pointless. Listening to the message, on the other hand, is quite valuable. Things change anyway. What was learned from prior decisions? Look at the quandary of how to promote gen-2 Volt. Promoting a vehicle means focusing on strengths & unique qualities. The selling-point of Volt is said to be the 53-mile EV range. If you emphasize that too much by drawing focus the system only needing the engine 10% of the time, people will start questioning the worth of having such a large gas-engine & gas-tank. No one cares who made that size decision. It happened long ago. All we should ask is why that was chosen and if continuing on that way is best? After all, Prius PHV was mocked relentlessly for having a small battery-pack. The claim was it being wasteful carrying around so much extra weight for something not used often. Now, the tables have turned. What do you suggest for next steps? Shouldn't it be to juggle around the players on the team, rather than look for yet another coach? So what if the first game is lost. What about the next?

- 2-13-2016** **Range Minimum.** There are a handful of people, unfortunately all old-school Volt enthusiasts, who still push the belief that Prius PHV delivers only a 6-mile EV range. The refusal to accept video-evidence and to acknowledge battery-capacity just boggles the mind. What's the point? Well finally, we got this: "*But now all that seems mute because...*" That's the looking-forward attitude we've been hoping for, but the unconstructive nature of it rubs me the wrong way. How will range be measured if capacity is unacceptable? The highly misleading nature of the hard-acceleration at the 6-mile mark is quite arbitrary. It just as easily could have been at 5 miles or 7 miles or 2 miles. I chose to respond with: The actual reason is that "*range*" estimates hurt the industry. We saw everything from disappointment to greenwashing. When owners found out the impact heater use had, there was some backpedaling. It was made worse by discovering an automaker's estimates didn't correctly reflect results from standardized testing. Then to sour appeal even further, there were a few who intentionally misled by exploiting misunderstandings of terminology. That's why stating capacity in terms of KWH of electricity available is far more informative than miles that could possibly be driven under the right circumstances.
- 2-15-2016** **Kia Niro.** Crossover competition is what Kia (parent company Hyundai) is hoping for. Their upcoming Niro hybrid is supposedly targeted directly at Prius. It's really a small SUV with basic styling. Clearly, we have arrived at the end of a trend. Though appealing to consumers right at this very moment, it already looks dated. It will blend in well with many SUVs already on the road. That's the point. You'll be getting supposedly 50 MPG discreetly. The approach is interesting. People are resistant to change. This won't stir any attention. It's not ugly. It's not pretty. It simply doesn't draw attention. You're buying technology that offers reduced emissions & consumption, and that's it. With the advent of uniqueness being a draw, the situation is a matter of timing. Maybe consumers will jump on the opportunity with this as both a bridge to the future and a monument to the past. Personally, I couldn't imagine wanting something so plain. It looks quite ordinary. But then again, that's all some people want. They have desire to own a vehicle that's expressive. That's ok. It's just not me. Variety is important. Having a hybrid option for them to choose is great.

- 2-17-2016** **Cost.** Discussions are getting interesting. Barriers of the past, which prevented constructive posts, are gone. It's quite a different venue for posting now. I especially liked reading this: *"What I don't get...if the Chevy Volt early gen-1 was able to do 35 miles with a smaller body, why couldn't the PiP 2nd gen do at least that?"* The reason why was simple. It was an honest question. In the past, that same sentence wouldn't have been taken as sincere. That's typically because the attitude was to undermine. Things have changed. Hopefully, response to what I contribute will too: We'd all like a vehicle with a plug that's actually affordable. Rolling out a vehicle to the masses that's dependent upon a \$7,500 tax-credit isn't a good business choice. Once that subsidy is gone (each automaker gets 200,000 before phaseout begins), the challenge to grow sales and be profitable becomes even more difficult. GM is taking quite a gamble, especially with remaining credits available being divided between Volt & Bolt. Toyota held off and will strive to deliver something capable of standing on its own. That means larger quantity with lower cost. So, keeping the battery at a size reasonable enough to compete with other high-volume sellers is a big deal. Remember, the competition is vehicles on the same showroom floor, not those offered from other automakers. Keep in mind, Toyota sold 2,499,313 vehicles here in the United States last year. GM sold 3,082,366. That puts some perspective on just how few 200,000 really is.
- 2-18-2016** **No Response.** It wasn't worth the effort: *"Part of the reason hybrids and plug-in hybrids are so hard to sell is people think they are buying 2 cars instead of one....thus they are paying more up front to buy it and also have all the maintenance of a pure electric plus a gas car."* We endured years of Volt promotion which, ironically, emphasized the 2 car perspective. We got countless endorsements telling us the vehicle was an EV with a full hybrid system as a back following depletion of the plug-supplied electricity. The short-sightedness of that perspective never ceases to amaze me. It was an effort that ultimately highlighted the fact that Volt was the worst of both worlds. The range was too small to compete with an actual EV and the engine efficiency was too low to compete with hybrids. Ultimately, that is where some of the hate for Prius PHV came from. Even though it had a much smaller battery-pack, the EV range was impressive amount of electricity it had available. The resulting MPG afterward was obviously a strong point too. Since the smaller capacity was an effort to keep the system affordable and to not sacrifice cargo or seating-space, the augmentation was often looked upon as the best of both worlds. That polarity contributed to most of the online conflicts... in the past. Now, the hypocrisy of acknowledging that self-deprecating stance has quieted most. It's a sign of progress. That meant no reason to bother with a response. Yeah!

- 2-18-2016** **Lousy Job.** At times, it can be quite interesting to learn about other perspectives people have. Most often, they judge actions based on only recent history. Without background, it's easy to draw a different conclusion. Much of this comes about from thinking short term. It's the way our particular society works. So, it makes sense that the market responds according. It's why Toyota commonly gets misunderstood. They take a different approach. Reading this today was no surprise: *"Again, Toyota did a lousy job of advertising and communicating their vision for the car."* Seeing that point of view doesn't take much. Seeing another, or even acknowledging there could be another, is a different story. Though, I tried to point that out: The intent was to remain flexible, not revealing a mass-market plan until the initial data-collection phase completed. Since it was a mid-cycle rollout and the other plug-in offerings were facing unexpected barriers, it didn't make good business sense to commit yet. They chose to watch & learn about the emerging market. Waiting until gen-2 is still looks to be a wise move. That delay (lousy job) should make things easier in the long term. Toyota can start fresh, rather than have to backpedal as with certain others.
- 2-19-2016** **Credit, game.** We're seeing 2016 shape up to be a year for the history books. A big part of that is change being observed in discussions now: *"In my view, GM played the credit game properly, and Toyota is leaving massive amounts of money on the table. The tax-credit is limited to 200,000 vehicles per manufacturer, and the credit is pro-rated to the capacity of the battery. Toyota's PiP qualifies for the minimum tax-credit (\$2,500) while still counting toward their 200,000 vehicle limit..."* Remember how even the mere mention would result in hostility? This difference is welcome... and long overdue. I'm happy to see constructive dialog beginning. Here's my insertion into that: Toyota studied the market and was well aware how few 200,000 really is. When that subsidy expires, the vehicle must be able to sustain high-volume profitable sales. Notice how gen-1 PiP rollout was limited, saving credits for gen-2? GM will be facing that expiration, with 2 vehicles still depending upon that \$7,500 credit, mid-cycle. Being just 2 years into gen-2 Volt and the new Bolt will make sales in large quantity quite a challenge. Who cares about not getting more federal assistance if the vehicle becomes difficult to sell afterward. That is not a game you want to lose.
- 2-19-2016** **Credit 2, competition.** This is the reason the question of "Who?" was asked so often. Notice all the "if" conditionals: *"If I were thinking short-term, I would do exactly what Toyota did. However, if the long-term is increasing EV usage to meet ever increasing fuel economy and emissions regulations as well as customer demand, I would use the tax-credit to develop higher range EV technologies and logistics so that I have an edge on the competition for when the future inevitably becomes the present. GM appears to have the edge on the future."* Some people just plain don't want to commit. It's like the next level of vague. Keeping things uncertain is another warning, an indicator time is being wasted. Unfortunately, there's not much you can say. Those acting that way will just label you as argumentative. But hey, at least I try anyway: We know capacity will be increased for PiP. We've heard that power will top-speed could increase to 110 km/h (68.3 mph). So, there is a natural generational improvement. Toyota views the "competition" as traditional vehicles. GM views the "competition" as other plug-in vehicles. That fundamental difference has a profound influence on approach. In other words, priorities are different. Toyota has always considered cost to be paramount. Range isn't as important if the end-product isn't affordable.

- 2-19-2016** **Credit 3, sales.** Sometimes, you get lucky and discussions really do swing in a productive direction: *"Also, we get an indication of growth locally from clubs and organizations we are in contact, although this isn't as reliable as the actual sales numbers."* I was both pleased & stunned to read that. The topic of sales usually dies when tax-credit dependency is brought up. We really are moving forward: More important than sales is attitude, since that persists throughout ownership. The years of hate from *"vastly superior"* enthusiasts only existed online. When the plug-in owners club would meet, we were all friends together working toward a common cause. This *"leap frog the competition"* discussion thread highlights the problem. In the club, there's a diverse set of plug-in owners. We all recognize the competition as traditional vehicles. Only those smug few online, who unfortunately spoke as representatives for their peers, saw the competition as other plug-in vehicles. That head-butting caused a lot of trouble over the years and consequently impaired progress forward. Thankfully, the rollout of gen-2 offerings woke them up from their complacency. In fact, there are a few individuals who were former foes that are now friends. The nonsense of *"range anxiety"* has vanished with the advent of 200-mile potential. Part of that comes from the realization that those tax-credits which they were heavily dependent upon will quickly vanish as a result of delivering a truly popular vehicle. What I find most redeeming is the vindication of cost being the highest priority. It seemed so simple of a message: *"The design must be affordable for the masses to accept it."* Yet, that belief was met with fierce resistance. Costly approaches were justified with twisted excuses and the dismissal of facts. Sadly, despite finally getting recognition of importance, we'll be dealing with the collateral damage from that for years to come. Long story short, the plug-in options we endorse must be appealing to ordinary consumers. No matter how appealing certain aspects of performance are, selling those vehicles profitably in high-volume is the ultimate goal. That ability to provide business-sustaining revenue is vital.
- 2-22-2016** **Better.** There is still a little bit of smug, but it's quickly fading. This could be among the last examples: *"The crappy Prius took how many years to get where it is now, and it still sucks. In one design exercise GM came out with a much better car. #engineering."* Going down with a fight is normal. There's always someone who wants their message to be made quite clear before standing down. After reading other posts, which clearly didn't agree with him either, I posted: There is an essential balance. Too much of a good thing is a problem. It's really unfortunate the devotion to engineering prevented seeing business need. GM focused so heavily on delivering maximum EV that it sacrificed priorities of ordinary consumers, resulting in a really nice vehicle enthusiasts would praise. Consequences of that approach have become quite apparent now. Notice how much focus has shifted over to Bolt instead? Volt isn't considered a mass-market choice anymore. The newest Prius is, hence the obvious resentment. Sorry, but the reality is that *"better"* is not measured in terms of engineering praise. That success is determined by the count of sales. The better a vehicle is, the more it will be purchased. This isn't rocket science. It's ordinary business.

2-24-2016 **eAssist.** What else can you say other than: *OMG!* Never in my wildest dreams did I expect the mild hybrid approach to be tried for a third time. The prior two attempts were horrible failures. GM's first was called BAS. It went nowhere. The second fell apart too. This third is interesting, since it specifically targets the large pickups. That is a bit odd though. The system adds only 13 horsepower, so there really isn't much in terms of assist... especially for a truck. The power comes from a 0.45 kwh lithium-ion battery. So, it's small and light weight (about 100 pounds total). Cost wasn't mentioned. Efficiency gain is expected to be 2 MPG. Purpose is to gather information. Only 500 Silverado and 200 Sierra will be built in 2016. GM has learned the value of limited rollouts. Too bad Toyota supporters had to suffer by pointing out the benefit. Oh well. This is one that definitely needs real-world data. As an option, it would present sales challenges. But if this is being considered as a standard part of upcoming rollouts, a way to deliver an edge over the competition and to satisfy CAFE requirements, that's a different matter. We'll see.

2-25-2016 **Writer Provoke.** It never hurts to know your presenter. In fact, that can be even more important than knowing the audience. For example: *"Nissan has repeatedly said it has a fourth-generation battery waiting in the wings that could provide 200-plus real-world miles that would soon make "range anxiety" a non-issue, so why is it waiting?"* That quote was to be expected. It came from a writer whose job it is to stimulate discussion. He already knows the answer. It's cost. Rolling out a vehicle too expensive to compete simply doesn't make sense. Nissan could be facing tax-credit expiration sooner than all the other automakers too. Double the capacity of a battery-back isn't exactly easy either. There's physical space & weight challenges to deal with. Simply having the technology available doesn't make it practical. Even with delay, there is the benefit of that message of 200 miles being a selling-point continuing to get reinforced. Automakers are uniformly sighting that as a realistic threshold for mass adoption. Articles with statements like this writer provided today help too. I still don't like it when presented in the form of a provoke though, but that is the nature of online commentary. They have to do something to stimulate interest & participation.

2-26-2016 **Please.** We're seeing more and more progress. Barriers of the past are breaking down. New friendships are forming. That makes it hard to believe something like this could still get posted: *"FACT: The 2015 Toyota Prius PHV is EPA rated for only 6 miles all-electric range. The 11-mile figure is for blended gas-electric. Please stop spreading false information."* Even the moderator of that daily blog for Volt, which is where that was posted, got a bit irked. The discussion thread was about other plug-in hybrids coming out this year. Why in the world with a Volt supporter continuing fighting the advancement of the market. Obviously, I wasn't exactly thrilled to read that either... and was happy to fire back: Please make an effort to overcome confusion of the past. We all need to do our part to move on. That so-called fact has been used extensively for greenwashing, because it was extremely misleading. True, the EPA test does indeed trigger the engine to start at the 6-mile mark on the driving course. However, there is still 5 miles of electricity remaining. Following that hard-acceleration event, the engine shuts back off and EV resumes. The better information to share is battery-pack capacity. Take the time to do the calculations. Looking at EPA detail on the window-sticker, we see an electricity consumption-rate of 29 kWh/100 miles. That means 3.19 kWh is required to travel 11 miles. Knowing that Prius PHV utilizes 67% of the capacity available from its 4.4 kWh battery-pack, we can easily account for 10 miles. That's 2.95 kWh required to travel that distance using only electricity. The 11th is a blend, using that final 0.24 kWh of electricity still available combined with a small amount of gas. Proving only 6 miles total is all that's available cannot be done. Detail provided by EPA measurement clearly confirms it.

2-27-2016

Adding Insult. Someone else saw the opportunity to belittle: "*So most of these cars would get high single or low double digit battery miles in the winter. That's pretty awful.*" I jumped on that opportunity too: Since the point of augmentation with a larger battery and plug is boost MPG, using "*awful*" to describe outcome isn't accurate. For example, last weekend's Saturday morning blogging at the coffeeshop was a round trip of 8.9 miles. With the temperature in the low 20's, I made it back home with just a tiny bit of electricity still available. That's so far beyond the "*6 mile*" claim, it's quite frustrating to have to tolerate a source of such obvious confusion. While typing this, I'm at the coffeeshop again. The temperature is just barely over freezing. That extra warmth resulted in less electrical resistance. As a result, the battery-pack is currently sitting at 58% remaining (of useable EV capacity) rather than 50% like last week. When no-jacket weather returns, range will increase even more. The entire drive uses only electricity. About half the distance speed is 55 mph. It's very effective use of a gen-1 design. Another example is yesterday's commute. It was 37.8 miles round trip. There's a short stretch at 70 mph (though traffic doesn't always go that fast) and a mix of 45 to 55 mph the rest of the way. I plugged in at work, taking full advantage of the 85 kWh solar-array they have there. The resulting average for that driving was 117 MPG. In the summer, I tend to get between 135 and 150 MPG. Late this year with the upgrade to gen-2, there is an anticipated max EV speed increase (from 100 to 110 km/h, that's 68.3 mph) and a more than doubling of the battery-pack capacity. Those improvements are the result of cost dropping and the technology being refined. For my commute and running around town, that will offer a nice upgrade... so much so, it's far easier meeting others in the middle, rather than continuing to bump heads. In the past, there was quite a bit of misleading about how the system operated above the max EV speed. Certain individuals worked hard to feed the assumption that at faster speeds, there was no benefit from the plug-supplied electricity. It was amazing how much effort got expended to convince people that the vehicle reverted to just a hybrid then. Nowadays, most people understand there's a blending that occurs for fastest travel. The result is much higher MPG than with a no-plug hybrid. The hope now is to get past the same type of misunderstanding from "*all electric range*" values. You can see new friendships emerging among former foes. As we see the technology getting upgraded and expectations toward automakers changing, that's becoming much easier. True, there are uncertainties still... like public charging-stations and tax-credit expiration, but at least we're seeing progress. This discussion topic points out the wide variety of plug-in hybrid options coming this year. Even more are on the way. That array of choices will cause confusion among buyers unless we as plug-in owners find a way to convey a uniform message. Clashing amongst ourselves will spell our own doom. We need to find ways to overcome differences. The last thing we need is having to deal with new misconceptions. Don't forget, those not in favor of plugging in will work hard to create them and ordinary customers aren't anywhere near well informed. It's up to us what happens next.

2-27-2016 **Displeased.** I wasn't the slightest bit happy with the response: "*If someone says the PiP has more than 6 miles of all-electric range, I'll continue to correct them.*" That one particular individual is anti-EV, so it makes sense that he'll be a more difficult personality to overcome. The others simply want plug-in choices to prosper, which made it easier to meet them in the middle. He has no interest in compromise. It's weird too. Even the guy who had hate for Toyota was willing to call a truce. That's so refreshing too. I had always hoped for allies. Now, they are offering gestures of friendship... really trying to make it work. This person though, what a pain. I'm curious if he'll bother to reply. I expect silence. We'll see. This was my follow up: 8.9 miles to the coffeeshop and back this morning. About half the drive was at 55 mph. The temperature was just above freezing. When I got home, 5% of the EV capacity still remained. The engine never started. That entire drive was all electric. Range was well beyond just 6 miles. Our purpose is to promote plugging in. Even Toyota's initial affordable offering clearly contributes to that. What possible benefit is there to telling people the range is less?

2-28-2016 **Closure.** This recent statement from a past antagonist to now someone trying to help out is what I chose to climb on onto the soapbox for, attempting to sum up the situation as a form of closure:

"Remains to be seen where Toyota wants to go in terms of cars you can plug in. They seem to put virtually all those eggs in the hydrogen basket now (while still doing a large number of non-plug-in hybrids), but they've issued misleading statements in the past so I'm not sure I believe they won't do an all-electric or serious plug-in hybrid."

The business approach differs to such a degree, it's easy to wonder. Our culture here has focused heavily on the now. So, things like long-term projects and sustainability simply aren't given much consideration. Remember what things were like before the economy fell apart? Focus was almost entirely on quarterly returns. Getting over that mindset takes some work.

My all-time favorite "*misleading statement*" from Toyota was the comment about lithium batteries not being suitable for automotive use. There were a number of people who immediately took that verbatim, but didn't include everything. It quickly became a popular out-of-context statement. The reference to cost was omitted. The thought that stance would change later was overlooked. Our desire to draw conclusions right away contributed to that misleading. No one cared though. The damage was already done.

Another big part of the problem was the mentality that only a single solution is the best outcome. People see an interest in hydrogen being exhibited, then believe that means there is no interest in electricity. We've backed ourselves into a corner by thinking co-existence isn't an option. So, in the case of Toyota, most of the effort to establish a base for plug-in customers and reduce cost by introducing a modular production architecture has gone totally overlooked. There's a belief that hydrogen is the investment of choice, that all else has been abandoned.

This is nothing new. When the plug-in Prius was first rolled out, there was no acknowledgement of it being a mid-cycle rollout with a potential for adjusting plans based on what would be learned along the way. It was just an immediate push to compare it directly to Volt with fixed expectations, as if circumstances didn't matter. At the same time, rollouts of Prius C and Prius V were outright dismissed... even though those were helping to draw away people from traditional choices, making the enticement of plugging later less difficult.

Now, within a similar window of time, we're seeing rollout of the new Prius and a hybrid RAV4, while also discontinuing the entire Scion division and rebranding the upcoming C-HR hybrid as a Toyota. Again, this is more of that effort to pave the way for plugging. People also seem to forget the goal of offering a hybrid version of every Toyota passenger vehicle by 2020.

None of that would be a issue of dissension if it wasn't for GM doing similar things, but in a different manner. We heard strong statements in the past about GM having no interest in EV offerings, since Volt was the winning solution for all. Now, no one seems to remember that and Bolt is widely accepted. The same goes for regular hybrids; yet, GM will be rolling out 3 different varieties.

We need to focus on the goal of plugging in. The gen-1 models taught us a lot. We know the affordable, high-density batteries are coming. It's just a matter of thinking further out, not getting hung up on the now or dwelling on distractions.

2-29-2016 ***Happy Birthday!*** How about this for a message remarkably well timed: "*Prius Plug-in Hybrid has helped usher in a new era of efficiency, but we are temporarily pausing production after the 2015 model year. Rest assured, we remain committed to the continued progress of alternative-fuel vehicles. As was done with the previous generation, this next Prius Plug-in Hybrid vehicle will arrive later in 2016 after the launch of the all-new Prius liftback and will feature significant enhancements in performance, design and technology.*" Discovering that announcement on Toyota's website today was great... since today just happens to be my Prius PHV's first birthday. True, I bought it 4 years ago. But the papers were signed and the check was delivered on February 29. This is the first leap-day since then. So... happy birthday! The timing of the next plug-in hybrid has been interesting. There was a lot of spin. Greenwashers attempted to convince people that Toyota had abandoned the idea all together. Antagonists claimed Toyota wasn't taking the situation seriously, that leadership means delivering the most advanced technology possible... rather than striving to reach the masses. It's been quite an experience to witness firsthand, as a participant in this history. Fortunately, I know what's to come. After over 16 years of study, that's rather obvious. Too bad others are quite so confident. Oh well. They'll find out soon enough.

3-01-2016 **Diesel Downfall.** We're seeing postponements now. The new deadline for a revised fix from VW to submit to the EPA for approval is March 24. The original submitted in January was declined. It wasn't good enough. April 28 is now the new deadline for the release of VW's own internal investigation, rather than next week. The denials, mixed messages, interpretation excuses are only making the situation worse. All of this is being described as "self-inflicted wounds". I'm amazed the situation has become so bad. We knew pressure was growing on diesel. There's simply no way to compete with hybrids, even those without plugs. The upcoming option of inexpensive augmentation basically spells death anyway. The gen-2 Prius PHV will be so much cleaner and more efficient, what's the point? Then when you take into account how dramatically quieter & smoother the drive is, how could diesel even remotely compete? Then when you take into account the reputation damage, it just plain doesn't make sense anymore for personal consumer vehicles. What the cost of the damage truly is remains a complete mystery too. Current owners here in the United States are left wondering, despite heavy government pressure to deliver a fix. Their resale value has plummeted and there's frustration from the fix inevitably reducing performance... the very thing many owners found most appealing about their purchase. Needless to say, there is a very ugly situation. We're witnessing the downfall of diesel. The next few months here will be harsh. Who knows what the backlash in Europe will be. Over in Japan, new testing procedures will be introduced. There is much worry about the future of diesel already.

- 3-03-2016** **Repeating Mistakes.** Sales results for February were released. Both Prius and Volt were hampered by new rollout availability. Unlike Prius though, sales were quite low for Volt... so low, no one wanted to discuss the topic. It was literally just a mention in a completely unrelated daily topic. I found that quite telling, especially since that particulate topic was about GM's lobbying effort to restrict Tesla sales... a heated issue... which is an on-going trend. When there's bad news, post something else to distract. Ugh. From Bolt, you get the impression of a green outlook, that a heavy investment is being made in efforts to change the market with EV sales. For this, that doesn't seem the case. It's like only releasing a gen-2 offering in limited fashion. Perception clashed with reality. Oh well. This isn't anything new. We've seen it before. Sadly, that's been in the form of repeating the same mistakes.
- 3-04-2016** **Intentional Risk.** Speaking of repeating mistakes, it's not just some automakers. Some consumers don't have a grip on reality either... as this points out: *"Some Prius drivers play a silly game called, "How low can you go?", or "How many miles per tank?" These are useless metrics which serve only to increase the probability..."* Sadly, it's the same old story. Oh well. All you can do is point out facts and ask why: That capacity beyond the reserve wasn't as big with gen-1 and consequently, there were a number of reports of ordinary drivers running out of gas. It was a quite surprise to discover the American mindset was to routinely push extremes. Toyota adjusted accordingly. Very few run out of gas following that. A major contributor to the reason for such a buffer is battery well being. In normal operation, there's a buffer for it too. Never deeply discharging is how it is able to last so long. Unfortunately, owners would drain the battery well past that longevity threshold. Consequently, its life is shortened upon continuing to drive after there isn't any gas available. With such a long driving range anyway, why anyone would disregard the visual & audio refill warnings is beyond me. Why take the risk? What's the benefit?

3-05-2016 **Low Hanging Fruit.** What do you think after reading this: "*However, 90% of miles put on EVs are charged at home. Or in other words, 90% of the infrastructure is already in place. As range increases, the rate of home charging will also increase.*" It's a common greenwash problem, where the is oblivious to the fact that he or she isn't seeing the big picture. They'll see a statistic and assume it can be widely applied. This is yet another issue related to not understanding audience. Much of it will come from those in favor of EV as the only solution. They pushback on plug-in hybrids and outright deny any potential for fuel-cell vehicles. They figure a plug at home is the answer for everyone... not realizing, that's far from realistic. They see the initial success and don't realize the next steps are going to be far more challenging. That's call the "*low hanging fruit*" problem. Current owners were the easiest to reach. Anywho, this is how I replied: That 90% is highly misleading, since the value comes from owners with easily accommodating homes. In other words, they are the low-hanging fruit. Upgrading homes in old neighborhoods is a major effort not taken into account. Some people just plain don't have a good setup available. Wires are hanging from old-school poles still and garages don't have physical room or electrical capacity to support a level-2 charger... not to mention, a second charger for the other car. As much as I desire plugs for all, that's just plain not realistic. For that matter, it doesn't even acknowledge those who live in condos or apartments. Obviously, we can overcome those shortcomings. It's going to take a heck of a lot longer than enthusiasts hope though. It doesn't address the backlash we'll get from the oil industry either. They're going to fight back hard, extremely hard. It wouldn't be pretty if it wasn't for hydrogen. That's a alternative fuel they can invest in, reroute their future drilling money to support for fuel-cell vehicles instead. After all, they have the resources already. It's an infrastructure adaptation they'll endorse long before embracing the idea of plugging in. We're going to see a lot of arguments against hydrogen in the upcoming years. Watch for those which don't take all the issues into account. Focusing on just efficiency and sighting the cost of fuel-stations is a red-flag that the big picture wasn't considered. There is no one-size-fits-all solution. EV and FCV will end up co-existing.

3-05-2016 **Timing.** I found this recent quote encouraging: "*Chrysler introduced the new Pacifica at the Detroit Auto Show less than two months ago. Production started Monday, and units will be at dealers in four to six weeks.*" How could I not respond to that? The new plug-in hybrid option came quite unexpectedly and will be delivered right away. That means no hype to deal with in the meantime. A fundamental problem with GM was the mindset that early announcements were beneficial; consequently, it set them up with the "over promise, under deliver" problem. And despite over a decade of struggle with that, the problem persists. We continued to get a lot of grief from Volt enthusiasts about the gen-2 Prius plug-in. For quite awhile, they would spin the discontinuation of the gen-1 as an end to the entire endeavor. Toyota finally to say something to put an end to what became a greenwashing effort. Ironically, there was a ton of hype for gen-2 Volt, yet GM only rolled it out in limited quantity and only to 11 states. To make matters worse, they announced the rollout of Bolt nearly 2 years in advance of actual availability. In contrast, we will likely learn very little about the gen-2 Prius plug-in until shortly before rollout begins nationwide. Why rush? After all, it has proven a winning formula. The original (gen-0) model of Prius was revealed in October 1997 and sales began just 2 months later. That blew the minds of other automakers and proved to be effective. What good does it do to hype a rollout so long in advance? That forces the automaker to attempt to match what was promised much earlier, even if it means sacrifice due to market change. That's a hard lesson learned with gen-1 of Volt. How come GM continues to make that same mistake? Thankfully, we aren't seeing that with Chrysler. It will be intriguing to see how the market responds to that. It should provide a clue what we can expect with Toyota. In other words, there is much to say but little reason to... yet. The wait won't be long.

3-05-2016 **Range.** It's an interesting topic. There are many perspectives, with varying interpretations depending upon when judgment was made. That's because the market is changing quickly, as the technology advances and people learn about their own assumptions. Understanding purpose is an obvious change too. This is what caught me today: "*The range of PiP 1 is terrible. I think that PiP 2 needs 2x-3x the battery capacity and range as PiP 1.*" I jumped into the mix with: Range wasn't the point. People in this market had a very difficult time accepting the low-cost approach of augmentation though. So the next, will target that market shift. If nothing else, Toyota has shown the ability to adapt to change. Also, let's not forget that numbers don't mean the same thing to different audiences. The best example of this was the EPA measurements for MPG prior to the 2007 change. In the past, those numbers simply served as a basis of comparison. Standardized criteria was introduced for the sake of making comparisons amongst the wide array of vehicle choices easier. That's it. Those numbers did *NOT* represent a real-world expectation. But then when hybrids came along and the market started to give a crap about actual MPG results, the testing changed. The measurement approach changed to reflect the market shift. That's a reality most people are totally unaware of. Toyota's approach to delivering a MPG boost wasn't understood by the typical consumer, following rollout. Prior to that, purpose seemed obvious. But traditional greenwashing and new efforts to undermine, along with continued battery technology improvement, resulted in a pause. The market was actively readjusting, much of it having to do with perception. People are changing their view of plugging in. People are seeing the hybrid market expand & mature. People are finally paying attention to the dependency our economy has on oil. The audience has changed.

3-06-2016 **Want vs Need.** It's not just an issue buyers have to acknowledge. Automakers have similar tradeoffs to deal with. For example: "*The demand for the PiP was there, but the cars were not. Toyota just wouldn't build them.*" Why is there is presumed need to rush? Isn't that really a want? My choice of enlightenment was to draw attention to the importance of when: What's the point of building an older generation for early-adopters when a new one for a wider audience is on the way? Ask the typical consumers for information about Volt. All they know is that it was first. Many cannot correctly tell you how the system actually operates. They are unaware physical size and battery attributes as well. Toyota saved the opportunity to start fresh. Two-Thirds of the states still haven't seen them yet and far more tax-credits are available than with the other automakers. They still have the opportunity to be the first to offer wireless charging too, which is proving to be a major convenience for cell-phones. Look at it this way, a similar situation existed 13 years ago. Availability of the Classic model Prius was quite limited. We'll never know the true demand as a result of Toyota sticking to a strict quota; however, we do know that sales of the Iconic model which followed were very strong. Also, keep in mind how information from a previous generation become tools of greenwashing. Reports will be shared without context, leading people to believe what's written about is all that has ever been available. It's very easy for an ordinary consumer to be unaware of generational detail.

3-06-2016 **So Far.** It's interesting to watch the perception of plugging in change. Some would call it a double-standard. Some would call it hypocritical. Others would call it damage-control. I'm not sure what to call it yet... perhaps, back-pedaling. For over 5 years, there was a fierce campaign to differentiate Volt as a EREV and to patiently wait for gen-2 rollout. Now, there's an endeavor to identify Volt as a PHEV instead and to disparage Toyota for having been patient. Reality is, ordinary consumers haven't been paying attention anyway. All they know is the basics... there are plug-in vehicles available and they are not cost-competitive yet. That's pretty much it, so far. This is like trying to explain to someone the benefits of a smart-phone. They would have no clue how they would actually use one, until exposed directly to one. Even then, that's no guarantee by any means of a purchase. The price of that is trivial compared to a vehicle purchase, as is the expected service life. No amount of "*first*" or "*leader*" claims will change that either. It's the nature of how ordinary consumers react to change. In other words, achieving mainstreams sales is far more difficult than just appealing to enthusiasts. We haven't even come far enough for most to see that yet.

- 3-13-2016** **Wyoming Trip.** My wife and I took another long weekend to visit her sister out in Wyoming. That's a 1,500 round-trip drive, with much of it at 80 mph. It's a MPG killer. Both this time and back on New Year's the result was an entire MPG drop from my lifetime average. On this trip, there was a day-trip extra side excursion as well. Speed so fast for so long simply isn't efficient. True, even at that rate of travel, efficiency is still better than other vehicles. After all, Prius is extremely aerodynamic. MPG in the low 40's is hardly anything to complain about. It is great experience taking a trip like that too. The drive itself is surprisingly refreshing as well. Much of that has to do with having adaptive cruise-control. Without that radar-detection to automatically slow the car down it would be somewhat of a pain. With all that space on the wide open roads, people out there few compelled to get out of the left lane as fast as possible... resulting in them cutting you off at 80 mph. It's basic stupidity at play. Sometimes, people just don't think. Why put yourself and the other vehicle at risk for no reason whatsoever? Just stay in the lane to finish passing at a safe distance before merging. Geez! Needless to say, the adaptive feature is quite handy. That allows you to enjoy watching the country side... including Devil's Tower. That's always fascinating to see off the distance from the highway while on that trip. We pass by the Badlands too. It's quite scenic of a drive, once you get past the wide open flatlands.
- 3-14-2016** **One Week Later.** It's as if Volt doesn't even exist anymore. We went from hype & rhetoric to failed attempts to draw attention. The enthusiasts are out of ideas. Last week's highlight was an owner having reached 300,000 miles on the odometer. With a 110-mile drive each way of his commute, that number isn't a huge surprise. Being able to plug in at both ends didn't help as much as you'd think either. There were many comparison attempts to Prius. All fell apart. It still makes no sense whatsoever comparing a plug-in like Volt to a regular hybrid like Prius. That massive difference in battery-capacity and the one not even having a plug makes them such extremes, only a true act of desperation would anyone try to put them into the same category. Yet, that happened anyway. Funny part is someone pointed out that overall energy consumption was from the Volt. Having done the same thing with a Prius, only a small amount of additional gas would be needed.... without any plugged-supplied electricity. Needless to say, people have moved on. Nissan is rolling out an upgraded Leaf. This year's model with offer a 30 kWh capacity battery that actually fits into the housing for the original 24 kWh battery. That bumps EV range up to 107 miles. So, even without the doubling of capacity to come in the next year, Leaf continues to stay competitive... which is why focus on Prius was the choice. The enthusiasts thought they could flex the "vastly superior" muscle one last time. That's getting so old. We know that cost is a major purchase factor. No amount of attitude will conceal that's still a problem. The distractions don't work anymore.

- 3-16-2016** **Very, Very Different.** Yesterday brought an announcement that the gen-2 Prius PHV will be revealed in a week. Volt enthusiast hate for the first generation plug-in Prius made for genuine curiosity about how they'd respond to this. Long ago, they claimed competition was Leaf. The solution Volt delivered would be a cure for "*range anxiety*" an EV like that would supposedly cause. Well, turns out, it didn't. So, focus was shifted over to Prius instead. They knew it was an easy target to insult, belittle, and criticize. They didn't care about well-being of the automaker or relying upon tax-credits. It was an obsessive compulsion to brag, boast, and be smug. That trophy-mentality had clouded their judgment for years. That was the past though. Gen-2 of Volt is now available. Had the lesson of need verses want finally been learned? Turns out, that may actually be the case. I chimed in on that daily blog by pointing out how goals still remain fundamentally different, that Toyota is focused on cost and delivered a system capable of high-volume profitable sales without any dependencies. Oddly, they seemed to recognize targets are not the same. Competing head-on with traditional offerings requires taking an entirely different approach. GM's priorities & schedules are most definitely not the same. That's a profound change, a paradigm shift of enormous magnitude. The enthusiasts had felt threatened in the past. Now, they aren't fighting back. It makes you wonder why. Could it be that sales of the new Volt are proving to be a struggle? I keep mentioning the reality of low-hanging fruit. That's because it is a cliché which points out the situation well, reinforcing the prior excuse of "*early adopter*" audience. In other words, the answer to the "*Who?*" question is now overwhelmingly clear. The situation now is very, very different.
- 3-17-2016** **First Sighting!** Today it happened. I saw a 2016 on the road. It was pulling out of a parking spot, so I got to watch it from every angle. That was the first time I had seen the brake lights illuminate. It was difficult to tell how they would be integrated into the design of the long curvy lights. The result was really nice looking. Of course, the entire vehicle is that way. It's among the few on the road that don't conform to "*plain*" styling. Those traditional shapes of the past have got to the point of being "*blah*". Why would you want to drive something that looks just like all the other vehicles already on the road? Close resemblance to the majority only goes so far. People get tired of the being the same. We're approaching that point now, where everything appears so similar, people are beginning to seek out something different. It never ceases to amaze me how people don't see the pattern. We've witnessed market saturation in so many ways, you'd think the outspoken wouldn't fight against change so hard. But then again, it only takes a few loud voices to misrepresent. Anywho, it should be obvious that I find the new look appealing. Like in the past. Toyota is paving the way for others to follow. That's what leadership is all about. The obsession with technology alone is so short-sighted. There are many aspects to drawing sales. Watch what happens as more new Prius become available at dealers.

3-17-2016 **Scary.** I got a kick out of reading this: "*The biggest news here to me is the statement that they need to sell 500,000 to be profitable. That is a really scary business plan!*" It was about Tesla's approach. Supposedly, that's scary. True, it is a major endeavor, but success means fear for the automakers not aggressively pursuing sales. Ironically, the comment came from a Volt owner who hopes sales of Volt will dramatically increase... but hasn't expressed the same concern. Tesla's dedication and concise message of purpose is a dramatic difference from the wishy-washy mix of intent we hear from GM. It's an interesting situation... which, thankfully, is finally getting attention. Remember all those years of blowing off sales & profit concern? This is how I responded: There are plenty of investors who see the solution to overcoming tax-credit dependency as high-volume production & sales. That's a vital next step, something Nissan is also committed to dealing with in a big way. Scary is the position it puts GM in. Heavy investment in Bolt could push Volt out of the spotlight, a vehicle already too specialized for traditional buyers. 200-mile capacity is quite compelling, basically eliminating range-anxiety concerns. Would you really expect Tesla to not attempt to penetrate the mainstream, breaking out beyond initial expensive models? There's a large potential for ordinary consumers to be drawn to the 200-mile offerings. Why not capitalize on that, becoming well established as an EV automaker in the process? We see efforts to spread FUD and resistance from those unwilling to change. There's the on-going problem of climate issues, oil dependency, and polluted air to deal with too. Seeing serious plans to overcome all that is what we've wanted for a very long time. This is long overdue. Many will step up to help make it happen. In the grand scheme of things, that half-million is not a large amount. There were over 17 million new vehicles purchased in the United States alone last year.

3-18-2016 **Dieselgate.** That label for the VW disaster is set in stone. People will be referring to this dramatic end to passenger-vehicle use of diesel that way for decades to come. The scale of the damage caused is so far beyond comprehension, no one could have ever imagined it. Prius supporters always knew the push for diesel as a clean & efficient solution was irrational. It simply couldn't compete in honest tests. Even the side-by-side contests rigged to favor diesel struggled to actually deliver. And that was in the past too, prior to the gen-4 rollout. The most die-hard of diesel supporters were dishonest... with themselves. It didn't make any sense when you took the time to consider what was claimed. How could they possibly expect a "50-state" minimum rating to compete with PZEV emission levels? Those were opposite ends of the CARB scale. Hybrids like Prius were far cleaner in terms of smog-related pollution. So what if carbon was close? You can't just ignore what you don't like. Of course, 6 months later, we see the much improved Prius... which handles far better than the previous generation... delivers MPG way higher than any diesel can achieve. There's no contest. Even without the scandal, there's no aspect of being competitive. That's without taking into consideration the upcoming next-generation plug-in Prius... which coincidentally, just happens to have a reveal date the day before the final deadline for VW. In other words, next week will be historical. Diesel is a mess and there is no hope for any type of comeback. The expectation is that it will fade away from consumer interest... while causing a great deal of industry pain. The thought is VW will not be able to deliver an acceptable fix. That means buybacks and some type of goodwill are the only options available. That will be very expensive... a costly mistake which will bring about new restrictions, permanently souring the appeal for diesel as a consumer choice.

3-19-2016 **Why Not?** With the reveal of the next plug-in Prius just 4 days away, there's a growing anticipation... as well as some uncertainty. This particular comment caught my attention: *"And I doubt this would be called Prius Prime, Prius Plugin suits it ... come on!"* I couldn't help but to jump on that opportunity to sound off: Why not? Don't you think the technology is ready for prime time yet? We've seen plug-in hybrid struggle in the past. Volt was far too expensive (production cost). Ford's Energi required too much interior space compromise. Prius PHV attempted to strike a balance, but needed to wait for the battery technology to advance. Haven't we arrived at that tipping point now? Personally, I would like the *"prime"* label... since I was the first who suggested it as Prius identifier... back in 2009. There is a great deal of potential for plug-in hybrids. Remember 15 years ago when Prius was just starting to get recognition as a possible solution for the masses to reduce emissions & consumption? Some couldn't imagine how the added motor & battery would appeal to consumers. Yet, we are now seeing Toyota approach the 9-million sales milestone. Greater battery-capacity and the addition of a plug seems such a natural next step. It doesn't have to be enormous or powerful. The non-plug battery certainly didn't deliver that, yet it was a huge success anyway. People focus so much on extremes, they overlook the obvious. Simply consider the success of ubiquitous technologies. Things like touch-screens have become so common, we don't give their actual specifications a second thought... even though they are restrained much more than they would have to be. There's a balance of need & want. Toyota is striving to deliver that.

3-21-2016 **Lucky.** What gets posted just prior to a reveal is fascinating. I homed in on this today: *"I think all of us who are waiting for the rev II Pip are lucky that it's even being offered up, much less whether or not it will be delivered to every state."* That came from a frequent poster who's been very upset with Toyota, under the belief interest in plug-in vehicles has been abandoned entirely in favor of fuel-cells. It continues to baffle me how someone could be so pessimistic, basing expectations solely on anecdotal observations from limited sources and from only specific points in time. Whatever. Some of us do research, seeking out a wide variety of input. Of course, that has left me looking very unlucky. Much of my study has come from unfriendly forum participation. Those there can be rather hostile at times, personally insulting you for even just asking the tough questions. But then again, when I do get an answer from there, I feel quite lucky. Anywho, this is how I responded to that comment: Sounds like you've been reading too much into the rhetoric. We always knew battery advancement would bring about a new generation. We also knew they would focus elsewhere in the meantime. I saw no benefit from Toyota joining the former market with so many problems plug-in offerings were having to deal with. True, their distance was spun as anti-EV, but that has no connection to next-gen rollouts. We've seen many examples of that in the past. What makes us lucky is Toyota staying true to aiming a product directly at the masses, not giving into enthusiast misdirection. The true competition is traditional vehicles, not other plug-in vehicles.

- 3-22-2016** **Great Expectations.** The anticipation of what tomorrow will bring certainly has stirred discussion. Many who didn't say much in the past are now sounding off. Without much reasoning, were seeing posts like this: "*30-35 miles of range would do it for me.*" As great of an expectation that is, I don't see it as realistic. Where the heck would you put that much battery? It simply too much of a size, weight, and cost tradeoff. I just plain don't see Toyota doing that. A doubling of the existing capacity makes more sense. It may be a hard sell in terms of EV range. But then again, the new plug-in Prius will still be a Prius. I returned the hopeful post with: How many are willing to pay that cost and willing sacrifice that physical space? Toyota will strive to achieve a balance, something like 50km (Japan estimate) is a reasonable expectation. That capacity translating to real-world 22'ish here would be nice for ordinary consumers. There will naturally be disappointment & backlash from enthusiasts who's interest is pushing boundaries. But what difference does their opinion actually make? They won't be the targeted buyers anyway. They won't be contributing to the sales goal. They aren't even interested in choices for the masses. Everyone would like more. That's in our nature. But realistically, that isn't how we (as mainstream consumers) make purchase decisions.
- 3-22-2016** **Guesses.** I was quite intrigued to read this: "*Any guesses on PiP AER?*" It came from the moderator and content-provider of that daily blog for Volt. It was just a comment randomly interjected into a discussion thread about the upcoming Cadillac CT6 plug-in hybrid. I waited 5 hours waiting for a smart-ass response. I got it: "*Not enough.*" The hate for Prius from that particular individual runs very deep. Obsession with the most possible EV driving range has blinded him from accepting anything less than what Volt has to offer. All of the other plug-in hybrids are inferior to him, period. Of course, his hate for BMW's i3 isn't exactly a secret either. It's interesting to witness the behavior of someone dead set against everything else. Heck, he doesn't even acknowledge the existence of hybrids without plugs. They are a complete waste as far as he's concerned. Needless to say, I couldn't resist: Who is the market for Volt? That question was asked many, many times over the years gen-1 was offered. The reason was to point out that the target market was very, very different from that of the plug-in Prius. With gen-2, we expect the same thing. Volt offers a design that strongly appeals to enthusiasts. That's fine. There's nothing wrong with wanting to utilize plug-supplied electricity as much as possible. It serves the intended audience well. They are pleased with their purchase choice and consider it an excellent recommendation for anyone else seeking those same performance traits and willing to tradeoff a few of the traditional purchase priorities. Prius has a very different audience. The target market is ordinary consumers, those who will seriously consider purchasing a traditional vehicle. These are the people that would like some EV driving opportunity but are not going to accept cost & space penalties. They'll be happy with seeing +100 MPG results. That's enough.

3-22-2016 **Constructive Questions.** They are so refreshing. I was delighted to get this: *"Does your inside information give you an insight into the AER of the new PiP? Care to give us a SWAG? Who knows, you may win!"* Though some sarcasm following, I didn't mind entertaining the request: Here are some thoughts... Toyota has always kept low-cost a high priority. With the inevitable loss of tax-credits mid-cycle and advancement of EV choices confusing the market, it makes sense keeping the battery-capacity down to a practical size. We know compromising depleted efficiency would make sales more difficult, it must remain well about what traditional vehicles offer. Fortunately, the system itself has improved making hybrid performance even better. Battery technology has improved along the way too. Currently, only 65.1% of the capacity is used for the plug-in. That's from EV full to HV 2-bars remaining depletion range, a SOC from 83.5% to 18.4% for routine operation. We could reasonably expect a widened operating range. Energy density, as well as packaging, has advanced as well. So, more can be squeezed into limited space. Cost has obviously dropped significantly too. Rumor is that around 30 miles, based on the testing cycle used in Japan, is the range the new plug-in Prius may likely deliver. Knowing that our EPA measurement process results in lower values and a difficult to estimate real-world expectation, it will be a challenge to really understand whatever the kWh rating for the battery-pack will truly deliver. Estimates in terms of AER are even more screwy, now that MPG well above 100 face diminishing-return issues. At what point do higher values not appeal? My routine is to recharge at work, using the massive (85 kWh) solar-array they have available. That effectively doubles battery-capacity. But with a 38-mile commute, more would obviously be beneficial. The gen-2 system will be more efficient as well. But since my commute average is already 125 MPG, no one will really care. That's already well beyond what the typical consumer is accustomed to. We'll get some specs soon, less than 12 hours from now. You and I both know there will be lots of spin to deal with and a wide variety of perspectives as a result. Little of it will matter though. We don't represent the mainstream consumers targeted anyway. Our participation online to discuss design & approach makes that easy to see. We're well-informed supporters, not ordinary consumers. We'll be stuck waiting for sales to tell the real story.

3-22-2016 **Competition.** Who is it? How many times will that continue to be asked? Hopefully, tomorrow's reveal will bring an end to the mistake of dismissing traditional vehicles as competition. But for know, it's the simplistic view of only other plug-in vehicles mattering: *"They really need to start a "breakthrough" in the relatively small EV market. The only car this really competes with is the volt. The next Prius Plug-In needs to have (at least) close to the same EV only numbers as the G2 Volt."* Reading that was a bit annoying. I still took the time to respond though, secretly wanting it to be the last time... I know, that's not realistic: Volt isn't the competition though. Toyota's purpose is to draw interest away from customers interested in their own traditional offerings. Remember, the ultimate goal is to replace traditional vehicle production. That means delivering platforms compelling enough for people shopping for a Camry or Corolla or RAV4 or any other 20th century approach to purchase a hybrid option instead. Appealing to those perfectly content with getting a new Corolla when their old one finally needs replacement is quite a challenge. That won't be accomplished with lots of EV. It's not as simple as trying to deliver more EV as other automakers.

3-23-2016 **My Response.** The whole day, those Volt enthusiasts posted about me, wondering why I hadn't participated on their discussion thread about Prius Prime. My response wasn't going to happen until they all stated their stance. I was quite curious how the tables would turn. So much had instantly changed for them, it opened up the door for more cooperation. The days of "*vastly superior*" are long gone. But I knew there would still be some upset. So, I waited until just before midnight, then typed up and posted:

It has been interesting reading comments posted on the wide variety of websites today about Prius Prime. There's lots of spin, denial, and rhetoric. Fortunately, that's all easy to avoid. It's just an amplification of the usual greenwashing from the usual antagonists.

Trying to find genuinely constructive discussion was a challenge. The consistent message in that regard has been the battery-capacity should be greater. No one is willing to accept the space tradeoff though. Somehow, Toyota should have found a way to deliver more without facing the same barriers as all the other automakers. That's not realistic. I see things like cost, weight, handling, efficiency being carefully balanced with size & capacity. Let's not forget the hidden aspects of operation either, like cooling and accident resistance.

On the don't-want-to-acknowledge side, there's the enhancement of utilizing both electric-motors for propulsion power instead of just the one. That increased the EV maximum speed to 84 mph and allows for full-throttle acceleration without the engine. It's a big upgrade quite a number of people taunted Prius about for years. Now suddenly, they've all vanished. It's as if no one ever proclaimed that improvement was impossible.

There's an absurd new twist emerging too. Even though Volt has nothing but a tiny middle area for a child to sit without any legroom whatsoever, some are claiming it has a 5th seat anyway. That somehow makes it better than Prius Prime. How? And why would anyone even bring up the topic? The regular Prius offers more leg & head room than Volt, for both front & rear seating. So, the expectation is for that to also be the case for Prius Prime. That's much more of a selling feature than a 5th seat. And what happened to all those Volt supporters who told us over the years that 4 seats were enough?

I'm intrigued what comes next. Will others in favor of plugging in accept the new plug-in Prius or find some new way to belittle? It really doesn't matter. People researching a purchase will see the EV range offered, see the MPG delivered following depletion, and then take into consideration all the usual decision factors. They couldn't care less whatever the heck EREV means... especially since its confusing & arbitrary definition no longer makes any sense.

While we wait for delivery this fall, enthusiasts of Volt have an interesting new situation to consider. They already had Bolt on the way, dividing focus among GM supporters. Now, there's a new Prius that breaks apart gen-1 stances. The change gen-2 offerings bring about will be significant. Some will like it. Others will struggle. Consider next steps carefully...

3-24-2016 **We'll See.** Only one person got upset with my post. He refused to comment about the attitude of others though. Pretending no one else posted any type of disparaging message, despite overwhelming evidence to the contrary, is usually a sign of venting. He was really just seeking someone to blame for the change. So, I ignored it and continued the discussion with the few constructive individuals there. This was my contribution to that: The 5th seat is an example of a paradigm shift. We know most people don't ever use it, yet they consider that essential purchase requirement anyway. We've seen this before... especially with new technology which replace a long-standing expectation. Over time, people will refocus onto priorities that actually have an impact. In this circumstance, it's the amount of leg & head room you get. For that matter, ease of entry and visibility while seated come into play too. There's also aspects people typically don't notice, like whether you have a ceiling or just glass above your head. Think about how much value people place on having AWD. We hear remarks all the time about how important some feel it is. How often would it ever be necessary though? I haven't ever had it, despite dealing with Minnesota winter roads for decades. Heck, just yesterday was an snowy, icy, lumpy mess to commute home in. Reaction to having "only" 4 seats will be interesting. It will be a deal breaker for some. But then again, how does that compare to a vehicle being compact rather than midsize? We'll see. Prius Prime offers a significant increase in EV power and the range will satisfy many. For me, my commute will go from averaging around 125 to 999 MPG. I'll retain great efficiency following depletion and will still have a large area available for cargo.

3-24-2016 **Fans & Trolls.** A former foe who is now making a genuine effort to extend a hand in friendship asked: *"This all reminds me of the comments we faced at the beginnings of the Volt. Toyota fans and trolls grilled us unmercifully on the 4-seat issue (and many others). How does it feel?"* After giving that serious consideration, I replied with: It goes both ways. You realize I could easily spin that as others gloating. Some will claim that a victory. Others will try to convince us Volt has 5 seats. Think about all the intentional misleading about EV range. Whatever the case, I appreciate the effort on your part. The point is this is an ever-changing market. We need to work like a team, no more sparring. As a constructive next step, want to address the "EREV" issue? I'd love to get that over with. Remember how the definition changed from development to rollout, then changed again when Ford joined in, then changed again when BMW offered a plug-in, now again with Toyota? There will be Hyundai, Mitsubishi, and Chrysler choices this year too. Our goal is to promote plug-in vehicles. The key is properly identifying the differing purposes & buyers. We can show there's diversity available, demonstrating that all together they are an effective means of competing with traditional vehicles. The approach of placing Volt against Prius makes even less sense now with Prime. Can we agree they are all plug-in hybrids and move on?

3-24-2016 **Some Perspective.** Back on the big Prius forum, we got into statistics. Toyota specifically mentioned the EV range that Prime would deliver covers 51% of commuters here. I interjected some perspective (a bunch of numbers) into the discussion to see what response it would stir: Toyota sold 2,499,313 vehicles in the United States last year. Their top-selling car was Camry. 429,355 were purchased. That's a total of 17%. That in itself shows there's lots of opportunity available. Next, consider what the 51% commute value means to the 17,470,659 vehicles all the automakers combined sold in the United States last year. That's a great deal of potential for the seemingly small 22-mile EV range. Remember, this isn't a one-size-fits-all situation. There will be other vehicles with other configurations. Nonetheless, it should be easy to see there isn't tiny market as some are attempting to portray. Don't forget that the system will still deliver outstanding efficiency even when the engine does run. Averages over 100 MPG will appeal to some buyers. The industry target in this market (United States) for a vehicle to be considered mainstream, which means it is able to maintain consistent profitable sales without outside incentives (like, tax-credits & HOV privileges), is an annual rate of 60,000. So, the question we should focus on is how & when would this be realistic.

3-24-2016 **Market.** Certain people are curiously absent. They're the antagonists, those individuals who like to oppose... sometimes, simply for the sake of not wanting any type of agreement. After all, acceptance means no more discussion... even if it isn't constructive. Taking advantage of that absence, we've got a good dialog going on at the moment. Cheap gas makes EV driving expensive. That's a very real problem. How are we going to deal with the economics of that. Here were some of my thoughts on the current market: I look at it this way, we've encountered lots of people along the way who said Prius wasn't efficient enough, that higher MPG would be needed for it to really take hold. That didn't turn out to be the case. The balance Toyota strived for is what attracted lots of sales. The hope is that same will be true now with the plug-in model. It doesn't offer as much EV as detractors said it should, but it doesn't compromise shortage space to an extreme either. We'll lose roughly 3 inches of floor height for cargo, but a large open area for cargo will still be available. The leg & head room could end up being identical to the regular Prius. The efficiency without plugging in should be fairly close to the same. There's also hope it will be easier to sell than an EV or even another plug-in hybrid. It's a Prius. People are already familiar with the proven reputation for reliability. You can plug in using just an ordinary household outlet too. No need for a level-2 charger means a savings often overlooked by those thinking more is better. Gas prices do present serious challenges. But we know emission concerns will help the effort along. There's a growing spirit of cooperation among plug-in supporters too. Hopefully, all that will allow us to capture the available market.

3-24-2016 **Semantics.** Facing fallout in that form was inevitable. It came as: "*If one can't meet the original goals; change them!*" I got a kick out of that. Having been through the generation experience several times now, it was easy to see coming. Those Volt enthusiasts who caused so much trouble in the past didn't have that background; consequently, that meant seeing things from a different perspective. Only now are they getting the view we had years ago. Much can be learned from the first generation. You don't realize that until the second arrives though. With Prius itself on gen-4 (which is technically the fifth, if you study the original rollout in Japan), that knowledge was well earned by some of us through firsthand participation. I gained much from that history. Now, it's an attempt to share that with others. I wonder how this will be received: Goals for each generation change. That's a normal process. The upgrade is suppose to deliver adjustments & alterations based upon what was learned. The problem comes when people lose perspective or simply forget what the ultimate purpose was. The catch is when gen-1 rolls out. Nothing could have been learned yet, since nothing was available prior to it. So, original goals are quite important. Haven't you noticed Prius isn't just one vehicle anymore? 4 years following gen-1 rollout of the plug-in model, there are now 2 distinct designs. Each will offer several different trims. They are all still Prius; choice have expanded though. If you want to label that as moving the goal posts or arguing semantics, so be it. Personally, I called it adding a second goal. There's a gain from that addition. It's not a double-standard. It's not being hypocritical. Look at Volt for some perspective. It continues to be just one design upon gen-2 rollout. There simply isn't another Chevy offering. It's still the one-size-fits-all. How exactly does that achieve the "*leap frog*" claim? We could consider the upcoming CT6 variant. That truly will be another choice based upon Volt technology; however, adding 2 clutches and another planetary-gearset to deliver 449 horsepower clearly doesn't target the same group of consumers. The upcoming Malibu does seem a much better comparison, but that isn't in the same category either. It's a bigger vehicle. It's also a sedan, rather than a hatchback. Again, Toyota has branched out by offering another configuration based upon a shared design. Adding an entirely new choice like that, rather than it being a trim (package) option, is different. It's simply not the same situation. Implementing change based upon what was learned from gen-1 is a reasonable expectation. Some won't like that. Others will. With all the spin that resulted from the ending of gen-1 production, I'm really surprised anyone is willing to speak out now trying to stir comments of the past. That spin should get attention too then. It was meritless-speculation and talking-points confirmed recently to be false. Continue to look back or finally look forward?

3-25-2016 **Seats.** By far, the biggest topic of discussion about Prime is the matter of only offering seating for 4. Some of that is simply the fact that other issues have been put to rest. For example, the increase in top EV speed to 135 km/h (84 mph) along with engine-less full-throttle acceleration ended all posting about pretty much everything related to EREV. The topic is dead. So, it makes sense addressing the seat change. It's one of those strange ideas. That 5th seat in the middle does indeed get used by children. But for adults, basically never. It's tiny and that throws the maximum carry weight into a mess. In fact, extra reinforcement underneath is needed to accommodate. So, why bother? After all, Prime will most definitely not be the only plug-in hybrid Toyota offers. They have already pointed out the TNGA benefit (their new cost-reducing production approach). Anywho, it's reasonable to expect a degree of fallout to continue. Some will insist the 5th is vital. Of course, they'll continue to dismiss leg & head room in the process. That's a dead giveaway they haven't addressed all aspects of the decision. Heck, another is simply comfort. Those are clearly more appealing to our backsides. Wasn't that a major contributor to how the benches got eliminated? This is how I joined into the discussion, obviously taking a direct approach knowing the extensive history with the topic and how it will inevitably be brought up repeatedly for awhile still: The problem with support for Volt up until just a few days ago was the enabling. Those in favor would allow the 6-mile misleading to continue. That greenwashing effort to convince people the battery-pack only delivered 6 miles of total capacity for EV prevented any type of cooperative effort. Why listen to those who blatantly allow that undermining? Their reasoning for only 4 seats fell on deaf ears as a result. To make matters worse, there was an outright dismissal of leg & head room being important. Thankfully, that did change when gen-2 of Volt was revealed. Unfortunately, the 6-mile misleading continued. So, now, we are at a point of decision. Will they constructively address design or continue on with the same rhetoric? It sure would be nice to look forward. Features like seat-warmers for in back are possible with the bucket design. You'll never get that from old-school benches.

3-25-2016 **Somewhat Frustrating.** Over and over and over, I posted a reason why production of gen-1 Prius PHV came to an end early and why it wasn't rolled out to the other 35 states was the likelihood of gen-2 delivering major improvements. When you've got an upgrade that compelling, why in the world would you bother promoting the old version? It quite simply doesn't make any sense. Then when you consider the limited number of tax-credits available, it becomes counter-productive. An effort to expand rollout would educate the population on outdated specifications. That's self-deprecating, a step in the wrong direction. Why certain individuals chose to argue that wasn't the case is beyond me. But I remember that. It's somewhat frustrating to think about still... especially now that my hypothesis has been proven correct. In fact, I was so accurate on some counts, those naysayers have completely vanished. Not hearing even so much as a peep is quite redeeming. The same thing has happened in the past. Once they get confirmation of dismissing a vital clue, they disappear. There are a few who stay. They pretend none of what they claimed was ever said or that wasn't what they heck or that it was just devil's advocate posting. That's a crock, of course... simply by looking at their attitude. If they were rude & insulting, they weren't being constructive. Making it personal, rather than sticking to facts, is a rather obvious sign of emotion clouding judgment. That influence of belief over understanding is a difficult barrier to overcome. It's why I have to tolerate a level of frustration. A few of those antagonists actually pull through and admit their mistakes. Those are the ones who I want as friends. Even though they came to the wrong conclusion, their persistence of continuing to try and desire to keep digging for argument points shows a strength most people don't have. They are who you want as an ally... after the current chapter concludes. After all, their ultimate goal is usually quite similar. In this case, they want to end the dependency on oil and greatly reduce the damage we are doing to our environment.

3-26-2016 **Complaints.** The biggest complaint found online... which served as constructive criticism... ended up being battery-pack capacity. That's no surprise. The cost verses size verses weight verses efficiency, with respect to the wide variety of consumer need, made that a huge issue to tackle. Taking the end-product approach like GM wasn't an option for Toyota. That expense & risk just plain isn't worth it. GM learned that lesson the hard way. Toyota got a lot of grief for having avoided that dilemma with gen-1 by taking the upgrade approach instead. What does that mean for consumer perception? Doubling capacity seems the most sensible balance. Density & Packaging improvements, combined with system efficiency upgrades, made that a realistic expectation. Many goals could all be addresses at the same time, rather than sacrificing some for the sake of more EV. The top speed for EV was obviously the next issue frequently posted about. Adding a clutch to disengage the engine and allow both electric motor/generators to provide propulsion power at the same time was a logical reconfiguration. The design could support that without having to sacrifice hybrid efficiency. More EV power is what people wanted... and that's exactly what we got. Toyota listens to complaints. The variety of sources all sounding off really made a difference. It's too bad GM focused almost exclusively on enthusiast input. That's how they ended up with such a niche vehicle, one that still garners a great deal of praise from those enthusiasts. Unfortunately, that does very little to entice ordinary consumers. Not drawing them in to grow sales is a very big problem. Toyota is clearly taking that seriously. Another interesting outcome of complaints was simply what to call it. If you still want gen-2 to carry the Prius nameplate, yet be easily identified as unique in every venue, how do you do that? The decision was to call it "Prius Prime". That particular decision made me absolutely ecstatic. Way back in November 2008 (specifically on the 30th), the select group of us chosen to go to Detroit to participate in the gen-3 reveal were having a discussion about what to name the various generations. Having identified the 1998-2000/01 model of Prius as "*Original*" and the 2001-2003 model of Prius as "*Classic*", we saw the need to coin a name for the outgoing generation. I posted this, not realizing how forward-thinking or significant my suggestion would become: After searching and searching through the thesaurus. It just hit me, like a ton of bricks! Since the current model is the one that was adopted by the mainstream, I followed logic of words like "*established*", "*common*", and "*widespread*". The word "*mature*" has been used countless times in response to greenwashing attempts. All those took the mindset beyond "*historic*" and "*founding*". It was the "*familiar*" feel I was looking for, a sense "*base*" that was heavily "*celebrated*" among typical consumers, even "*renowned*" by some. Being "*well-known*" by a "*broad*" spectrum of people gives it reason to have the spotlight... and will continue to, even as the new model takes hold. See where I'm going with this? I suggest we call the 04-09 model: Prius **PRIME**

- 3-26-2016** **3.3 kW Recharging.** Toyota is quite pleased to point out that the recharge rate from a 120-volt connection (a standard household outlet) will be quite a bit faster. In fact, it will supposedly be faster than what Volt offers. But then again, with Volt's battery-pack so much larger, you pretty much need a 240-volt connection anyway. Not having to upgrade your wiring at home is an expense nice to avoid. Keeping the purchase process as easy as possible is a big deal. That upgrade is simple for some. For others, it requires some major rewiring. That extra cost could be a purchase deterrent... which is why being able to stick with the 120-volt is so nice. It depends upon where your electrical-box is and how much power is has available. Fortunately for me, it's in the garage and I already have 200 Amps available. Of course, I may not upgrade, especially since I'd like a smart-charger. Being able to connect it with Wi-Fi to track charging data would be great. Those devices are relatively new still. So, waiting is fine. In the meantime, I'd be watching the maximum rate jump from 2.2 kW with the Prius PHV to 3.3 kW for the Prime. That's a substantial increase in recharging speed without having to change anything at all in the garage. Cool.
- 3-26-2016** **1.8 Miles.** The drive out to the coffeeshop to start out my weekend with some blogging is an interesting drive as Winter melts away. With the temperature just above freezing, I can just barely make the drive there and back using only electricity. It's remarkably close sometimes. As I'm backing into the garage, I can see the EV range brush up against the minimum reading. I make it though, without doing anything special. Getting up to 55 mph and keeping it there for about two-thirds of the 4.5-mile drive really pushes it. In the Summer, no big deal. It's the cold. That causes electrical resistance to increase, which means EV driving range decreases. It doesn't help that air-resistance is greater then too. If the engine starts, it isn't the end of the world. But to be so close, it becomes an interesting experience to witness. Not trying to squeeze out more is what makes the experience worthwhile. You truly don't know what the outcome will be. That's over now though. I got smart and wondered... what if? Rather than taking the same route home, forcing the Prius up to 55 mph after having sat out in the cold for around 2 hours, I took a residential route. Speed only briefly gets up to 50 mph. The rest is slower and cuts through the area diagonally. That makes it both shortly and less demanding. I made it home with 1.8 miles still left, despite nearly identical conditions with last weekend's drive. I had no idea it would make that much of a difference. Sweet!
- 3-26-2016** **EV Fanatics.** This was an interesting comment: "*I don't think anyone but few EV fanatics know about that...*" I agreed and was delighted we are now discussing perspective. Far too often, people overlook others. They assume everyone else has the same background and same needs. That difference should be obvious. Often, it actually isn't though. So, I said: We understand scope all too well. In general, people don't pay close attention. They never get enough detail to be properly informed and they forget the few things they did know. To make matters worse, facts get blown out of proportion and dates get mixed up. It's an unfortunate reality we've had too deal with for years. I've blogged extensively over the past decade and a half. It's fascinating to read that history documented as it was happening. You get a very different perspective from those looking back well afterward. The EV stance is already quite distorted. Fortunately, a number of those who kept trying to stir the pot have grown silent. That's pretty sweet. I'm not going to let their efforts get in the way of what comes later this year.

- 3-27-2016** **Mid-Cycle Updates.** That's a topic getting unforeseen attention. In the past, any improvement to the system along the way was seen as an expectation, something that just naturally happened with new technology. We've grown so accustomed to it with computers, we don't even noticed model changes anymore. With vehicles though, that's a different story. Generational upgrades were always such a big deal, changes mid-cycle were simply looked upon as a refresh. There was never an expectation of anything worthy of drawing attention. When you've got a plug though, the story is different... and continues to change. Volt got minor tweaks to it's battery & system, allowing modest range increases. Leaf experienced the same, until just recently. This latest improvement wasn't modest. Combined chemistry & packaging improvements equate to a rather substantial update. It's not mid-cycle either. Nissan just offered what they could when they could. People are already speculating something similar could happen with Prius Prime. What if the raising of the false floor when away mid-cycle? That's entirely possible. No need to increase range, though that is an option too. The benefit of squeezing the 8.8 kWh capacity into a smaller area would stir interest. That's a great thing to have happen along the way, especially with the entire industry striving to reach mainstream consumers. Think about the timing. When automakers hit their tax-credit phaseout trigger, that will put pressure on the entire industry. Nissan, Tesla, and GM will all face that in roughly 2 years. Toyota positioning to deal with that seems rather sensible. The fact that some are seeing that already is rather surprising. Cool.
- 3-27-2016** **Electric Heating.** Hooray! The topic is finally getting some attention. I'm excited. It's hard to believe something so vital could have been neglected for so long. With the gen-1 plug-in offering though, it simply didn't get discussed. There was little to no detail available. All we ever really heard was that keeping yourself warm in the Winter meant a rather significant EV plenty. Range would just plummet and there wasn't a good solution available. But now with gen-2 models drawing attention, we are finally stirring some interest. Supporters are seeking out information for a better understanding. I'm getting to note key differences. It's exciting to know that Toyota will be including an industry-leading setup. It's much like the A/C system all those years ago. Not only what is fully electric, it also was the most efficient design available. Hearing that Toyota will do the same with Prime is great!
- 3-28-2016** **Why?** It's rather bizarre reading an article which compares a 2011 Prius to a 2016 Volt. Why not the newer generation Prius? Why not the plug-in model? Why not something from GM instead? Obviously, it was one of those filler articles with the hope of drawing attention to that publication. You can't really get anything constructive out of such a mismatch. Though, I was intrigued by the attempt. After all, it takes quite an effort to make them seem similar effort to compare, but you can if you gloss over certain facts... like production cost, price paid, seating & cargo size, carbon & smog emissions, and depleted efficiency. My response on the big Prius forum was: The underlying point of the article is rather impressive... You can actually compare a gen-3 Prius to a gen-2 Volt. It shouldn't make any sense to do that. One is 5 years older and doesn't even have a plug. We've heard all the rest before. But now with Prime on the way, this type of comparison comes off as just floundering to keep readership active. Why wouldn't there be any mention whatsoever of a plug-in Prius or any of the other plug-in hybrids being offered? For that matter, why not compare to GM's own hybrid... the upcoming Malibu?

- 3-28-2016** **Wrong.** What do you do when you encounter information where some is mixed up and some is totally incorrect. This really go me head scratching: *"The new electric motor is all the more commendable because it can achieve up to 95 kW or 127 horsepower compared to the previous one's 68kW or 91 horsepower. With this, the newly launched hybrid can run up to 22 miles at 82 mph..."* 95 is just plain wrong, as is the 127 value. That 68 isn't for the previous, neither is the 91. Both are for Prime instead. The 22 is wrong too. You'll get that under normal driving circumstances, like a 60 mph highway and through town. Getting that 82 mph isn't realistic. Aerodynamic drag increases significantly with faster driving. Where did that 82 come from anyway? The maximum EV threshold is 84 mph. Needless to say, all that was such a mess, I didn't bother to respond. It's simply not worth drawing attention to such a collection of potential greenwashing material.
- 3-28-2016** **Naming.** There are some who don't feel Prius Prime is properly named. That makes me wonder what they are thinking. Why do that feel that way? So far, responses have been quite vague. I jumped in with my thoughts on the topic: I couldn't imagine *"Prime"* not catching on. After all, there is only a small group of early adopters & enthusiast who ever used *"PiP"* anyway. The market for plug-in hybrids is still quite new. Most people know little beyond the basics and certainly aren't aware of the history. We want to make it clear which generation we're discussing. So, it is our best interest to intentionally differentiate the generations. Calling them each by a unique name makes it a heck of a lot easier, especially with respect to searches. Simply altering an unfamiliar abbreviation is not the way to go.
- 3-28-2016** **Lose-Lose.** That's an interesting situation, when no matter what is done the outcome will be a loss. I found this a concern: *"Granted all marketshares are kind of small, but the Prius Prime is reaching in all those directions while compromising what it was originally...a Prius family, eco friendly car!"* Some people seem to be spinning the purpose of Prius being a family oriented vehicle as one that caters to just the young. They aren't giving any consideration to what happens once the children begin to grow up. A family isn't just car-seats & elementary school. When the kids grow up, you still have to transport them. At that point, they are larger and have different comfort requirements. For that matter, some may be driving... putting you in back as a passenger. Doesn't it make sense that Toyota would recognize what happens over the years and want to retain those customers? I was annoyed by the absence of consideration for that, so I posted: Prius was a sedan for 5 years. For gen-2, it became a hatchback with midsize seating. With Prime, it is still a hatchback with midsize seating. True, it doesn't offer a place for a 5th person. But then again, families grow up. Isn't it trying to continue to appeal to an audience that's changing? Retaining all of the same aspects of the past means not attempting to adapt to not keep the existing or reaching out to appeal to the new. That sounds like a lose-lose scenario.

- 3-29-2016 Ioniq Compare, part 1.** Today's daily blog topic was all about Hyundai's upcoming offerings, all 3 of them. I'm obviously most curious about the plug-in hybrid. So, I dove into the discussion: With only a 0.1 kWh difference in battery-capacity compared to Prime, it will be interesting to see how the plug-in hybrid compares. Since Hyundai hasn't released specs on the electric-motor yet, knowing what to expect is a mystery. The guess is it won't use the same one as the EV model. Will it be what's in the hybrid model? If so, that's only 32 kW (43 hp) plus whatever boost the larger battery may be able to deliver. Toyota has released Prime detail. With the 2 electric-motors combined, the expected output is 68 kW (91 hp). That's quite a bump over the current 38 kW. Toyota will also be delivering electric warmth for the winter. It adds an interesting new twist for comparisons, especially since it will come from a heat-pump with vapor injection. That's an industry first, which increases efficiency of heating by roughly 20%. That will reduce the negative impact on EV range. Also, keep in mind that Ioniq is smaller inside than Prime.
- 3-29-2016 Ioniq Compare, part 2.** Turns out, that mystery detail is available. The electric-motor in the plug-in hybrid model of Ioniq will be 45 kW (60 hp). Seeing how much of the early market didn't understand the benefit of boosting MPG and was obsessed with EV power, that could be bad news for Ioniq... or maybe not. It's really hard to tell where the line will be drawn. It is more power than what the current Prius PHV offers, 38 kW (51 hp). Ioniq will be a smaller vehicle too. Heck, it may even deliver higher HV efficiency. Will that matter? What will people want? We have no idea. The only thing getting attention right now is the expectation of more EV miles. But that's only based on estimates. Toyota likes to keep their value low, under-representing expectations to avoid any possibility of disenchantment. Hyundai is an unknown. Their MPG estimates have been too high. But then again, will it matter. Price will likely be the greatest influence. Undercutting Toyota would be advantageous. Toyota treats cost as a factor of great importance. Prime could be quite competitive. After all, it will need to face traditional vehicles. That presents a huge pricing challenge. Whatever the case, we have to wait roughly another 5 months before we find out.
- 3-29-2016 It's Cost, Not Price.** Ugh. Good thing I haven't been counting the number of times must that same fact be pointed out. That had to be repeated yet again today. The discussion got off on a tangent about price. At least there's was an opportunity to address it. Topics having to deal with profit and automaker motivation typically die from quick, short deaths. People get so hung up on engineering and have such weak backgrounds in business, they just plain don't understand what I'm talking about. Who knew all those accounting, economics, and marketing classes in college would compliment my software engineering degree? Go figure. I jumped in with: Actually, it's COST that's everything. How much Toyota must spend to produce the vehicle is what determines its future. Because once those tax-credits expire, only the well planned out designs will be able to maintain high-volume profitable sales.

- 3-29-2016** **Flexible.** What comes to your mind upon reading this: *"Toyota did a poor job of explaining that the Prius Plug-In was meant to use even less gas than the Prius with the help of electricity from the grid, not to provide an EV driving experience."* Not filling in the all blanks is how you learn, since it results in feedback. Of course, being somewhat ambiguous and not responding when false beliefs emerge is an entirely different matter. That happened with Volt, prior to rollout. Toyota didn't do that until after Prius PHV was rollout out. Big difference. Prius PHV owners could answer questions, simply by trying. They'd report their own real-world observations. Since no one owned a Volt yet, real problems emerged for GM. Rather than serving as an educational means, like it did for Toyota, things escalated out of hands based on nothing but speculation. Put shortly, any *"poor"* judgment depends on when events take place. There's an added advantage of not providing what could potentially become false hope based upon speculation. It's flexibility. I put it this way: That was intentional. They wanted to study market response as a whole, rather than pushing any particular approach. No matter how many times it was pointed out that Toyota wanted to remain flexible, some people just plain didn't want to accept it. In fact, their response was usually to call people pointing that out defenders trying to spin the situation. That was annoying, but now we have confirmation of it being the case... which has rendered most of the naysayers silent. This is why gen-1 rollout expansion was postponed, then production ended entirely. Looking back, it should be fairly obvious the market was quite fickle and really not certain what it actually wanted. Remaining flexible offered opportunity.
- 3-30-2016** **Doubt.** Some people thrive on it, stirring discussion by raising some. Oddly this time, the situation is reversed: *"I think the shock about 4 seats is that there is no denying Toyota is trying to go for a different market than the Prius, which might be counter to what many think of the Prius family."* Who knew that this was come about? I certainly didn't expect it from that particular individual. His contributions typically draw out discussions and prevent conclusions. I wonder why this particular situation had a very different response. But then again, maybe it was some type of reverse provoke. So, I took it as bait. After all, that use of *"think"* was a little suspicious: Why raise any doubt? We already know Toyota is reaching out to new consumers. I suggest looking at Prime as another offering, not a plug-in version of Prius liftback.
- 3-30-2016** **Stats.** Eventually, we'll have real-world experiences to share. Until then, it's stuff like this: *"I'll be curious to see what the stats are for the Prime. For me, I'll be plugging in the Prime every other day (taking into account side trips to the supermarket and not strictly commuting)."* Driving circumstances & conditions vary so much, there isn't much realistic speculation possible. I still remember some posts prior to Prius PHV being rolled out. A few have left rather vivid memories. We simply didn't know. This time around, we have background with respect to plugging in available. Here's mine: I'll be going from a 125 MPG commute average to around 999 MPG. I plug in at work, taking advantage of the huge (85 kWh) solar-array for recharging. My commute is 38 miles round-trip.

3-30-2016 **Inferior.** The attacks never end. Having to deal with the rhetoric is a pain: "*We, as in Volt supporters, have always been fighting for plug-in acceptance. You argued against the Volt since day 1, saying it was inferior to the Prius hybrid.*" They look for scapegoats, then paint a picture for others to believe. It's always vague. It's always an extreme. It's always dishonest. In this case, I couldn't help but to chuckle, since this was included afterward: "*If sales are the measure of success...*" That bit of uncertainty is absurd. We've been talking about sales as exactly that since long before day 1. The specific count & timing was concise. There was never any doubt how success would be measured. But when the actual numbers began falling well short of those expectations, goals were changed. They said that wasn't important. Ugh. I kept my rebuttal fairly short, to force the bigger picture: No matter how many awards any particular technological achieve earns, that's just engineering if sales aren't accompanied too. Not agreeing on that point has been the basis of misunderstandings and disagreements for years. We've all given and acknowledged engineering achievements Volt delivered, then most of us moved onto the business part. That's sales. It's time to focus on getting mainstream consumers involved. The niche stage is over. The enthusiast engineering-only perspective isn't enough. Gen-2 is now available.

3-31-2016 **What They Thought.** Ironically, we're starting to see the situation that Prius faced and dealt with now arising for Volt... consumers not actually buying what they thought they wanted. For many years, there was a common call for added battery-capacity and a plug, to supplement the existing system. The purpose was to boost MPG. Aftermarket conversions proved the approach. Toyota ended up delivering a version improved upon that. Unfortunately, the idea wasn't embraced by the masses. Fortunately, it was a mid-cycle rollout to only limited areas. So, there was very little risk or fallout. That meant delay for wide-scale availability but also meant the opportunity to build upon real-world data collected in the meantime. Prime is the result of that. GM is still going under the assumption that maximum EV and minimum HV is what people will buy in large quantity. We've been told by enthusiasts that is the purchase priority. We've await to set that from ordinary consumers. That disassociation of saying & doing is nothing out of the ordinary. In fact, it is quite common. Problem is, this situation comes with a substantial penalty for the business upon assuming incorrectly. Put another way, Toyota altered design from only one of the two motors providing propulsion power to both. That allowed the system to offer more EV, but not tradeoff HV performance. This was due to the market revealing a lack of understanding of how plug-in hybrids work. Most people believed the vehicle would operate as an EV until depletion. The concept of blending wasn't understood. Since that's the way Volt always operated, there was much rejoicing among enthusiasts. It didn't translate to the massive success that had been anticipated though. Like with Prius, it addresses what people had been requesting. But interest from those ordinary consumers hasn't materialized yet. Will it be embraced by the masses or will some type of adjustment be needed? Consumers not actually buying what they thought they wanted is a very real problem.

3-31-2016 **Get Over It!** Ugh. Reading this in the past would have been frustrating: "...*buying tired-old HSD (it's good as a hybrid, but Voltec us just far better)*." Now, it serves as vindication. I see it as confirmation of having studied both the engineering & business need well. Seeing the explosive post as a result of pointing out that was a provoke really showed that well. It certainly was over the top. He went on and on. The rant was rather entertaining to read. My reaction was quite different: The extreme over-reaction to such an obvious provoke that didn't work was quite telling. Putting me on the defensive invites the opportunity to ask why. So, let's do that, starting with a look back at the history... Back when Volt first rolled out, there were a number of problems to deal with. Volt enthusiasts felt overwhelmed by a variety of unexpected barriers and ended up taking a defense stance. There was a very real belief Volt production would end. Fortunately, the consensus ended up being to promote gen-2 rather than dwell on what had become very difficult market issues. They believed GM would continue to invest in the technology, to make that next rollout the strong-seller they had hoped for. As that was happening, a great deal of effort was expended to make people believe the same could not be done by Toyota for the technology in Prius. It was a blatant double-standard. Volt enthusiasts disregarded facts and did what they could to belittle & mislead. That was astonishing to witness... and went on for many years. Last week, the next generation of plug-in Prius was revealed. It confirmed that Toyota could indeed upgrade the system. The technology was not old, tired, or obsolete. Right there, for the whole world to see, was a design improvement which exposed certain individuals as being hypocritical. That's an uncomfortable situation. It's understandable why some would lash out in anger. My suggestion to that situation: GET OVER IT! I've worked really hard to bridge the divide, to extend a hand in friendship. Ultimately, our goals are all the same. We want the plug-in technology we support to be purchased by large numbers of consumers. Look at what Toyota actually did. A clutch was added to the system, allowing the gas engine to disengage. The result is the ability to use both electricity motors for propulsion. Combined with a larger battery-pack, power from the system was significantly increased. This was something scores of stubborn Volt enthusiasts claimed was impossible. Perhaps that's why Toyota's promotion of the next generation Prius was titled: "*Beyond Possible*". That brings us to today. I'm tired of the nonsense and will continue to point out wasted effort of pretending the real competition isn't traditional vehicles. Look at the facts. Those gas-guzzlers are outselling the hybrid & plug choices by an extreme. Want to over-react? Do it in frustration from that.

4-02-2016 **Extreme Mistake.** The reaction to Tesla's recent enormous success has been interesting (Model 3 reservation count had already hit 115,000 by the time the reveal had concluded and continues to rapidly climb). This is what I get presented with: "*Obviously, Toyota thinks this is a fad. Toyota's senior leadership has stated that. That is an extreme mistake.*" Those saying things like that have already made of their mind. So, it's pointless to attempt some understanding. You can try though, as an exercise demonstrating the situation as a whole has been carefully considered: That's called drawing a conclusion based on anecdotal evidence. Don't get hung up on the first 4%. Stepping back to look at the bigger picture, this natural progression to the next stage should be relatively easy to see. Focusing on just those who participated so far means not seeing the other 96% of the market. What are the consequences of the supposed mistake anyway? First by no means equates to everyone else failing. For that matter, it doesn't guarantee success either. Just look at how horribly wrong both Two-Mode and Volt were for GM. Sales were a major struggle, despite being first and supposedly best. Tesla will most likely do well. Some of that simply comes as a result of being able to dedicate resources. They don't have any legacy technology to deal with, nor customers demanding to purchase it. Toyota does. Traditional production must continue while new territory is explored. They'll use that to seek out opportunities about to reach those other 96%. The market is enormous and there is a great deal of potential still. True, we will see pressure forcing approaches to change. But don't go writing up an obituary upon the first sign of another automaker's success. We only recently finished the first inning. Look at the entire market. The gen-2 rollouts have just begun. The mainstream consumer hasn't even been a participant yet. The attitude of pushing EV range accomplishes what? Sure, it captures interest. But how does that improve motor, controller, and battery technology. Any plug-in offering will deliver that needed data. In fact, the less there is to work with, the greater the engineering effort to compete. Go ahead and congratulate Tesla. Those orders are an amazing achievement. That recognition is well earned. But don't declare the other approaches to deal with emission & consumption issues until there's something actually showing high-volume profitable sales haven't happened. The low-hanging fruit doesn't represent what comes next.

4-03-2016 **2016 Prius Sightings.** I've spotted several on the road now. Woohoo! It's nice to know that, despite the nasty fire causing lots of damage at a steel production plant, the new Prius are finally becoming available. The timing of that was really unfortunate. Things like that mess up advertising campaigns. It makes you wonder how many people went into dealers hoping to take a close look at the new Prius were sent away in disappointment from there not being any. Not much could be done about that. It likely hurt initial interest in the RAV4 hybrid too. Oh well. At least a few people around here have been able to purchase. I was at my dealer a few weeks ago. They had 3 recent deliveries and none in the usual area. Seeing 20 in back and a half dozen in front is normal there. Shortages aren't good. Hopefully, that situation has changed quite a bit since then. I'll have to stop soon. I've been yearning to get an inside look. My first was at another dealer, where there were only 2 and that was after hours. I regular visit would be nice. I really look forward to the test drive.

- 4-04-2016** **Prius C Refresh.** This morning, my wife and I got a surprise. We spotted a new color of Prius C racing past us on the highway. Looking closer, we noticed some cosmetic differences. I hadn't realized Toyota would be doing a refresh of the model. That usually happens mid-cycle. But with the future of it uncertain due to the ever-changing market. That makes sense. There's a wait-and-see approach right now. RAV4 hybrid seems to be quite popular. The new Prius gives that impression too, but there haven't been enough available for purchase yet to really make any type of demand assessment. People like to gauge success based on small samples, limited time & area. I try to always point out the bigger picture. For example, Prius C in Japan (known as "Aqua" there) is no longer the top-selling vehicle for the country. The regular liftback Prius has surpassed it... by quite a bit. 21,036 versus 12,720 in January this year. In February, it was 19,010 versus 14,010. In March, sales were an impressive 21,434 versus 23,314. That shows there's a huge demand for the new Prius there, but the refreshed C is clearly hanging on to the second place title. Will there be a next-generation that resembles the C we become accustomed to or will there be some other smaller hybrid offering instead? After all, the ultimate goal is to phase out traditional choices. That means approach adjustments as the market grows is a reasonable expectation.
- 4-05-2016** **Sales Spin.** There's been an ongoing effort by some to make it appear as though the hybrid interest will not grow, that plug-in offerings will surpass the marketshare in both size & speed without any trouble. To do that, you have to disregard the tax-credit. Pretending that has no influence is important... and nuts. Yet, some continue to try anyway. We'll get concluding comments like this on a regular basis: "...the marketshare of hybrids has remained stagnant for years." In reply, I pointed out some marketing principles and mentioned the inevitable plateau that comes as a result of competitors not joining in yet. I also made it clear that sales of the gen-4 Prius only just began. This was the response to that today: "*The numbers I provided were for all manufacturers, but glad to see that you still found a way to spin this in a positive light.*" It came from someone who simply seems angry and doesn't want to support hybrids anymore, consequently turning against them... by misrepresentation. That's really unfortunate. It does happen though. Disenchantment is a very real problem. Oh well. What can you do? I posted this: GM, Chrysler, and Nissan are major automakers that don't offer any hybrids. There's smaller automakers too, like Mitsubishi. The number of hybrids coming from Honda, VW, and Subaru are almost non-existent. Look at the top-selling category, small SUVs. There is only the RAV4. There aren't any hybrid minivans here. For that matter, there's only one sub-compact available. The market is most definitely lacking choices still. Thinking that's representative of "all" is serious denial.

4-06-2016 **Observations & Expectations.** It's nice to get asked something actually constructive: *"Why did you buy a PiP? Are you happy or sad that Toyota manufactured it? Your discussion keeps coming across as Toyota was smart to make a car you wanted but even smarter to deny me the same car."* He is one of those supporters still quite upset by plans not meeting his expectations. Unlike GM being backed into a corner (committed to the original approach), Toyota has been willing to adjust based upon what it learned. In other words, the innovation pushes the two automakers in different directions. He prefers that of GM. I don't, since Toyota's is what targets the masses. My effort is to endorse what will be realistic for mainstream consumers. That will continue. These are my observations & expectations: I knew exactly what I was buying. Expectations of GEN-1 were quite clear. So, I have been very happy with that choice. Expectations of GEN-2 were very different. And based upon what's been revealed to us so far, Toyota will do well fulfilling them too. The problem with the availability has been adaptation to the changing market. Toyota included that in their plans. That annoyed the heck out of some supporters. They didn't expect the halting of rollout... even though that was always one of the potential choices. Running such a massive business requires a careful consideration to risk. Leveraging other aspects of HSD advancement while collecting real-world data from the limited PHV rollout, along with analysis of consumer perception seems to have resulted in a Prime that will reach out to a new audience. Expanding the market (penetrating deeper into the mainstream) is the ultimate goal. You can't please all the people all the time. You can widen appeal by responding with variety though. Those are my observations. What are yours?

4-06-2016 **Reality.** Quotes like this are quickly fading away: *"Toyota and Honda are late to the game, but I'm happy to see they are beginning to get it."* The attitude from GM enthusiasts was still someone coming from the *"vastly superior"* perspective. It was quite ironic how they'd poke fun at Prius owners, calling them *"smug"* and claiming their posts were condescending while being guilty of that very thing themselves. Thankfully, the major does of reality provided by Tesla has served as a wake-up call. Failing to look at the bigger market... mainstream consumers ...has always been a big mistake. It's hard to believe how they'd continue to make that same mistake over and over again. On the big Prius forum, I posted this about my observations of the situation: Posts on the big GM forum in response to Tesla Model 3 aren't painting a pretty picture. It's becoming easy to see that Bolt & Volt are facing a new set of circumstances, neither one of which is prepared to deal with. In other words, consumer interest for plugging in is changing much faster than the traditional vehicle model-cycle planning allows. Being prepared to make changes to plans along the way is a benefit, not a liability as the spin would have us believe. True, it does look bad in the short-term and could disenchant those with very specific expectations. But looking at the entire production of a vehicle for the next year or two, some will see the wisdom of choosing to adapt based upon what is learned along the way.

- 4-07-2016** **Gross Exaggerations.** Having to deal with them is a pain. They'll never go away. New ones like this are an expectation: *"In my Prius, yes I could travel 500 miles without using the restroom, but I was always very tired and worn out afterwards. You don't realize the cognitive load that's actually required to even cruise on the highway in an ICE vehicle. Yes, I do stop at Superchargers to charge while I use the restroom and get a snack."* He was arguing in favor of Tesla's supercharger network. I was not impressed and felt quite compelled to point out why: Having already taken two 1,500 mile trips this year and planning another (visiting my sister-in-law about to have twins), I can tell you that type of claim isn't helping anyone. I'm very much in favor of Tesla, but am not going to just allow such misrepresentation to take place. No one would ever drive 500 miles without using the restroom. Period. Roughly, every 2 hours you take some type of break. Someone always needs to use the restroom, food, beverage, or to just stretch. Other technology is what you'll find beneficial with respect to cognitive load. In my case, I find the adaptive-cruise absolutely wonderful. Why so many drivers cut you off when they pass is beyond me. Ugh. The fact that the Prius will automatically slow down to provide room for safety is great. That goes a long way toward relieving cognitive load.
- 4-08-2016** **Abandoned.** Posting this observation will likely stir some discussion. That's not my goal. In fact, it's an effort at closure. But nonetheless, someone inevitably will read this and think otherwise: Anyone else remember the claim that Volt was the answer to competing with Tesla? Since the reveal of Model 3, there has been an abandonment of Volt. Look at any of the GM forums & blogs. The posts are all about Bolt. It's as if Volt is just a memorable chapter in history and everyone has moved on. This further supports the approach Toyota has taken. Not only is it proving wise to have halted PiP rollout because Prime would offer so much more, but there's also the strategy of keeping a distance from the supposed competition... especially if ends up having trouble attracting customers. The claim all along that Volt is the EV solution for *"range anxiety"*. Based on initial market response, we're seeing the solution is actually just a big enough battery-pack. Volt is in an awkward position of not being able to compete with its intended target. That's where Prime comes in. For those wanting the EV experience, but also wanting extremely efficient MPG afterward, why not get a plug-in Prius? What would make the consumer purchase a Volt instead? Greater range seems like an easy draw, but why bother when you could just buy a Model 3, Bolt, or Leaf instead?

- 4-08-2016** **Bad Mouthing.** I get a lot of grief for speaking out, making sure people understand scope. Today it was: *"I was just quoting John's language. He's the one that said 'everyone has moved on'."* That was annoying. I clearly didn't say that. But he is one of those who only see the plug-in market and disregard all other vehicle purchases. Choosing to isolate like that does make it sound like I'm bad mouthing GM a lot. But that's due to claims not matching reality. Oh well, all I can do is post my part: That would be quoting out of context. The reference was to posts on forums & blogs. Those individuals are only a small part of the market as a whole. That online community isn't representative of ordinary consumers either. Again, just because Volt wasn't able to attract mainstream consumers doesn't mean GM is done. They will be offering Bolt, Malibu hybrid, and CT6 plug-in hybrid. How that observation can be considered bad-mouthing is beyond me. You try something. If it doesn't work, move on to the next thing. Here's another observation: Volt enthusiasts became staunch defenders, lashing out at anyone who criticized in any manor... even when a post was to compliment GM upon delivering a vehicle to be praised by the niche market. They just plain didn't want any type of *"failure"* label, even though it didn't attract the mainstream as hoped. So now, we point that history out and move on. Remember that this is the third try. Don't forget Two-Mode. That was an efficiency improvement venture as well. It didn't work out either. What can be done this time to avoid falling into the same traps again?
- 4-09-2016** **Diesel Desperation.** It's interesting to watch the end of diesel for personal vehicles unfold. Daimler now faces a class-action lawsuit claiming: *"The fact that Mercedes passed the dynamometer test in all tests, but failed the real world test, is suggestive that like VW, Mercedes is implementing a defeat device."* A former executive for Fiat says plug-in hybrids will be hurt by the VW emissions due to the upcoming requirement of real-world testing. On the road results are what revealed the diesel cheat. Supposedly, the same will be true for the competition. I'd call that desperate. We know that some owners drivers who don't drive as far get much better real-world results than the EPA test measurements. The same is true for those who get to plug in more often. The catch is that even when you don't plug in a plug-in hybrid like Prius, it still delivers cleaner emissions than the diesels currently on the road. The electricity added is a bonus, not a requirement. The PZEV rating is already achieved without. We most certainly haven't seen that from VW or Mercedes.
- 4-10-2016** **Bigger Obstacles.** We're seeing the *"vastly superior"* mindset emerge again. That's a reasonable expectation each time a new chapter begins. Repeating the same mistakes is a possible outcome. Some don't learn from previous efforts. In this case, we're going from gen-1 offerings from gen-2. It's especially interesting to have comments like this being made: *"Tesla has far bigger obstacles in their path."* Coming from someone angered with Toyota not pushing for the most from an EV, that was no surprise. He just plain isn't interested in the problems of reaching the masses. Concerns for mainstream consumers are just brushed aside. He's one of those who doesn't see leadership as anything other than break new ground. Pushing extremes is his only focus. So, replies just fall on deaf ears. Nonetheless, no harm in posting something anyway: They are different. Saying otherwise would be a move toward falling into the same trap GM did... twice. We don't want to see that mistake be repeated again and saying one is bigger than the other doesn't help anyone involved. The difficulty in changing existing legacy that's been in place and is extremely well established poses huge challenges too.

4-10-2016 **Too Little, Too Late.** The antagonists love to claim that, but never actually have anything of substance to back it... All we get is just a reference to EV range. At least in the past, there was the EV power aspect. There isn't anymore though. Yet, this is what's posted anyway: *"Despite after the fact creation of convoluted strategies that seek to explain Toyota's moves and make them seem like well-considered genius, the Prime is too little, too late."* I'd certainly like to address whatever perceived shortcomings there could potentially, but none have been provided so far. This is how I replied to that: That's one of the traps countless individuals with good intentions have fallen into. They get hung up on the current market and don't even notice the rest. Most consumers aren't part of this stage of electrification. For them, 0 miles of EV is perfectly fine. They have no interest to plug in. It's that simple. Not being drawn to EV driving, regardless of how impressive the experience can be, makes them a very difficult group of consumers to reach. Making compromise for the sake of a pure EV isn't worth it. Offering a decent amount of EV followed by impressive HV is what Toyota believes that audience will find appealing. Ironically, Volt has faced the *"too little, too slowly"* problem, a concern expressed by the group assigned to oversee the bankruptcy recovery. The outcome was an opportunity missed. Gas was \$4 per gallon, yet sales of Volt were never able to reach beyond niche. There wasn't any competition back then either. It had the entire category of plug-in hybrid to capitalize on, but didn't. Now in 2016, we enter a new chapter. The effort this time is to reach beyond that niche. This new group of consumers have different requirements. Since these are people who have yet to begin their search for a plug-in choice, offering an EV capacity with enough to cover some commutes entirely and others provide triple-digit MPG averages will draw interest. What's little or late about that?

- 4-11-2016** **Playing Catch-Up.** Today on the daily blog (which now only features Volt from time to time), there was a well written article about Prime. Some operational aspects were pointed out along with some detail explaining the why & how of that design choice. Unfortunately, this was posted: "*Toyota is playing catch up to GM and Ford in the Prius Prime.*" That non-constructive comment was to be expected. What was not was something to actually support that. Upon asking for it, incorrect information was posted instead. False facts was a bit of a surprise. That's so easy to debunk nowadays. Oh well. I chose to respond with: I'd like to find out more. Please tell. In the past, there was a strong belief Toyota wouldn't be able to upgrade the system, that it was an obsolete approach. In fact, that's where the EREV verses PHEV head-butting came from. Those distinct categories were drawn based upon what was assumed not possible. What actually happened was a generational update. Researching need was key. Finding out how much battery-capacity and how much EV power would be beneficial is helpful. We're all subject to falling into the trap that more is better. There are tradeoffs. Somewhere in the middle is the right balance for mass acceptance. While that research was in process (especially the collecting of real-world data and following online comments), advancement in lithium chemistry, motor production, controller efficiency, and software enhancements all took place. So, it's not like that wasn't planned anyway and didn't address a variety of different improvements. Toyota already had more powerful electric motors. Toyota already had an AWD option. Toyota already had an EV platform. Toyota already offered advanced features like LED lighting and adaptive cruise-control with automatic braking. We see that Toyota has jumped ahead of GM by offering vapor-injected heat-pump for heating rather than using the less efficient resistance type too. Caught up would be the most constructive way of putting it. The gen-2 will be delivered this fall. What else is there?
- 4-11-2016** **Smug.** Almost immediately, the blog fell apart and lost pretty much any hope of being useful: "*Too little too late. But they are getting closer, each day, to a 2010 Volt, LOL.*" The attitude of GM being better than Toyota runs deep. There is no spirit of cooperation from some. Certain individuals see the competition as other plug-in vehicles, not mainstream offerings. As far as they are concerned, the rest of the market simply doesn't matter. Wouldn't it be great to live in your own little world like that? Ugh. Fortunately, others take the situation seriously. I posted: The rest of us have moved on, recognizing that low-hanging fruit has been picked and reaching mainstream consumers is a much greater challenge. Keep living in 2010 if you want. In the meantime, we'll be working toward support of plug-in vehicles as an effort to bring traditional vehicle interest to a close.

4-11-2016 **Pessimism.** There's an underlying belief that the niche group currently seeking plug-in choices are all that matter. This is why there had been a fundamental problem of disregarding the mainstream. Ordinary consumers didn't matter, as far as the enthusiasts were concerned. Thankfully, there's a growing group of supporter who don't share that sentiment. Some, including me, believe gen-2 rollouts have potential to reach the ordinary person. Prius has been able to attract customers shopping on the dealer's showroom floor. Why couldn't Prime do the same thing? Needless to say, all of them don't share the same opportunity. The configuration of Volt currently pushes some limits, hence what I suspect this came from: "*We ain't there yet and continuing to remind everyone is getting tedious.*" He went on from there to rant about pickups and long-range EVs not being available yet either. It's always some type of distraction, rather than addressing the actual issue. Oh well, at least I get to say my piece: So, your claim is that none of the gen-2 offerings will reach mainstream consumers? We've already seen reductions of size, weight, and cost of batteries over the years. Look at how both Leaf and Volt were able to use the advancement as an opportunity to lower prices and offer mid-cycle improvements. Why wouldn't you think Prime could take advantage of that too? I see it as a platform designed to capitalize on technology upgrades, without needing to wait for a next generation rollout.

4-11-2016 **You're doing it again.** I was informed that was my the nature of my posts today. That's an easy impression to get. It was a great opportunity to point out that wasn't actually the case: Read the posts again. Notice the effort to focus plug-in choices against the competition of traditional vehicles? Certain individuals are clearly not happy about treating Prime as a player on the same team. That's their loss. They don't like the EREV verses PHEV battle to having come to an end. Again, that's their loss. We are now attempting to unite by having open discussions about design attributes. That's what we do in person on a regular basis with the plug-in owners club here. Tesla, Leaf, Volt, i3, Prius PHV, i-MiEV, Energi, and a few others all get together and share ownership experiences. It's no big deal. The conflicts here come from a few unwilling to accept change. Reality is, the gen-2 rollouts are bringing about change. What was argued as not possible is happening. The variety presents challenges, but the goal is the same. We want to see traditional vehicle production come to an end. The statement of "*doing it again*" serves as a nice reminder of purpose. Those claims of "*catching up*" and "*too little, too late*" clearly weren't efforts to help reach the goal. Their posts were not with the intent of being constructive. I shouldn't have to be the only one pointing that out. Others have a responsibility to not just be enablers.

- 4-11-2016** **Grades.** It's nice to see a discussion come about with respect to level of performance rather than the all-or-nothing attitude of the past. Unfortunately, people seem to be trying to reinvent the wheel rather than looking back to the past for ideas. I jumped in right away to interject that history: The system that has worked exceptionally well for the past 15 years is what will ultimately end up being the choice of the ordinary consumer is what we all grew up with... grades... A, B, C, D, F. It's an elegantly system we are already familiar with. No need to come up with anything new. Use of that ended many battles over the span hybrids have been around. It's very easy to point out how a vehicle doesn't earn an "A" grade. There is no confusion what the value means either. Grades make the evaluation of worth easy to understand. The analogy of homework works exceptionally well too. Some enthusiasts like to gloat about an ability their preferred vehicle offers (want), while completely disregarding what was actually assigned (need). A teacher will see right through that deception, giving a lower grade for not delivering what was asked for.
- 4-12-2016** **Smug.** There's some really nasty bragging taking place now, attempts to take credit were none is deserved. That type of self-validation is what those antagonists often accuse others of. The irony is not wasted. I see it as validating. He even twisted that: *"I'm more than happy that Toyota just validated the Gen1 Volt by making their version of it."* We expected this. Way back in 2010 it was made quite clear that Toyota would upgrading as time proceeded and GM would reduce cost as time proceeded. Those are fundamentally different approaches. GM's approach was much higher risk, starting at an end-state with the hope that they guessed market want & need correctly. Toyota's approach allowed for flexibility, providing the option of making changes along the way. So naturally, any type of change would be spun as GM being right all along. The attitude is annoying. Volt needs change too. Trouble comes from disregarding that, claiming Volt is just fine the way it is. Why not just acknowledge what hits the target market and what doesn't? It's moving anyway, as more consumers learn about vehicle electrification. We're supposed to be on the same team, all working together to figure out how to compete directly with traditional vehicles. The smug most definitely doesn't help.
- 4-12-2016** **Polarizing.** Buried within the greenwashing efforts, there is some truly constructive discussion. It's unfortunate certain individuals do what they can to suppress that progress. I responded to this to help the thread from getting overwhelmed with distractions: *"I believe the GEN 4 Prius will not sell well because the design is too visually polarizing..."* I was curious to learn about his perspective. They may not happen, but at least I had the chance to say: That's a reasonable assessment; however, many people eventually seek out something that no longer fits the mold. It's in our nature to grow tired of the same after awhile. Toyota is gambling that point has been reached. Looking around, it's easy to see how the most popular selling vehicles... small SUVs ...have become very similar in appearance. They don't stand out anymore. That could be considered boring. LED lighting ushers in a new era of styling. Some people just plain won't like it. Some people will. Not some many will be indifferent. That's the definition of polarization. There is no correlation to popularity though. Sales could swing either way. We'll find out together.

- 4-12-2016** **Even Better.** Having former foes receptive to new ideas is great. This helped that process along: "...at this point the Prius fails to generate any buzz. We're past the point when getting 50 MPG will get anyone that excited." Coming from someone who was an intense vastly-superior warrior, it feels good seeing a glimmer of recognition that we're moving on. Being stuck in the past was really a problem. Now, it's all about what new market draws the gen-2 plug-in offerings will help bring about. I jumped in to keep the perspective with gen-4 hybrids (specifically, Prius) will help bring about: That's an expectation in economics. You want to eventually reach that point, since becoming common (high-volume sales) requires the loss of certain technology draws. The transition from engineering to business isn't what groups like this tend to consider; it's when interest is lost and the label of "*boring*" begins to be used. Ordinary people see that as confirmation of a technology now being accepted as the next standard. It's the "*proven*" stage. First thing that must happen is the early rollout incentives vanish and sales finding a way to continue to grow without the help. Prius achieved that. Second is for others to join in. We're seeing them strive for same... with Honda, now Hyundai, next will be Ford. We may see GM join as well. In other words, there will be a tipping point when the 50 MPG vehicle is considered the most obvious choice for purchase. That's not exciting by any means. There's no buzz, just business-sustaining profit for the automaker.
- 4-12-2016** **Antagonist Taunting.** That seems to be the best term for an internal troll. There are a few who just plain don't want to accept compromise. They'll do everything they can to claim superiority. That's annoying. The trophy mentality blinds those individuals. That's troubling. Posts end up becoming a major problem. They turn to greenwashing, intentionally misleading to avoid having to acknowledge making a mistake. That's sad. Their underlying effort is to provoke. It's a distraction to not have to deal with reality. That's happening... yet again. I'm doing what I can to address it: Notice how certain individuals continue to be extremely vague? For example, the continuous suggestion of "*add more kwh*" doesn't tell us anything at all. It's just an antagonistic taunt to stir posts, because there's no effort to actually address the reasoning; we get a condescending comment instead. That complete absence of detail and attitude isn't constructive. In fact, it hurts the reputation of the group. On the big GM forum, they cracked down on that type of activity. Others here need to join in to help stop that, rather than watch it repeat and blame the person pointing it out. So what if it ruffles a few feathers? That's how you get those taunts to stop. You need to break a few eggs to make the cake.

- 4-12-2016** **Intentional Misleading.** The greenwashing effort is well underway. We knew there would be spin. It's a twisted acknowledgement of change... which is better than denial. The stubborn nature of certain individuals have a difficult time accepting the next stage. In this case, the transition from gen-1 to gen-2 has been painful. This particular Volt owner never bothered to actually read what was posted. There was always a misguided belief that Prius couldn't ever be upgraded. He was wrong and will do everything possible to conceal it. Ugh. Oh well. All I can do is try to push beyond the greenwashing being used as a diversion from revealing the truth: We all knew battery-capacity would increase with the next generation. We also all knew the increased battery-capacity would provide an increase in power. Lastly, we knew gen-2 would be right on time, since gen-1 offering had much ground to break before mainstream interest could be stirred. Toyota did their homework during initial development and decided to take the approach of delivering more as cost justified. That would provide them the opportunity to build up a profitable vehicle without heavy dependency on tax-credits. Being able to continue to grow sales without that help is a very big deal. When the opportunity presents itself again, the offering will be upgraded. Perhaps that will be mid-cycle. After all, the first plug-in itself was mid-cycle. It served to show updates without a generation change are quite realistic.
- 4-12-2016** **More Greenwashing.** There's some blatant lies being posted. Those I don't even bother with. Something like this though gets some attention: "*Many people seem to forget that the Prius went on sale in 1997, and initial sales were low.*" He's obviously misleading us by not pointing out sales here didn't actually start until 3 years later in 2000, but that can be overlooked. It still gives me an opportunity to raise attention to the fact that supply was intentionally limited and to state why: Actually, demand was surprisingly high. The sales were limited to quotas. People had to wait anywhere from 6 to 9 months for delivery those first 2.5 years Prius was available here. That was without a tax credit. Incentive was nothing but a tiny deduction, providing \$300 to \$400 for the typical person. There was little reason to actually push sales. The goal of that gen-1 was the same as the gen-1 for the plug-in... to gather real-world data to deliver a much improved gen-2. That approach worked well in the past. It looks like it will again too.
- 4-13-2016** **Diversity.** That's the goal of all mainstream products. If it can reach a wide variety of people, mission accomplished. How else will it achieve sustainable high-volume profitable sales without? Confirming that is a big deal. In the big forum for Prius, we have been able to. That's especially difficult online, since most discussion groups aren't able to draw that many people. Looking at the current member count, the number is now at: 122,976. That's amazing, even more so is the number of discussions: 153,010. What blows my mind is that there have been this many messages posted: 2,292,152. I clearly remember when it was founded. That memory is still quite vivid. Anywho, in a discussion today, there was a reference back to the original poster... who went missing. That happens from time to time. They'll post a few things, then vanish. We sometimes don't find out why. This was my insight to contribution to this particular thread dealing with that situation: Some seek out a venue to vent frustration from not having studied well before purchasing. Some make an abrupt discovery upon joining about something they had overlooked. Some post for the sake of exchanging information and learning more. We see all kinds here. It serves as validation of Prius reaching a diverse range of people.

4-13-2016 **The Push.** Ever since the reveal of Prime, I've been pushing that group of bloggers to move on. They really want to hold on to the past, where lines were clearly drawn. The best example of that is the "EREV" definition. Even though parts of it had fallen apart over the years, there was enough left to keep Volt in that category of its own. The goal was to promote it as superior to the "PHEV" choices. Prime brought that to an end. No argument to hold up to this new generation. That chapter in history is over. Another example was being vague. That was relatively easy to do without any information about what Toyota would offer next. I milked the opportunity recent, asking what the antagonists meant. No detail provided meant anything could be said in reply. I pushed to something, anything. It ended up being nothing but rhetoric posts. They had nothing. That means I can now just relentlessly post facts. They hate actual constructive information. That's really difficult to push. I have a lot at my disposal. The goal is to bring their nonsense to a close. Our purpose is to endorse choices that offer compelling reasons to not purchase a traditional vehicle anymore. Tell shoppers why, not fight amongst ourselves. First and foremost, that means properly identifying audience. The gen-1 Volt clearly didn't target mainstream consumers. They didn't want to accept that, which made taking the next step impossible. Prime clearly targets the mainstream. Ordinary people will give it a look. There's a nice balance of power, capacity, and style without trading too much of anything. It's not a specialty vehicle like Volt. It attempts to deliver some EV, just like the Ford Energi models and Honda Accord plug-in did, but still retain appealing hybrid traits. That's what Hyundai's Ioniq is pursuing too. Pushing to make that clear is a gain for everyone, even if the antagonists continue to refuse to play along with the rest of us on the same team. Ugh. There's always someone...

- 4-13-2016** **Cooperation.** There's an obvious effort to be constructive. Some who would have presented challenges in the past are now giving a sincere try at learning more. That really makes this fun. I got this: "*Quite right. My mistake. I made a broad observation...*" Which provided the opportunity to proceed with: Looking at Volt's history, we see that it was intended to be the direct competition for Tesla's lower cost offering. So, from the start, it was designed to be an EV. That approach of using an engine still allowed the battery-pack to be much smaller. The tradeoff was cost & complexity. GM realized this wasn't going to work as the rollout of Volt approached and bits of info from Tesla were shared. That's how Bolt emerged. Bolt was an abandonment of all that GM had preached. The anti-EV sentiment it had fought so much for was suddenly embraced. Resources would be heavily invested in it instead, to the point where Volt rollout would be delayed & reduced. Then here comes Toyota with Prime, targeting a completely different audience with a very different approach. It never made any sense to compare the plug-in Prius to Volt and it still doesn't with Prime. GM is pursuing those interested in the pure EV experience now. Toyota is targeting its own customers, hoping they will chose to purchase a hybrid rather than a traditional vehicle. Prime will expand upon the same type of appeal Prius did. More EV is nice, but by no means necessary. In other words, the targeted customers won't be looking for a 100% gas-free driving experience anyway. So whatever Volt is or will become doesn't even matter, no label necessary. This is why the question "*Who is the market for Volt?*" was asked so many times over the past 6 years. The difference of audience was profoundly important, yet that kept getting lost in the "*more EV is needed*" claim. If Volt wasn't to compete with Tesla anymore and wouldn't draw interest from GM own customers, what is its purpose? Understand why? No harm done. Taking the time to discuss perspectives is helpful to everyone. The rapidly evolving market deserves a fresh relook at everything.
- 4-13-2016** **Follow Up.** He stated it this way: "*I guess we'll find out next year.*" I really didn't want to leave such a cooperative exchange hanging, so I posted this as my close: That brings us back to the topic of this thread... waiting. Circumstances will be very different a year from now. Look no further than what happened 2 weeks ago for confirmation of that. Tesla's new pressure on GM will push so hard, something will end up giving. Expect some sort of plan change. If Bolt volume really is ramped up for the sake of getting ahead of Model 3, it very well could come at the sacrifice of Volt. There's the consideration of both battery-pack production capacity and tax-credit availability. There's also the range-anxiety conflict about how to promote. It could leave Prime outside of the realm of all that.

4-13-2016 **Caught Greenwashing.** The one absolutely desperate Volt enthusiast still remaining, after having got caught being smug, lashed out at Prius with this: "*After 3 years in Japan, and 4 in the US, Toyota was only selling 24,600 Prius in the US. GM sold 23,500 Volts in the 2nd year they were available.*" I was shocked to see that. It provided a great opportunity to post back with lots of facts revealing his greenwashing effort: Wow! There are so many misleading claims in that statement, I don't know where to begin... First and foremost, Prius was limited to a strict quota. That meant there was no way to actually measure true demand. Those who did manage place orders had to wait 6 to 9 months for delivery due to the limited supply. Second, Prius was not available for purchase from Toyota dealers. You had to place an order through an online process and wait for regional to get it within their limited allocation. They were not carried in dealer inventory until 2.5 years after initial rollout, which at that point gen-2 had been announced. Third, there wasn't a tax-credit available. Only a \$2,000 deduction could be taken, which calculated to between \$300 to \$400 for the typical owner. That's a drastic difference from the \$7,500 people get for the purchase of a Volt. Fourth, the 4th year of availability for Prius was the gen-2 model, which began late October 2003. (gen-1 was late August 2000). This was the first year sales which were not limited to a quota. Those sales came to 54,000. The following year, still without any tax-credit incentive, the sales climbed to 107,900. Fifth, there were fierce market campaigns against hybrids back then, gas was cheap (no one ever even imagined \$2.00 per gallon), there wasn't concern about oil dependency, (in fact) we were encouraged to drive larger vehicles to "*help the economy*" recover from the war, climate change wasn't on anyone's minds yet, and misconceptions about battery-packs for automotive use were abundant. Sixth, the supposed diluting of the plug-in market now is really spin on the fact that other automakers are endorsing the idea. That support from them is a valuable benefit, something Prius certainly didn't have back then. Seventh, GM already had extensive knowledge of motor & battery production & sales by the time Volt was rolled out. EV1, Two-Mode, and BAS all provided very helpful experience that Toyota didn't have back when Prius sales began. Lastly, that 2nd year of Volt sales was the best on record (specifically 23,461). Each which followed had decreasingly lower demand and the expectation for this year (the 6th) isn't any higher.

4-14-2016 **Pushing New Territory.** Using new terminology can bring about unforeseen circumstances: *"It's more difficult to 'push into new territory' if your vehicle doesn't have standard utility. This is their second plug-in and it should have been as mainstream as the previous."* I joined into today's discussion by responding to that. The hope was to get the exchange to attract others. That push reference provided a fresh look. The risk is pointing out an attractive feature Toyota offers that GM doesn't or the fundamentally different approach with design. Toyota provides upgrades. GM reduces cost. I prefer Toyota's, since it offers flexibility and doesn't take the massive risk of correctly guessing what the market will actually want & need. GM backed itself into a corner with Volt and now struggles with it as a result. My attempt to get constructive feedback was: Toyota has been taking the flexible approach. That's why the mid-cycle rollout of the plug-in came with a "subject to change" note. Few paid attention to that plan to adjust based upon market observations, but that was the intent even before rollout began. Another obvious, but often overlooked, part of the plan was to increase battery-capacity as cost justified. After all, it would only be a few years, rather than having to wait an entire product-cycle. So, we always knew that the next generation wouldn't take long and would bring about a range & power increase. As for direct "mainstream" targeting right away, we could see that wasn't realistic as the 200-mile race heated up. The bump in price that would carry meant some more flexibility for Toyota. Tesla, GM, and Nissan would all be in the mid-30's. Why not add a couple of luxuries onto Prime, since it would be the premiere plug-in for Toyota? That's how the goodies like the 11.6" screen and the LED lights came about. Reaching that new territory (consumers who haven't shown any interest in hybrids or plug-ins yet) requires new approaches. Notice how even Model 3 is breaking new ground by placing all dashboard interfaces onto a single screen? (That had been exclusive to only the high-priced luxury offerings.) More EV alone won't be enough. The hope would be that around mid-cycle, we'll get either some new packages for Prime or a second plug-in choice. It all depends how the rest of the plug-in market plays out in the meantime.

4-15-2016

Sad Reality. This came from a disenchanted supporter: "*GM management and GM dealers are not interested in selling EV's. Plain and simple. Tesla is.*" The new of Model 3 interest taking the market by storm, it's not just Volt struggling. There are concerns Bolt will face issues as well. I tried to help, or at least be empathetic: That's a sad reality. Prius supporters had to endure quite a bit of grief over the years trying to point out that great engineering alone was far from enough for Volt to be successful. Every different approach tried ended up getting twisted into the scared belief that it was really an effort to show Toyota was superior to GM. Thank goodness that is over! Only a handful of stubborn individuals still believe it and they simply are not worth bothering to help. They are grossly outnumbered; all the rest of us have moved on. There is a growing group of plug-in owners trying to figure out how the heck to get dealers interested. The local club here has begun by creating an online expert-list. We identify those few very well informed salespeople who really work to sell plug-in vehicles. We figure sending more business directly to them is a win for everyone. Realistically, it is up to us as supporters to provide the education. Salespeople getting asked lots of questions they know little to nothing about for a vehicle that will provide a small commission and will require more work to get is of no appeal. Most don't even bother. As a result, dealers see no reason to carry more than just a few (if any) in stock. It's really unfortunate. Tesla's approach is facing criticism now. Yet, the effort continues anyway. Toyota is pushing ahead too. Their increase in lithium battery production along refinement to the motor, control, and software is still just brushed aside, claiming not enough AER indicates no interest in EV propulsion. That's nothing but a bunch of antagonist bull and I thank everyone helping to show that. Yesterday's heat-pump discussion provided a wonderful example of working together. Thank you! As the gen-2 offerings rollout, we learn more about what's new & refined, then share that information. It's a win-win situation. It is not an effort to undermine other automakers. The competition is traditional vehicles. For proof of that, look no further than the dealer's showroom floor.

4-15-2016 **Wrap Up, summary.** There's no debate, the market is moving on. We're seeing the competition between Tesla and GM really heat up. Count of reservations for Model 3 hasn't been published in awhile. The last report stated 325,000. That was more than enough to fuel the fire for Bolt. The stance taken by GM is to remind us their EV will be available for purchase this Fall and no deposit to reserve one will be necessary. It's providing Bolt with an unbelievable amount of attention, so much so; no one is giving regard to Volt anymore. Hope surrounding the second-generation model has vanished. The only expectation for buyers are enthusiast & supporters who have long endured the wait for rollout. The anticipated purchase by those outside of that realm are absent from any discussion. Nothing. None. Zip. Zero. The gen-2 delivery was expected to be met with a fire storm of excitement, creating demand well in excess of what Toyota had to deal with upon the gen-2 delivery of Prius. So far, it's been upset after upset. Rather than be available nationwide right away, only CARB states got any last year. The rest of the nation had to wait until the second month of this year. That wouldn't have been much of a big it, if certain assumed upgrades would be available upon the delay's end. The biggest one was the hope for adaptive-cruise control with automatic-braking. Since I've had that on my Prius PHV for 4 years now, it made sense would offer it for Volt too. That didn't happen. To make matters worse, leg & head room issues again for Volt. That's the result of not having a 5th seat in Prime... which enthusiasts for many years have stated isn't needed for Volt anyway. After all, there was belief that a radical new design would be taken for gen-2, just like Toyota did for Prius. That seemed reasonable, since technology for moving large battery-packs from upward locations to buried under the floor has been the desired approach. Long story short, this rollout has been a fizzle.

4-15-2016 **Wrap Up, history.** Discussion of Volt's struggle has become a popular topic on the big Prius forum. This is what inspired me to write up a history of how it got to this point: *"I'm baffled as to why the Volt wasn't more of a success, when it had the plug-in market to itself, in such favorable market conditions..."* Needless to say, I had much to contribute on that:

I have literally thousands of blog entries documenting that history as it was unfolding, noting many forgotten influential events as they took place, with no way of knowing what would come next. They offer perspective unlike what looking back long afterward can reveal. There is much detail a summary cannot address, but we can at least give it a try...

The problem with Volt that immediately comes to mind was the setting of expectations. GM fed the hype leading up to rollout, allowing it to spread excitement through vague statements then not providing clarification as assumptions grew. The most obvious resulting from that was the impact heater use in the winter caused, reducing EV range far below what was hoped. People had been led to believe 40 miles was what GM would deliver. Real-World driving revealed cabin-comfort in freezing temperatures dropped EV range to the 20's.

The second biggest factor was likely marketing. Support completely fell apart. There simply wasn't any uniform message. Enthusiasts took over, sending out a chaotic flurry of supposed goals... many conflicting with the intent of Volt. That's how the *"Who is the market for Volt?"* question came about. It was originally targeted at mainstream consumers. What got delivered was being promoted as something entirely different though, a vehicle for those who would appreciate paying a premium for superior performance.

From the automaker perspective, production cost was a serious issue. GM decided to gamble, hoping they'd achieve mainstream sales level (minimum rate of 60,000 annual here) by the end of the second sales-year. That turned into a disaster. Inventory piled up, despite the rollout of Cadillac ELR. Purchase interest continued to be a struggle. So, the third model-year came with a \$5,000 price drop, with the continued hope that economics-of-scale would bring down production cost. Despite that, sales still didn't increase.

Falling gas prices, recovery of the economy, and growing demand for Leaf & Tesla made the bad situation for GM even worse. No one really knew what to expect for the second-generation design, yet focus had almost entirely shifted over to it. Hope was blinded by desperation. The first-generation model was left to struggle on its own. Nothing was able to ignite excitement for the technology in Volt. Viewed upon as a small, complex, expensive plug-in vehicle with hybrid MPG well below Prius, it just plain couldn't find an audience.

Problems continued to mount as Volt leases began to expire. The original deals were deeply discounted, making the choice very compelling to take advantage of. Unfortunately, 3 years later, the resale values for those older Volts had plummeted. Growing competition from Nissan, Ford, and Tesla along with the \$5,000 price reduction left little reason for lease holders to stay loyal to GM. Those conquest sales which enthusiasts had flaunted were turning into large abandonment

numbers. Even the original audience was being lost.

Evidence of GM changing course emerged in 2014, when we started to hear about an EV that would be offered. By late summer, confirmation of Chevy Bolt being revealed at the Detroit autoshow in January ended any doubt. The fundamental strength of Volt had completely fallen apart. The solution for "*range anxiety*" had become a battery-pack large enough to provide 200 miles of electric-only travel, no engine necessary. At that point, the success became even more uncertain. Supporters were being drawn to Bolt.

Most people are familiar with what happened from that point. Details of the second-generation Volt were revealed. Promise of a design able to compete directly with other GM vehicles on dealer's showroom floors was lost. When rollout finally began, only a small number of states received delivery. The rest of the nation would have to wait another 6 months. By the time that happened, the production version of Bolt was revealed. 3 months later, Tesla revealed Model 3 and began taking reservations.

2 weeks later (that's today) we have no clue what GM has planned for Volt. It appears as though resources will be spent primarily on Bolt instead, to take advantage of the delay Tesla will have prior to Model 3 production.

- 4-15-2016** **Wrap Up, brief.** The want for a quick & easy understanding of the situation was requested. The history, even just those highlights, was too much to follow. So, I added this: Volt did not reach mainstream consumers, it ended up being a niche. There's nothing wrong with a specialty vehicle though. That left us wondering if gen-2 would change radically, like gen-2 did for Prius or another vehicle would be offered.
- 4-15-2016** **Wrap Up, elsewhere.** It went well, on the big Prius forum. On that daily blog for Volt (which now only rarely gets mentioned), there were issues. Almost all of the trouble comes from a single individual not. Pretty much everyone besides him has welcomed change. He continues to stay hung up on the past, desperately holding onto it as long as possible. That's too bad. But his actions have become so obvious now, it's easy to get rather terse without upsetting others. They seem to be tired of his rhetoric and have been allowing the attempts to bring that to an end a layer of forgiveness. So, I poked: The endless nit-picks of wording, the dismissals, the distractions, the parroting, it's all so telling. That serves as strong confirmation of being on the right track. We all knew what was meant. We all know the goal is to deliver something affordable for mainstream consumers which makes a profit and will be able to sustain high-volume sales. Absolutely refusing to join in with others and instead taking the stance of superiority by belittling others is so childish. It's quite refreshing being able to point out such terrible behavior.

- 4-16-2016** **Wrap Up, perspective.** Oddly, I got a little bit of a let-us-give-it-a-try opportunity from him. Without high hopes, I did: I understand the perspective. It could seem to be that. It's not though. Take another look. I'm striving to find a middle ground, where there isn't an absolute polarizing every topic. You interpret the back-step to achieve that as a change of stance, a contradiction. That's unfortunate. It's really an effort to let some things go. Watch for that. Using the term nit-pick was an attempt to point out that there's no reason to take every little detail so literally. After all, the market isn't that exact anyway, as we have witnessed. Remember, there are many purchases influenced heavily by emotion. That's reality, but should not be accepted. Sales are essential. Losing them is a major problem. Whether we like it or not, the fact is that automakers are running a business; they must make a profit to continue. There was an obsession with gen-1 engineering, always the desire be to the best was underlying reason to keep trying. That doesn't pay the bills. So, it can be that way anymore. As 2016 progresses, it's becoming clear that much of low-hanging fruit has already been picked. There isn't a group of early-adopter consumers remaining... hence the change. We're dealing with a totally new situation. Think about that. We have a different market to address. Do we continue to butt heads or try something new? After all, it doesn't make sense comparing choices of the past to vehicles of the future.
- 4-17-2016** **Wrap Up, dismissal.** It didn't work. No surprise there. He simply entirely dismissed what I had posted and attempted to change the topic: *"That was a lot of words about nothing. Back on topic, how does Toyota make a plug-in that will appeal to mainstream consumers to compete with the Corollas & Camrys? Does Toyota even want to?"* That topic he had chosen was intriguing. I got the impression it was that subject matter which irritated him most. So, why not ask me the same thing. I didn't bother. What a waste. I have been asking that same thing since way back when Saturn Aura was the most people of GM's sedans. That was long before the bankruptcy was settled. It was before the gen-1 Volt was rolled out too. Disappointed that he still remained so stubborn and unwilling to even try, I replied with: Like I said, you simply enjoy the discussion. Since I've been asking that very same question of GM about Cruze and Malibu for years, you go first.
- 4-17-2016** **Wrap Up, resentment.** You'd think I've have some... for it to take nearly a decade until the message was finally understood. Geez! Who knew that way back in the days of Two-Mode that it wouldn't be until the successor of its successor rolled out before that importance of reaching mainstream consumer could be discussed constructively. There was obviously a lot of barriers to overcome. The scale of which overwhelms. Toyota's approach of being flexible helped it weather the storm. That really upset some. They saw that "after thoughts" rather than being responsive to the market. It's too bad the proactive measures were dismissed as nonsense. True, not all of those ideas paid off. Capturing the hearts of the masses means dealing with the fickle. They are incredibly misleading, saying one thing but doing another. To complicate matters, they abruptly change their mind along the way. When you are stuck on a course like GM, lacking that ability to adjust quickly, there isn't much hope. So naturally, pretty much all constructive criticism offered is brushed aside, believed to be a clever way to undermine. That sets up an atmosphere of suspicion & panic... a recipe for disaster they cannot see. The resulting behavior is quite predictable... hence all this blogging about it over the years. Witnessing the entire cycle would be worth the effort... which is why I'm not resentful about all the crap the enthusiasts put me through.

4-18-2016 **Wrap Up, change.** Phew! It actually worked. I was delighted this morning to read this: *"So for once you have nothing to say (can we keep it this way?). And I guess Toyota is SOL. I don't think they are serious about plug-ins anyway as they will let everyone else do all the heavy lifting."* That response from the weekend craziness was quite a relief. I had my doubts it would work. Accomplishing such an odd goal take a lot of patience and reading between the lines. I wanted to see change... some indication of progress, even if it's only slight. Going from an absolute of never, to *"I don't think"* is progress. As always, it needs to be pointed out that reaches the masses is leadership. That's *"light lifting"*, a lot of it. The product offering the most of something is what gets the attention. Offering a lot of something smaller is what goes unnoticed, hence not getting credit, despite being an essential contributor to change. Anywho, this is how I replied: It was obvious you wouldn't bother actually answering that question from the past. I was surprised you even brought it up though. It was great confirmation that you have indeed heard the message, but have repeatedly chosen to ignore it. Going after Toyota instead for the same thing was an interesting move... since it has revealed something new. You had been saying Toyota gave up on the idea of supporting anything with a plug. That's why you were so harsh about all of the regular hybrids they offer. But now that GM is about to rollout Malibu hybrid and Toyota has revealed Prime, you changed. That's the *"middle ground"* I've been striving for. It worked! You took that step. True, it was masked with quite a bit of attitude, but that still counts. I'm more than happy to give credit where it is due. So... thank you. It may have been a painful journey, but the goal of letting go of that absolute has been achieved. As for the *"heavy lifting"*, that's worthy of giving praise upon GM pulling it off. The measure of success with Bolt will be volume, since there's nothing to prove anymore. Volt already took care of the technology part. It's all about reaching the next wave of customers now.

4-18-2016

1.5 Years Later. There's a thread on the big Prius forum that was started 2 years ago. It was about how the next Volt would *"leap frog the competition"*. As you could imagine, I was all over that. Much has happened since then. Volt has fallen by the wayside in favor of Bolt. In fact, the entire topic of *"range anxiety"* has completely fallen apart. The odd position Volt occupies isn't being taken by any other mainstream automaker. Either you have an augmented hybrid, offering a larger battery and a plug, or you go full electric. There's also the BMW approach, but the much larger pack and much smaller engine makes it a full EV with just an emergency backup. Volt's stance of being in-between... with both EV range too low and HV efficiency too low... we're all wondering what future it holds. My guess it will remain a niche, that a Malibu plug-in will take over its role & purpose instead. Anywho, this is what the originator of that thread 1.5 years ago had to say now: *"Tesla has had great sales because of their EV capacity and fast charging ability, in spite of the high price of the Model S and X. So, sometimes higher capacity does change the market. I think the Volt, with 2.5x the range of other plug-in hybrids, will fill a role of transitioning drivers to BEVs. GM could easily sell a somewhat cheaper me-too 20-something plug-in hybrid if they want to. That may be a saturated market at this point."* It was that saturation mention that caught me. That's clear evidence of change. The expectation had been gen-2 Volt would take the market by storm. We're not seeing that. In fact, attention has almost entirely shifted over to Bolt instead. I added to the discussion: Tesla has done an outstanding job with S and X. Stage 1 = mission accomplished. Tesla has embarked upon the challenge of delivering an affordable choice now. Stage 2 = off to a great start. GM attempted to deliver an affordable choice, able to *"leap frog the competition"* by achieving a mainstream sales rate by the end of the 2nd year. Remember, GM had even announced the ability to ramp production all the up to 120,000 if demand called for it within the 3rd year? That just plain didn't happen. Fine. Whatever. We move on to gen-2 instead. After all, we were told to be patient. This next Volt would surpass the popularity of the gen-2 Prius. So, we waited. The time has arrived. It is available. Sincerely, what should we expect now? I truly don't understand how the market could be saturated if the point was to use this technology to phase out the production of traditional vehicles. True, GM makes you wonder if all will be invested in Bolt now to compete directly with Tesla, in the process leaving Volt as a highly regarded niche... kind of like the plug-in version of a Camaro. No one has been willing to address that either. It gives the impression of that being an undesired outcome. But the reality is, only so many tax-credits are available and time to react is limited. GM could regard EV as the only reasonable next step. They tried Volt. It obviously works. But that approach didn't result in mainstream sales. Since that is what Toyota also seeks, it is reasonable to continue to ask what was learned from Volt. Why the thought that there could be a saturated market? Prime will be offering less EV range, but the EV power will be increased considerably. The smaller battery-pack keeps costs down, while still covering the needs of a number of potential buyers. It also establishes a base to build up. It doesn't sacrifice HV efficiency either.

- 4-19-2016** **Childhood Stories.** I enjoyed posting this, on the big Prius forum: They are supposed to teach us about life. Some don't learn the lesson though. I think we are watching "*the tortoise and the hare*" story play out in the automotive world. GM has exhibited much of that same behavior about getting to market sooner and racing well ahead. Toyota has been taking its time, at a pace so slow it gets mocked every step of the way... yet always paying attention and very carefully planning ahead before taking any action. Years later, we likely will see that Toyota has been quietly preparing to win. After all, the work to refine battery chemistry, motor efficiency, control software, and cabin-comfort technology will be beneficial to any plug-in vehicle. Meanwhile, production of the cells for the packs would have continued to get optimized. So, when the time comes, we very well could see that GM already ran out of tax-credits and Toyota is taking advantage of the full amount still available to them and is very well positioned to deliver high-volume during the phase-out stage.
- 4-20-2016** **That's it.** There are some who get so hung up on blame & shame that they don't see the big picture. For example: "*So it's GM spin being the GM fault, not anything to do with the Volt itself?*" That was actually an interesting question. It shows we're moving beyond problems of the past, finally addressing what's important instead. Anywho, I hope I did a good job of explaining the situation with: Setting of false expectations has consequences. GM created challenges for itself that could have been avoided. It's not rocket science. It's simply business. Understanding how accounting, economics, and marketing interact isn't easy, but it is necessary. Fortunately, you do sometimes get lucky and notice a pattern. In this case, the expectations played a major role. That put Volt in an awkward position right out the gate. Not everything that had been anticipated was actually what they got. Why does GM set expectations that could present major problems later if the challenge to deliver becomes too great? Notice how certain announcements stand out? There's almost no detail, yet lots of praise is given anyway for somehow overcoming a problem no other automaker could. That spotlight is the first sign the risk may be too much. Attempting to apply the same logic to Prime, what do we see? The highest requested upgrade was more EV power. Next was more EV range. Since neither had any set target, reaching the goal was much easier. In other words, it was just like any other generational change. People simply expect the successor to be improved. That's it.

- 4-21-2016** **Red Herrings.** They come up a lot in discussions. It's a great way to derail threads online. Both trolls & defenders thrive on the distractive damage they cause to constructive posting. That's unfortunate. Worse is that you cannot ignore them. The only effective way of dealing with them is to reduce their effectiveness. Real-World data does a great job of that. Unfortunately, very little is available for gen-2 offerings yet. So, we're stuck trying to do it with just design detail. That helps, but squashing the attempts to undermine that way isn't easy. Oh well. You keep trying anyway. I did: With HFC (hydrogen fuel-cells) being a long-term project, very different scope and very different audience, it's really a red-herring... especially since they won't be mutually exclusive to EV anyway. Look at the other automakers also investing in them. Why not similar scrutiny? For that matter, shouldn't there be the same expectations for hybrids & plug-ins? Toyota's current work to refine battery chemistry, motor efficiency, control software, and cabin-comfort technology will be beneficial to any plug-in vehicle. Meanwhile, production of the cells for the packs will continue to be optimized. It's easy to get the impression of tepid. But taking that detail and the bigger picture into consider, it looks more like preparation for high-volume profitable sales not dependent upon any incentives.
- 4-21-2016** **Much Ado.** Lack of background is a common problem. We certainly saw that play out with Volt. There was fierce pushback whenever Two-Mode was mentioned. Enthusiasts believed that was a totally unrelated project and in no way could share any of the same challenges. Thinking mistakes couldn't be repeated is a difficult lesson to learn. Once you do though, it leaves you apprehensive. Could the same assumptions leading to poor choices happen again? It is almost incomprehensible at times to determine what's important and what isn't. We have seen real problems have real consequences. We have also seen non-issues stir up a massive amount of controversy. How do you determine which is what? There's a group of us attempting that with the 5th seat topic. My post today on that was a reminder of the past: Most here have no clue how major of a "*much ado about nothing*" situation there was for the Classic Prius (2001-2003) with the shifter. OMG! People went nuts over the fact that you had to pull it toward you rather than downward. The lash out was incredible. Yet, almost no one remembers that now.
- 4-21-2016** **Competition.** New questions about the change we're witnessing are great. I especially liked this one: "*I wonder what Toyota thinks about Tesla's 400,000+ deposits for Model 3 reservations? Does Toyota not consider Tesla an automaker?*" It's interesting how my same response as in the past now gets a very different reception. That gave this post lots of anticipation & wonder about how it could be replied: The competition is traditional vehicles, not automakers pursuing plug-in options. That fundamental misunderstanding of approach is a major impairment to progress. The goal now (this stage is quite different than with gen-1 offerings) is to get interest up high enough to sustain profitable high-volume sales once the tax-credits expire. That means each automaker using the technology at their disposal to help achieve that paradigm shift in the market. In others, Toyota welcomes the effort.

- 4-21-2016** **More Plugs.** Lack of personal patience. Lack of business foresight. Lack of consumer understanding. We get this as a result: *"Why is Toyota not putting more plugs on their top selling hybrids?"* I turned it around with this: The better question is: WHICH HYBRIDS SHOULD PLUGS BE OFFERED ON? All the automakers have the issue of what to consider. They face the same challenges overcoming their own legacy constraints. Look at the explosive popularity of the small SUV lately. Some have been suggesting for years to GM that Equinox should get the Voltec treatment. We're still waiting & wondering. Initial success of the new RAV4 hybrid seems to put it on the short list for which vehicle Toyota should consider for the Prime treatment.
- 4-21-2016** **Buy Back.** It looks like TDI owner here with *"clean diesel"* vehicles will be getting the opportunity to sell it back to the automaker. The proposed price will be the book value as of right before the scandal was uncovered, along with an additional \$5,000. That's the first sensible thing to come out of this mess. Retrofitting an existing vehicle is a difficult & expensive process. It presented a major challenge of proving the fix actually worked. And the owner would have to deal with decreased engine performance, reduced efficiency, and the inconvenience of reduced truck space. Of course, not everyone is happy with the proposal: *"This is an EPA problem, not a VW problem. Regulation are destroying the diesel industry."* That's called denial. There was no way traditional diesel could possibly compete with plug-in hybrids. The efficiency difference is massive. Had this cheat not happened, diesel would have already begun to wide down production for passenger vehicles. Instead, VW was dishonest and got caught... revealing other automakers had attempted to circumvent emission regulations too. What a interesting way to be destroyed. Who would have ever dreamed they'd do it to themselves? Our air cannot handle pollution like that. Over in Europe, the situation is much worse. Taking action to slow the damage is necessary. Regulatory entities given the task of preventing air-quality from getting worse are not the problem.
- 4-21-2016** **Moving On.** The very last of the gen-1 holdouts has accepted fate. There is now a tepid spirit of cooperation. It's awkward laying down arms with someone who fought so intensely against you, celebrating victorious battles but ultimately losing the war. We're trying to meet in the middle. One individual has protested the effort. That's it! What a relief. It's over. Now, the constructive discussions can begin. His question to me today was: *"Toyota should put it on the Camry & Rav4. Call it the Camry Prime and Rav 4 Prime. Or make a unique plug-in car for the mid-size sedan and CUV."* My thoughts on the topic were: That's the water Toyota will be testing soon. How far from other offerings could or should the plug option be? With Prime, we'll be find out if the breaking the status quo, with respect to design, is what some will be attracted to. The bucket seats in back and the bubbled rear windshield is new territory to explore.. possibly new opportunity. How will customers shopping the showroom floor react? We all remember seeing vehicles of the future featuring unique design like that. Heck, anyone have any memory of the concept shown back in the 80's at Epcot center? The difference now is you can actually buy it, right there at that moment. Will seeing it, combined with a test-drive, compel them to drive away with a Prime? Having a battery small enough to easily work in any garage offering a 120-volt outlet will help to overcome complexity fear. It also eliminate equipment cost concern. Heck, even 2 of them staggered with a timer could both recharge overnight from the same line. It's a matter of testing the waters before going all out. With such a fickle market and most of the early adopters already spoken for, we need to find out what the next wave of consumers will actually buy.

- 4-21-2016** **Facing Reality.** It's not easy. There's still some lingering resentment. We are making progress. Rather than rhetoric of the past being repeated, we can see some willingness to address certain once taboo topics: *"That's the too little too slowly. With Toyota's fanbase, they shouldn't be timid."* I totally embraced that opportunity to stir interest and ask questions: Those customers are the target market. It's that *"mainstream"* term we've been tossing around for years. The more we see, the more this looks like the tortoise & hare story. Focusing on final outcome verses celebrating having raced to specific points was lesson learned the hard way. In this case, reaching those who would otherwise be perfectly content just driving off the lot with the newest traditional is the win. When you have buyers who think 35 MPG is enough and still haven't decided about climate change, you know they won't be willing to spend much on clean & efficient technology. So, how do you appeal to that group of people? The tradeoff of size, weight, and cost is a delicate balance. Toyota will be delivering a system with more electric-only power & speed along with a modest range increase. That should make it somewhat cost-competitive while not trading too much. There's nothing providing any indication of what EV range they are willing to pay for. More doesn't necessarily make it better. That only way to find out is to actually try. Customers will vote with their purchases.
- 4-22-2016** **Volt/Prius Review.** It was the usual this and that. Prius came out on top. That's still a strange situation though. In what world does it make sense to compare a hybrid to that of one with a plug? Knowing there is a plug-in model, why not include it? The answer is simple, the publication provides information for immediate purpose. Again, this is another know-your-audience situation. It's not like an enthusiasts magazine publishing statistics from circumstances you'll never actually ever encounter. That unrealistic nature is annoying, but not as much as the idealistic we get from enthusiasts online. There's also the business media that takes an entirely different spin on the market. This particular review made it clear these findings observed firsthand, gathered specifically for the review. Knowing that, this was easy to credibly draw attention to: *"The Prius clearly has the roomier back seat. It's open and airy by comparison, with wide seats, better foot space, a livable amount of head room, and a relatively hospitable middle seat."* Naturally, certain individuals didn't like that. Well, too bad. We're trying to be constructive now. That means addressing issues directly. Why GM didn't make the rear seating area larger remains a mystery. With so many people pointing that out as a shortcoming, it doesn't make sense. Feeling cramped in back is a difficult turnoff to overcome.

4-22-2016 **Good Enough, message.** In the past, it was a flurry of mixed messages. We had no clue who was being targeted and what the goals were. That uncertainty of audience & purpose made understanding scope & timeline impossible. We're starting to see progress on that front. This revealed some: "*The EV drive experience and ownership experience is much better than the alternative.*" Rather than the explosive reaction to that as in the past, it is now quite different. There are mutterings of saturation. My pointing out of that by continuous referring to it as "*low hanging fruit*" is obviously helping us move forward. Enthusiasts are coming to the realization that all the early adopters are gone. Overnight (literally), Tesla gobbled up the last of them. Appealing to a new mindset from the consumers remaining is no where near as straight forward as the "*experience*" promotion suggest. It's nice recognition of that is beginning. Next is acknowledgement with suggestions. We are starting with: Problem is, that isn't a priority for that group of buyers. They simply aren't interested. Their "*good enough*" perspective presents very tough challenges to overcome. I know that "*good enough*" is a response Volt enthusiasts don't like to hear. But after 5 years of that better being well proven, yet not drawing interest anyway, it's time to accept those differing priorities. Reality is, mainstream consumers are much more difficult to appeal to.

4-23-2016 **Good Enough, superior.** Looking for sympathy won't take you far: "*You've got to be kidding me. GM is the red-headed step-child of the auto industry. Everything they do gets scrutinized more than any other company.*" I was rather curious where that comment would take the new effort to work side-by-side rather than butting heads. So, I posted a bunch of exposition to set the stage: What do you suggest to break out beyond that reputation? Sincerely. It would be helpful to find out what next steps will take them far enough to shake off problems of the past. GM got there from a number of terrible business practices... some of which Prius owners were complaining about, back when GM was flaunting fuel-cell technology and working aggressively against hybrids. Remember the "*stop gap*" and "*go yellow*" campaigns? When GM finally started taking emission & efficiency concerns seriously, it turned into an "*over promise, under deliver*" nightmare. Rather than joining in with the other automakers, we had to endure relentless bragging about what Two-Mode would be. The claim was it would be far better of a system than what Toyota offered and would quickly be spread across the fleet. That effort became a publicity disaster. Overcoming that is what contributed heavily to Volt. After all, we know that gen-1 was really improvements originating from Two-Mode. That wasn't too much of a stretch to recognize, since we had been shown a Saturn prototype with a plug. But for some reason, that past was disregarded and a "*vastly superior*" campaign emerged instead. It was history repeating. Needless to say, that didn't go well either. Hope shifted over to gen-2. We waited. It rolled out with a frustrating delivery delay. Fine. Waiting a little longer wasn't the end of the world. But when the new Volt arrived nationwide, it entered a market of disinterest. Attention had shifted over to 200-mile EV choices instead. The long believed "*range anxiety*" solution wasn't a problem anymore. Those wanting to end their gasoline consumption spoke out... resulting in about 400,000 reservations. Dealing with that situation leaves GM in quite a pickle. Heavy investment in Bolt to help end the scrutiny of the automaker could prevent Volt from leaving of the specialty category. There are many automakers working to also deliver a competitive plug-in hybrid. Not only will they fulfill their purpose of getting traditional buyers to choose some form of electricity instead, they also put pressure on each other... until mainstream penetration becomes a reality. That requires waiting though. Profitable sales at that scale will have to survive without tax-credits. Long story short, we still have much story to go. There's lots of waiting still. The end of 2016 only marks a significant page in the next chapter of this history. We'll be in this one for awhile.

- 4-24-2016** **History.** When a chapter in history closes is rather obvious. You abruptly reach a point of recognition. That came today. It was with an attempt to consider what was learned from events & actions leading up to that point. The post stated this: "*You have a weird version of history and the current situation.*" The dead giveaway of problems to come was nothing else was said. There was no alternative viewpoint provided. That's a form of denial. They just dismiss what they don't like, rather than correct you. If a fact is overlooked or misunderstood, that information is conveyed... which didn't happen. So, my reply was: Weird is a interesting way of describing the perspective of someone who was an active participant in that history and heavily documented it as those events played out. No one had any idea what would happen next. Looking back so many years later from the viewpoint of the market which changed as a result of that history gives a very different impression. In fact, that difference is what provides the basis for repeating mistakes. Recognition of what led to challenges of the past helps to avoid falling into the same trap. It's surprisingly easy to allow the opportunity to prevent by changing direction to slip by. Whether there's agreement or not, it doesn't matter. We now see measures taking place to change direction.
- 4-25-2016** **Superiority.** There had to be one last bout with that nonsense of the past. Some people just cannot let it go. I'm more than happy to point out their behavior and remind them of the past: You don't see the history repeating? "*...show the stark superiority of Volt.*" is literally the same old nonsense posted by enthusiasts as 6 years ago. Yet, the spotlight is shined on me instead. People are allowing the cycle to restart. Enable rather than speak up. That's amazing. Volt was put on a pedestal, declared as better than everything else. No one made an effort to find some common ground. It was just GM against the other automakers. The very idea of competing with traditional vehicles continues to get shunned. The concern of cost verses price just get tossed by the wayside. It's exactly what we saw in the past. Seeing the same red-flags again and not doing anything about them means we have a good idea how this will play out.
- 4-26-2016** **Better.** Could this be the very last snippet of spite: "*...trying to prove the Prius is better...*" I remember how predominant of a belief that was in the past. Enthusiasts just plain didn't bother to read posts related to Prius at one point. They'd freak out, declaring anything with the "P" word an attempt to disrupt and stir trouble. Ironically, a few became antagonists... doing the very thing they accused me of. Guilty of what you proclaim others have done is what? Personally, I don't care about the retort. It's all about confirming they are not being sincere. That lack of good faith is a sign of trouble. Fortunately, virtually all of that type of behavior is gone now. That was among the very last. I couldn't help but to point out such a momentous point: There it is. No matter how hard I try to find common ground, there is always someone who believes it is really an effort to prove superiority. That is the mistake being repeated.

4-26-2016 **Approach.** There is still a little bit of resentment from some: "*GM will continue to improve on its electrified vehicles, while you constantly berate them. In the meantime Toyota will drag its feet, but you will bite your tongue, even when they make huge mistakes, yet creep ever closer to GM's designs.*" The particular individual who pointed that out clearly doesn't like the fact that my predictions were correct. I'm turning that back on him by attempting to get some useful dialog from his continued provokes:

Please tell me what "*berate*" refers to. Seriously. I'd appreciate the clarification. People freaked out when I mentioned sales, in the past. So now, we try to avoid that topic, instead focusing on the technology.

But then when I point out actual tech detail, the immediate fallback is the childish obsession with more EV being better... preventing virtually any discussion about the engineering itself.

I'm not sure how Toyota could be looked upon as dragging. We've clearly seen wide-scale adoption of lithium batteries. The regular Prius uses it in all but the Eco model. Prime will obviously be exclusive to lithium. That's a lot of cells being produced. We've also seen refinements to the motors, controllers, and software. There will be an industry leading vapor-injected heat-pump as well. How could that possibly be considered huge mistakes?

As for creeping, we always knew cost & battery improvements would bring all automakers to a similar place. GM took the low-volume, high-cost route. Toyota is taking the high-volume, low-cost route. Hyundai will be attempting to pass Toyota on the same route. Ford, Honda, Chrysler, and VW are working for something in the middle. It's a mix of approaches.

4-27-2016 **Seems Like.** Perspectives are changing. There is still a bit of attitude though: *"Hybrids have been around a long time, particularly with Toyota in the Highlander, while good, totally seems like OLD TECH at this point when compared to a plug in that can potentially virtually eliminate most gas usage."* Fortunately, dealing with it without ruffling feathers has been surprisingly effective:

That "seems like" is the greenwashing mindset being passed around. Until recently, it was difficult to prove otherwise. Now, it's pretty easy. The upcoming Prius Prime shows that the supposed "old tech" is really a market-ready platform to support plugging in. Toyota added a clutch to the existing system, allowing it to completely disengage the gas-engine for pure EV driving while at the same time increasing power output by allowing the 2 electric-motors to work in tandem.

The initial popularity of the RAV4 hybrid rolled out just a few months ago provides a good indication that Toyota is positioning to be able to quickly join the plug-in hybrid market for small SUVs as the other automakers begin their rollouts. For now, there are just many announcements... all with the same question of how much will people have to pay to get one.

It's a slow process. We've seen how popular Outlander has been in Europe, yet still hasn't been made available here. Both battery cost & capacity are major hurdles to deal with. Having a good hybrid already drawing interest and proving HV efficiency (for when the plug-supplied electricity runs out) is a good place to be when the sales opportunity finally arrives.

4-27-2016 **Looking Better.** Today's discussion topic was about upcoming high-efficiency SUV choices. I saw the opportunity to point out some history on the topic. Since it was on what had been the daily blog for Volt, there was an audience with strong favor for GM. My providing of a half-dozen links to articles of the past got a positive reception. No more butting heads! They are actually reading what I share. Supposedly, it has to do with the way in which I present the information now. You be the judge of that: GM began plug-in hybrid research for the small SUV (specifically with Saturn Vue) before Volt. It was the next logical step with the large Two-Mode system. We even got prototypes. When the bankruptcy hit and Saturn was disbanded, focus was turned to Equinox instead... but fell on deaf ears due to the gen-1 Volt struggle. Seeing that gen-2 of Volt isn't taking the market by storm as hoped either, finally looking at Equinox as a diversification opportunity would be great. It's the technology Volt enthusiasts praise, rather than an attachment to the vehicle itself, right? Pushing GM for Equinox as the next Voltec offering makes a lot of sense.

- 4-28-2016** **200-Mile Choices.** Today, got an announcement from Ford stating intentions to deliver an EV offering a 200-mile range within the next few years. Yesterday, we got the same from Hyundai. It's interesting to read those. There's little to no value in what they claim. We've seen broken promises and long delays in the past. What makes this any different? I'm curious because Toyota doesn't play that game. Withholding information about plans is their approach. Just look at what happened with Prius PHV. When production of it ended, some attempted to greenwash by saying the program had come to an end entirely. Toyota kept quiet anyway. A few people, like me, pointed out that pattern and stated how a much nicer plug-in hybrid coming later would be reason for those actions. They dismissed what I said. When Prime was revealed, I was vindicated. It's hard to believe people would just make up stuff and disregard observations of the past. Oh well. Even though there is little in the form of realistic expectations, the excitement stirred from such announcements at least helps to change the mindset. It helps push the market along. People will hear about the shift away from gas and toward electricity. That's enough when they aren't even looking to purchase a new vehicle anytime soon.
- 4-29-2016** **Surprise.** I was able to post a correct and not have to deal with backlash. In fact, I didn't even get any negative votes. They were actually positive! This is what got me going: *"Your math is wrong, because 400,000 reservations will not be the same in sales. There were over 150,000 sign-ins (not "reservations") interested for the Volt, but less than than in sales after the 2011 Chevy Volt arrived."* There's a natural sense of defensiveness toward Tesla. The strong interest in Model 3 has put Bolt in a very awkward position. Seeing a rather blatant lie being posted in response got me wondering. Did he make up that number in his mind to soften the blow? Impact from such an event can really hurt. After all, Volt has failed to draw interest twice. This particular enthusiast has put his third hope from GM on Bolt. That's isn't going well. I did some searches. The final count came up over and over again. Those old cached pages easily confirmed the final tally I had remembered. So, I posted a reply: 55,819 was the official number at the time of rollout, which was reasonably close to the annual goal of 60,000 sales. Not sure where that supposed higher count came from. But what needs to be pointed out is many of those reservations were placed long before details of the vehicle itself were actually released. Many became disenchanted upon finding EV range was lower, HV efficiency was lower, and price was much higher than anticipated. There was no way to remove your name from the count either. But since it was a no obligation sign-up anyway (no money down, no dealer contact) it didn't matter anyway. The point is, math has nothing to do with the situation. Recalling the past accurately is. Sorry, but I get a lot of grief for not including detail. So, turn-around is fair play. We're all trying to make plugging in work. That means learning from the past. To be totally fair, it can be pointed out that Volt had limited availability that first year. This is why the sales rate (5,000 monthly) was targeted for the end of the second year. It allowed time for ramping up production, educating dealers & salespeople, along with informing consumers.

4-29-2016 **Change.** It sure is nice reading stuff like this now: "*Hopefully GM's strategy to use Voltec components for non-plug-in hybrids is part of getting the economy of scale where it needs to be for a much broader rollout of Voltec-based hybrids and EREVs.*" I actually get positive votes from my responses too:

That would seem reasonable. Though, I still get a lot of pushback from pointing out the very same thing for Toyota. That double-standard is quite annoying... but not deterring.

I will continue to point out the benefits of the no-plug hybrids helping to ramp up production of lithium battery cells. It's hard to believe how incredibly smug some people were last year about Prius using "*outdated*" battery tech, even though they had advanced. Disregarding the fact that the larger Prius (7-seat model) and Prius PHV (plug-in model) already used lithium could have been considered greenwashing. It was most definitely misleading, especially since we all knew the gen-4 reveal was only a few weeks away. And sure enough, we found out it use lithium too. The "*outdated*" commercial abruptly halted as a result.

We need to be constructive in our discussions. Improvements to motor efficiency, control software, and cabin-comfort technology will be beneficial to for any vehicle using a battery. We'll see the chemistry in the battery itself continue to be refined too. Ordinary hybrids help that process along. Hybrids will plugs benefit from it.

Looking back, I find it astounding that so many fought against diversification. They truly believed that call for more choices was actually an effort to undermine, that somehow additional models would dilute Volt interest. Ugh. Thank goodness we've moved beyond such a fearful belief.

I'm really looking forward to what this next year brings. Prime is obviously where my strongest endorsement will go, since its smaller capacity is an obvious effort to keep costs low enough for reaching mainstream consumers without tax-credit help.

I'm all for the long-range EV offerings (very large battery-packs) too. Being able to drive from the cities here all the way up to our vacation destination in the north with just a single charge would be great. I can envision people feeling comfortable with that in the not-too-distant future. So, hearing about Hyundai & Ford planning to join in with 200-mile offerings is very encouraging news.

4-29-2016 **Denial.** I'm enjoying this chapter's end. There are attempts at rewriting history. It's all that's left. There no reason to bother pointing out what actually happened. I started to, then saw it was just a waste of time. No one else would care. No one is listening anymore. It's over. Comments made at this point only support the denial. Those few are quite alone. So, I didn't actually post a response to this: "*Nobody fought diversification. They just didn't want a PiP version of the Volt, one with only 6/11 electric miles.*" My for confirmation didn't turn up anything. I hadn't ever heard that before... but wondered if there had been a misunderstanding blown so far out of proportion, it took until now to find out he had been fighting a false belief all these years. Nothing supported his claim though. He's been irrational before. But rather than be hypocritical, he was likely just trying to make up an excuse to justify his behavior. I didn't want to contribute to that, so my comments never made it to the thread: I just did some searches. From 2008 to 2014, there were fierce battles against a Volt offering anything less than a "40 mile" range. Following that, the topic of a "lite" model finally started to get some traction. The discussions sighted 25 to 30 miles of EV range. At no time was there any mention of 6/11 miles. It was brought up many, many times how the next PiP would offer increased for EV driving (due to lithium cost dropping). In fact, the resulting power increase due to the larger capacity was even discussed. Your claim has no merit.

4-30-2016 **Constructive Discussion.** The sense of moving on is becoming easier to see. There was from an interview with a Toyota executive about Prime. It was article published by an automotive enthusiast magazine. This came about today in response to that: *"If someone was looking for a commuter only car, wouldn't a BEV be a better fit? Sure it won't likely work for those occasional trips, but if a person wants a PHEV for that, they probably want more space for luggage and passengers."* It was constructive! I was happy to join into that discussion:

What's been confirmed long ago and has continued to stand true for years is there's no such thing as an *"only"* car. It was absurd to claim that the sole purpose for purchasing a Prius was just for the sake of MPG. Yet, countless people have tried and continue to. Thankfully, their arguments always fall apart in the end. It's like trying to justify the purchase of a SUV for commuting.

Prius strikes a balance, striving to be a good all-around vehicle... which is why so many have purchased it. Prime will be attempting to deliver the same thing, but with a plug. You'll get the full EV experience for a limited duration, enough to cover some commutes and to cover running errands nearby. You'll still get the large cargo area. You'll still get the outstanding MPG.

So far, the range comments coming from Volt enthusiasts have had a childish approach. That *"more is better"* claim has resulted in a smug attitude and an unwillingness to actually address detail. They set a terrible precedent, tarnishing the work genuine supporters worked so hard to establish. That's really unfortunate when having a goal of getting people to choose a vehicle with a plug.

As for the spin about more passengers, I particularly like this question from the article: *"Did the fact that General Motors reached the opposite conclusion with the Chevrolet Volt, adding a fifth seat to the new generation, give you any pause?"* It was an obvious provoke for comment, not real journalism. Anyone who has seen the gen-2 Volt knows it really doesn't offer a fifth seat. Only a young child could actually fit in that legless spot. Yet, we hear defenders vaguely claim Volt has seating for 5 and Prime only 4. Ugh. The nonsense we have to deal with...

At the end of the day, it doesn't matter. We've seen an abandonment of Volt recently. Those enthusiasts have turned attention to Bolt and rapid interest growth toward 200-mile EV offerings. That opens up opportunity for plug-in hybrids designed to target ordinary consumers. Prime clearly has a goal of mainstream sales. It may take a few tweaks along the way, but that's the nature of attempting to draw interest from an emerging market.

We've seen this before. Remember the size emphasis with Two-Mode? Remember the power emphasis with Accord? How is an emphasis on range any different? There's a careful balance required to attract buyers. Cost & Efficiency tradeoffs hurt. With range, the additional EV capacity requires a sacrifice of size & weight. Toyota is attempting to deliver the right amount. After all, there are millions of Prius owner who have been pleased with roughly 2 miles of EV. Giving them roughly 10 times more is quite an upgrade.

4-30-2016 **Frenzy.** I particularly liked this question: "*They'd love to have Tesla-like frenzy for the Volt and Bolt.*" With GM fighting legislative efforts to prevent direct sales in Connecticut and 5 other states already requiring franchise dealerships, you know the situation isn't going to be pretty. With Volt basically having been abandoned in favor of ramping up both Bolt interest and actual production, we need to ask what GM actually intends. What kind of sales should we expect? Seeing I actually get somewhat constructive answers to questions now, I asked: What would stimulate that level of interest? The major hurdle to overcome is battery-cost. Seeing a substantial drop means a benefit for all automakers. That is likely what will happen too. Looking for distinct advantage for high-volume sustainability means the ability to earn profit without the help of tax-credits. Because when they are gone, the competition of traditional vehicles reaching out to attract the same consumers becomes a very real problem. That's why pack-size and battery-chemistry is such a big deal. Automakers like Nissan & Toyota have been working hard to not require liquid cooling. That's a cost, weight, and size expense with potential to be able to avoid. Tesla has worked hard to reduce packing overhead, by combining cells in a more compact manner to avoid those expenses. Notice how new topics, use of aluminum & carbon-fiber and heater efficiency, are now being discussed? In other words, we are beginning to see next-generation upgrades aimed at addressing how to still draw sales once all the low-hanging fruit (early adopters purchases) have been picked. It won't be as simple as listing EV range and MPG values going forward.

5-01-2016 **Who 2016?** It's exciting to see how the question is still applies so well after all this time. It's becoming more relevant as people begin to grasp the magnitude of scope beyond what the gen-1 models targeted... actual, not rhetoric. This was the latest: "*With the Prime, Toyota seems to be saying that PHEVs aren't for families.*" Prior to 2016, we couldn't even address the topic. Nobody cared. But then again, the audience for Prius PHV was far smaller than what GM had attempted to entice for Volt. Things are different now... and I'm pleased to point out why: Apparently, you missed that there were several different discussions all talking about Prime being an option for the families who grew up with a Prius. Their children are older and a middle faux seat wouldn't serve any purpose anyway. The bucket seats, storage area with USB, convenient cupholders, and possibly heated seats would be far more appealing to the older children. Why do you think I got on enthusiasts so hard asking the "*Who is the market for Volt?*" question. There was a lesson to be learned for all of us going forward. GM made a colossal mistake of not knowing their audience and those Volt enthusiasts made that worse by endorsing it. The early adopters were assumed to be representative of ordinary mainstream consumers. They couldn't have been more wrong. A group of us tried to show how Prius success came from Toyota not giving in to emphasis on any particular trait, instead working really hard to find a balance... which was a clear effort to match consumer interest. Understanding the difference between want & need is a challenge in ordinary conditions. The crazy, rapidly changing, demand for clean & efficiency vehicles we currently face makes it even more difficult. I see Toyota's willingness to try new approaches by diversifying the Prius options even more as a genuine effort to push deeper into a stubborn market perfectly content sticking with traditional guzzlers. Change doesn't come easy. Taking some level of risk, without sacrificing cost, is required.

5-02-2016 **After All This Time.** It truly amazes me how much certain individuals just plain don't understand the difference between want & need. You'd think after all this time, they'd finally figure it out. The problem typical comes down to not being able to distinguish between their own perspective and what's required of the point community. They'll over-generalize, pointing out factors of appeal and provide examples of extremes. Today, it was all about the need to drive at 85 mph and climb up mountains at highway speeds. That just plain is not realistic for some of us. Where is the legal limit that fast? My guess is select areas around the United States. That's it. Same goes for mountains. Here in Minnesota, we have neither. The fastest speed is 70 mph and there are only 2 high-speed climbs, one in the north and one along the south-east border. In other words, some owners would never encounter those situations. Heck, the drives out to Wyoming this year were at 80 mph and had some small, steep climbs... neither of which were a big deal. Why is there a supposed need for more? The excuse is: "*Cars aren't sold based on need. Most cars are sold based on want.*" That's a crock. True, there is a portion of the population that desires more and have the ability to actually purchase it. For the majority (that's the mainstream) though, it's not the case. Most people carefully weigh options, choosing a few luxuries to features... but rarely actually just giving in to want. There isn't an indulgence. We seek out reliable, affordable, practical transportation. The reason for the false belief about want is simply not seeing. Those reliable, affordable, practical vehicles aren't even acknowledged. That's why enthusiast magazines pretty much never review ordinary vehicles... like Corolla or Camry. They dismiss them as boring appliances... which is why they aren't accounted for by the antagonists online either. See how confusing matters get? It should be simple. We should all recognize the necessity for clean & efficient vehicles. Unfortunately, some don't. Some call that a want. They don't see the need to end oil dependency, reduce smog-related emissions, or face climate-change. That's too. Fortunately for me, I don't need to waste time on them anymore. The next chapter has begun!

5-02-2016 **Bottom Line.** This is definitive proof of having started the next chapter: "*Issue is the bottom line. Hype, innovation, buzz, perception are GREAT, but profit keeps the lights on.*" That's clear confirmation of things having changed. With gen-1 of Volt being stuck as just a niche, any discussion of business was quickly subdued. That's why even a mere mention of Prius set enthusiasts into a tizzy. The complete absence of objectivity was a dead giveaway of challenges to come. Now that we've arrived at that point, things are getting rather interesting. That greenwashing claims of Toyota not being interested in EV support have come to an abrupt stop. It shows how childish & petty some will be when focus is so narrow. Of course, there's still the reality of the tax-credit limitation not being addressed. At least there's some progress. The bottom line is very important.

- 5-02-2016** **BMW i3.** I still remember the hostility that erupted upon the rollout of Ford's first Energi offering. It was the C-Max plug-in. That wrecked all arguments, making many look guilty of mindless defensive posts. The behavior is typical. That's one of the stage of grief, what you have to deal with upon being faced with major change. Anywho, the claim that I was simply a Toyota fanboi, promoting Prius by any manner possible. Giving an endorsement to Ford proved that wasn't true. That group of antagonists had been exposed and they didn't like it at all. Ford's new addition to the market damaged much of what had been claimed about Volt to make it unique. There wasn't a distinctiveness anymore. Fast-Forward a number years, the situation becomes profoundly worse. BMW's rollout of i3 was everything Volt strived to be, but failed to actually deliver... which hurts... so much so, that no matter how the information presented, they won't like it. I remember why GM set those specific goals. There's nothing wrong with changing them. After all, the point is to remain flexible. But if that change doesn't achieve improved results, you've got a very real problem. In fact, you're even worse off at that point. That's where Volt is today with the announcement of a mid-cycle upgrade from BMW. The improvement to i3 will increase EV range from 81 miles to 114 miles. That's a huge improvement. It leaves Volt in a very awkward position too. Enthusiasts belittle Prime for offering less than half the range of Volt. Now, they find themselves at the other end of such a comment. i3 delivers twice the range. That forces the issue of what's actually needed. If you have enough capacity to cover all your daily driving, why the heck carry around a full-power gas-engine? It simply makes no such for supposed "EREV" purpose. That engine had been promoted as a backup, just in case. BMW delivered precisely that. (Note that the i3 gas tank was 1.9 gallons; this upgrade will increase it to 2.4 gallons.) In other words, it's very easy to argue that Volt is carrying around a lot of unnecessary weight... the same argument Volt enthusiasts had used against Prius PHV in the past. So basically, the market is beginning to settle by pushing out the designs that don't work well for the masses. That's why we continue to ask: *Who?*
- 5-03-2016** **Not Yet.** Sales results for April sure did raise a hubbub. You'd think the rose-colored glasses would come off. Clearly, not yet. The best thing to do when reality hasn't come crashing down, but it inevitably will, is to finally just acknowledge it. If some don't want to, post a provoke. There's nothing like wasting resources on a futile endeavor. Get it over with. Geez! Sadly, that means having to recognize the fact that there's still a superiority complex at play. Rather than unite the effort of plug-in vehicles as a common cause against the reign of traditional vehicles, a few still absolutely insist Volt is better than all else. Ugh. That's why it gets so much attention. Why an opposing force would come about and be so counter-productive is beyond me. Most failed attempts are simply written off and the next tried. Toyota faced challenges with Prius PHV. Even though the market said they needed a "*plug-in hybrid*", that isn't actually wanted. So with the increase in power as a result of the growing battery-pack (a normal expectation for a generational improvement) came a simply enhancement to the system to make it deliver more EV. Again, this is yet another denial issue from Volt enthusiasts. (They claimed this would be possible.) So... I let them have it with some cold hard facts: It will leap-frog... the competition. Not yet. 21,763 - Malibu. 20,607 - Equinox. 14,153 - Cruze. 1,983 - Volt. With gen-1 offerings, the argument could be made that "*competition*" meant other plug-in vehicles. Not so with gen-2. They need to find a way to draw sales from the showroom floor during their product-cycle. Looking at those results for April, much needs to be achieved in the next few years.

- 5-04-2016** **The Point.** I asked this: Wasn't the point of gen-2 Volt to overcome that barrier? You don't even need to know what I was referring to when you read the response: "*No. The point of the Gen II Volt was (in addition to turning in sales at least commensurate with the previous Gen), to showcase the new drive system which could be adapted to many other models as Plug In, EREV and Hybrid; the Volt representing it's ultimate expression.*" It was a question of sales. The slow growth is becoming a disappointing reality. That's why so many have shifted focus over to Bolt instead. That's also why I push for answers... like, who? It's maddening to think so much time was wasted and so much damage to the market occurred as a result of the floundering. Oh well. At least it's over now.
- 5-04-2016** **Competitive Sales.** The pattern is repeating. Those same old excuses for flat sales are emerging again. There's no sense addressing them. That didn't work in the past, why would it now? Sales of Volt continue to struggle. That's a fact. Heck, it's a fact with Prius too. Those sales are flat as well; however, they are considerably higher. 8,923 is clearly more than 1,983. The interesting peek into the bigger picture is looking at RAV4 hybrid sales. 3,807 for the first month of full availability is a strong showing. Anywho, I needed a new way to present some perspective. This is what I used: "*The Leaf (and the new longer range BMW i3) are in trouble with the Bolt EV and Model 3 out in the public eye now. When you can get a 200 mile range BEV for \$30-something, who is going to spend it on a 100 mile BEV instead?*" His arbitrary dismissal of BMW's offering is what got my attention. Eliminating i3 but not Volt simply doesn't make sense. I wondered why... and really wanted to know what kind of response I'd get with this new way of looking at sales. So, I asked: What will happen to Volt? Remember, it's not just the other automaker offerings attempting to attract buyers. There is also the reality of showroom floors diverting GM customers elsewhere. That's how so many opportunities for Volt have been lost to Malibu, Cruze, and Equinox. Also, don't forget that the phase-out of tax-credits will have an impact a year or two later, putting a lot of pressure on dealing with high-cost quickly to remain competitive.

5-05-2016 **Shoppers.** I wonder how long this will have to be dealt with: "*Just pointing out that the Prime will be successful because of brand loyalty is not something to count on with it comes to plug-in shoppers.*" The thought is we'll be at the mercy of spin for several months still. The craziness with Model 3 will die down at some point. For now, we're getting a lot of hype from Bolt as a result. That's to be expected. I find it odd that 2 such profoundly different vehicles are considered to be competitors anyway. The only thing they really have in common is the 200-mile range; otherwise, each EV is quite unique. Whatever the case, it's a distraction. Toyota will wait it out. Patience is a requirement anyway. Prime will offer only a little more than one-tenth that range, but it will come with an engine that will deliver remarkable efficiency for when you use up the plug-supplied electricity. It's a great bridge away from traditional vehicles, offering a step beyond just getting a hybrid, but not requiring a full commitment. You'd think those online now would understand that. Unfortunately, many either don't understand or refuse to accept the fact that audience won't be the same. This gen-2 will target a new market. These buyers won't be the same... regardless of how convinced they are that goals this time have changes. Whatever. All I can do is try to point that out: Plug-In shoppers aren't the target market of Prime. That stage is over. Those early adopters have made their purchases already. The chapter in history just starting is the reach out to mainstream consumers. That's why Prime is configured differently, not following the gen-1 approach.

5-05-2016 **Misguided.** Understanding change isn't coming easy for some: "*Targeting mainstream buyers with a less-mainstream configuration (four seat), however, seems rather misguided, even if it will work fine for many.*" True, it is challenging to alter perspective. But why wouldn't you believe that things won't be the same over time? We've witnessed the popularity of vehicle styles come and go. Why is it so difficult to accept that the middle seat isn't practical? Heck, even I eventually accepted the arguments of Volt supporters claiming the middle wasn't necessary. Of course, I get labeled as a hypocrite for doing that. But then again, I'd get labeled as a Toyota fanboi for not. It's a no-win situation. To make matters worse, quotes are taken out of context. They don't care that you also included the need for increased leg & head room. They don't care that endorsed the technology for a second model either. All the antagonists care about is winning an argument. That sacrifice the war for the sake of a battle is preposterous. Yet, it happens on a regular basis. All I can say is: Prius taught us that following the status quo can be misguided. It was literally the only midsize hatchback available back in 2003. Look at how many followed suit as a result of not following traditional expectations.

- 5-05-2016** **Only Hearing.** It's the old problem of only hearing what you want: "*I think you have missed Toyota's claims that the four seats in the Mirai and Prime are to take the cars more 'upscale', 'luxurious', and 'distinctive', not about them being the next family car.*" I'm tired of dealing with this one particular individual on the big Prius forum. His perspective is that of absolutes & extremes. There's no sense of balance. That contributes to lots of conflict. Others feed his desire to discuss. After all, he is well informed. But then again, he choose to only respond to what brings about more posts. Allowing the means to find an end simply doesn't happen. Combine that with some newbies, the threads can go on forever. I dealt with today's problem this way: No, I heard & understood the rest of what was said. You can't just refer to part of it. When a family grows up (no more car-seats or juice-boxes), that's what they'll purchase. Why not transport the kids to soccer practice in a nicer vehicle?
- 5-05-2016** **Potential.** It's refreshing to read this for a change: "*The Prime has a potential market for folks who want a Toyota class reliable car and a PHEV. Toyota may not be wowing folks with EV range, but quite a few buyers want reliability first, whether it is EV or ICE providing the assurance of getting there.*" Too bad ordinary consumers don't participant in online discussions. Yes, I realize that's a direct conflict. You cannot be ordinary, yet do out of the ordinary stuff. Think about the over 14 million new vehicle purchases here alone each year. How many of those buyers ever post even a single message in an online forum or blog about their intended purchase? We're clearly not representative of the mainstream. I suspect many of the Prime buyers will come from in-person shopping, based upon a few mentions they came across prior to going to the dealer. Some will stumble across an article. Some will search online for reviews. Some will make the discovery at a dealer. Some will hear about it via word of mouth. Some will encounter one on the road or in a parking lot. There is potential for Prime. Prius is already known enough to have a reputation of being a good buy. It's reputation and practical nature tends to sell itself. Just imagine what the test-drive experience will do. This is the common person's plug-in hybrid we've been waiting and waiting and waiting for. Yes. I know. All good things...

5-05-2016 Quick Sale. I couldn't resist added more to this post: *"Just pointing out that the Prime will be successful because of brand loyalty is not something to count on with it comes to plug-in shoppers."* This had to be said: It will be successful, but not for the reason you presume. For that matter, it won't be who you presume either. Plug-In shoppers are not the focus of Prime. True, the configuration will be appealing, but they aren't who it was designed for. Those shoppers will carefully weigh a variety of traits & specs of the vehicle, researching in great detail and calculating performance expectations. Since they are determined to purchase a plug-in vehicle one way or another, they are far more willing to accept greater expense & tradeoff. That's an elite group. In no way do they represent the majority. Ordinary consumers don't participate in online discussions, download resource material, or even read automotive publications. They go to the dealer and look around. They succumb to the "endearment effect" from the salesperson convincing them to touch & drive, often resulting in an impulse purchase. That's the way mainstream buyers do business. No matter how much an enthusiast praises a vehicle, it means nothing loyal customer simply shopping the showroom floor. Salespeople want a quick sale, without having to answer many questions or convince... For example, the ability for Prime to completely recharge in 5.5 hours using just an ordinary 120-volt household outlet is easy to understand & embrace. Think about how much of a challenge the sale will be for Volt in comparison. It takes 13 hours. If you have to leave for work at 7:30 in the morning, charging must start at 6:30 the evening before. If you have any night life whatsoever, you're screwed. Explaining to the customer what it takes and how much it will cost to get a level-2 charger won't be simple. That lack of intimidation is quite powerful. It's enough to get the customer walking around at the dealer to take a closer look. That's where those 'upscale', 'luxurious', and 'distinctive' features come in. No amount of enthusiast scoff at the supposed limited range will change that. In fact, those customers won't even be aware of any of that rhetoric. The salesperson will offer a test-drive opportunity. They'll take a spin around the block in EV, then ask where to sign. Quick sale achieved. Put another way, Toyota's target audience for Prime is not plug-in shoppers.

5-05-2016 Average Consumer. What do you say when a friend posts this: *"Prime has no shot at being successful. But it depends on how you define success. It might be a player in the PHEV market, but will never capture the average consumer."* Obviously, I wanted clarification and insight. What brought about that opinion? So, I gave this a try: Let's discuss who the "average consumer" is. I would suspect pretty much everyone assumes the same thing, a person looking to purchase a Toyota car... like Camry or Corolla. We keep ignoring the truck market, the pickups and SUVs. Do you really think Toyota will never do anything to attempt to draw those who went from a car to a truck back to a car? Saying they will "never capture" is a bit of a stretch. Why did they switch to a truck in the first place. With Prius Prime, there's a chance of coming back. It's a vehicle that doesn't represent what they tried to get a way from years ago. Think about it. Offering something completely unique has potential. These are customers who would be paying more for their new vehicle purchase anyway. Prime provides a means to switch back to a more efficient means of transport. It's also a heck of an effective way to lower impact to the environment, without requiring a paradigm shift. Addressing the fleet as a whole can't just be with the expectation of people purchase a plug-in version of the vehicle they currently drive. The hope is it will be a relatively easy jump from Camry or Corolla, but how do you get people to take the bigger step away from the big guzzlers?

- 5-06-2016** **Ironically.** You gotta love reading this: "*Given Toyota's hesitancy to promote EVs, I don't have high hopes they will put much effort into this.*" It came from an EV owner who's been really, really hard on Toyota under the belief they are only in favor of hybrids & hydrogen. No matter how much evidence I'd provide to the contrary, he just plain didn't see anything beyond a polarized outlook. One extreme or the other was his stance, no in between. That was annoying. I attempted many times to point out the middle target, Toyota's quest for balance. He just plain wouldn't acknowledge it. In his mind, unless Toyota delivers something to compete with Tesla, the automaker wasn't interested in anything offering a plug. So, when the end of PHV production happened, his anger blinded any sense of reason remaining. It was unfortunate. Now, there's the reveal of Prime to deal with. That confirms what I've been saying all along... which obviously wasn't enough. So, I conveyed the message yet again... but this time with a little attitude: Ironically, the reason for being hesitant to promote was due to Prime. Why promote EV when you are busy developing a PHEV with the hope that will stir mainstream consumer interest?
- 5-06-2016** **Some.** What other response can you give to this other than, ugh: "*Do you honestly expect truck/SUV drivers to convert to the Prime??*" It was from another of those who likes to stir the pot. He asks the same questions over and over again. That's annoying, since he clearly doesn't like the answers and hopes for something different. He also enjoys the discussions. He's polite and doesn't try to provoke. He just won't accept what you say either. I did anyway: Your perspective of absolutes continues to make discussion challenging. I'll give it a try though. Yes, I expect **SOME** will. It's human nature to seek out something different eventually. Financial, Family, and Work circumstances change over time. Having something new to choose from is what Toyota will be offering. Don't forget, not everyone has truck/luxury money to use indefinitely. We've already heard Prime being referred to as the "*common man's Tesla*". Think about how Toyota will adapt packages based upon how buyer preference patterns emerge.
- 5-06-2016** **Test Drive.** Sometimes, it's easy. All I had to do was agree and suggest a new thought: Yes, there are a large number who don't have the need for transporting more than 4 people. There is also the group of people who shop based on the test-drive experience. Think about how little the salesperson has to do if they are smart enough to keep the battery-pack topped off.

- 5-07-2016** **Anti-EV.** I reposted the "*hesitancy to promote EVs*" comment again, requesting a response. In other words, I provided a polite advanced warning that I'm about to turn on him... quite hard, if he doesn't speak up. All that impatience we had to deal with... for what? He absolutely refuse to acknowledge the possibility that Toyota's indifference was really smart marketing. Why in the world would Toyota undermine itself by revealing intentions well in advance, knowing that it will cause trouble as a result? My guess is he's old school, where the belief is no harm can come from promoting well in advance. Trouble is, with the market evolving so fast, it is now more important than ever to remain flexible. What still leaves me wondering is how he fell into the trap of not seeing it as necessary. He's not alone. Like many of the others I have butted heads with, they understand the engineering well. It's just when it comes to the business aspect, that comes up short. Perhaps more of the big picture will sink in over time. I'm hoping to accelerate that progress. Having been able to become friends with other foes of the past, there is a reasonable hope that could happen with him too. His anti-EV belief sure will be a problem going forward otherwise.
- 5-07-2016** **Setting Expectations.** I did: We'll see the building of a foundation (awareness, education, reputation) within the first 2 years, then a big ramp up for the 3rd along with announcements of what comes next. That's the precedent already set. Prime should be no different. The timing works out especially well when the market as a whole is taken into consideration. Like you said, there is fear of the unknown. That's more of a problem than ever with ordinary consumers. We're past the early adopter stage now. That chapter in history is over. Gen-2 plug-in offerings (both PHEV & EV) are what will bridge the gap to mainstream acceptance, when plugging in is a consideration when making purchase decisions. Think about how there is rarely any mention of battery concern now. When it comes to hybrids, the belief of needing to replace the pack at some point is pretty much gone. These gen-2 vehicles will demonstrate the batteries are up to the chore. We'll get to some tipping point with consumer confidence. That takes awhile. In the meantime, there must be a scramble to figure out how to reduce cost enough to make the design capable of high-volume profitable sales without tax-credit help. It must be able to compete with traditional vehicles directly. That is absolutely vital... and still not being taken seriously by some. We can help with the awareness, education, and reputation. Lots of real-world data and focusing on the true competition is what it will take.

5-07-2016 **What Prevented?** Is it worth the bother answer this, yet again: "*What prevented Toyota from doing so with the PiP?*" It came from a well known antagonist. He's quite open about his provokes too. That's quite irritating. It does provide an invitation to post certain things though. So, I took advantage of the opportunity, one last time: Ugh. We've been over this literally dozens of times already... It simply made no sense spending time & resources on a platform to be replaced by a much improved next generation. Do you have any idea how much work that is in the first place? Then, you'd have to spend extra time & resources afterward to re-educate. We all know how outdated information gets used for greenwashing too. Intentionally contributing to that makes a challenging effort even harder. The answer to the question should be obvious: PRIME What's sad is the answer was provided way back when PHV production ended. Those who didn't believe that to be the case made up some other reason. Heck, some even shot the messenger. The catch is, that still doesn't change the answer. From Toyota's standpoint, they were well into finalizing the design. There was nothing to gain, but much to risk & waste, by saying anything. So, they didn't. Toyota was well aware of what Prime would deliver. They gathered as much data as possible from the initial limited PHV rollout, just like they did with the Classic model. They then took what they learned and prepared to capture the hearts (and wallets) of ordinary consumers. This isn't rocket science. It's basic accounting, marketing, and economics. We'll see this Fall how well that preparation was. In the meantime, if the same questions of why get asked anymore, I'll post a bookmark to this message. Repeating the same thing over and over is getting old.

5-08-2016 **Sobering Facts.** How much is big enough? The difference between want and need is quite vast when asking that question. That's what we've been doing. It was best put with: "*As long as we are crying in our beer (or wine or water), here are some sobering facts...*" We were discussing the reality of the entire market. That big picture can be very disenchanting. To think of how little got accomplished in terms of count alone. Sigh. Thankfully, some of the biggest hurdles are among the first. It really does get easier as things progress. We're not there yet, but there is reason for encouragement. I explained the situation with: That's why I have confidence in Toyota's approach. It seems disappointing to take the perceived slower route (by offering just 8.8 kWh), but the reason for that approach in the past has been with the intent to keep cost in check. How is this time any different? The wait for battery tech to improve takes generations. We don't have that kind of time (or patience). Keeping the pack small is how to reach more customers. After all, we've seen that business-model be extremely successful in the computer industry with respect to expanding reach of new technology, why not with the automotive industry too? As the EV owners have stated, you want more once you've experienced it. That just plain isn't realistic for many budgets. Some people don't need mega-capacity either. I've been recharging at work... which provides a simulation of what a 38-mile commute would deliver with the new battery-pack charged only at home. My average is around 125 MPG. What new owner wouldn't be thrilled with results like that? Isn't that what we've been looking forward to since many years ago when the idea of plugging in was limited to just aftermarket upgrades? Upgrading from the PHV to a Prime, just commute average will climb to around 999 MPG. On long trips, I'll get a solid 50 MPG. At a reasonably competitive price, why wouldn't that sell at a decent volume... like half the mainstream minimum to begin with?

- 5-08-2016** **Why?** I had a responsive audience and was on the soapbox already. Time for some more exposition: Speaking of history, a major issue rarely addressed is WHY it was decided to not expand rollout of Prius PHV beyond the initial 15 states. Sure, there are some who bring up the topic, but it's always to complain rather than actually be constructive. They absolutely refuse to acknowledge what the cost was for lithium batteries and how modest the reception was to other plug-in offerings. Why do more in a market not ready yet? It made good business sense to just stick with the existing customer base, watching those others attempt to overcome their obstacles before joining in and continuing with their own research & development. That provides a great basis for learning, to be better off when rollout resumes. We'll see that next step taken with Prime. In the meantime, consider the struggle Volt and Leaf are currently facing. GM's next generation offering has not taken the market by storm. In fact, it still hasn't even reached the sales rate hoped for years ago. Nissan faces growing competition and is watching sale of the outdated generation slip. Toyota's offering will provide a modest EV range, but with competitive EV power. We think the price will be reasonably competitive too. The hybrid efficiency will be top-grade. Seating will be comfortable, for 4. Cargo will be much greater than any sedan. Tech options will be compelling. It's a good mix for this time in this market. The hope is having studied history and responded accordingly will show favor. After all, how well are the others doing?
- 5-09-2016** **Raising Doubt.** It's a challenge to figure out why particular people continue to prevent progress. Inattentiveness and the unwillingness to accept is what I see as the most common reason. Whatever the case, stuff like this is annoying: *"I am still trying to figure out how..."* No one else has any trouble understanding, especially after having literally years of the same discussion. It just repeats over and over. I got tired of the nonsense. So, my reply was in the form of questions that ended with some attitude. Whether he likes the answers or not, that's the way it is: How many broken promises have we witnessed over the years? What's wrong with waiting until there's actually something substantial can be delivered? Notice how all the *"Toyota doesn't support lithium"* naysayers have suddenly vanished? There's an obvious desire to keep the discussions going. I've noticed the pattern of the same question being asked by several individuals over and over again. Reality is, Toyota has invested heavily in lithium battery production as well as advancing motor & controller efficiency. They've also introduced an industry-leading heat system. So what if there isn't an EV right away to utilize that. Their other offerings will and they'll be well positioned to rollout when the market is ready. Too bad if you don't like that approach. It's still an investment in electrification.

- 5-10-2016** **Denial.** To my surprise, I got my answer: "*You are delusional. Nobody ever accused Toyota of not supporting lithium.*" There were years and years of posts complaining about how Toyota wanted nothing to do with lithium. The spin was claiming was they were too dangerous for automotive use. Countless times I pointed back to that original presentation that pointed out the reason for disinterest was production cost, the technology was simply too expensive for the vehicle to be profitable. It was frustrating how the contents of that presentation were taken out of context and twisted to make it look like Toyota was afraid. And for him to call me delusional, exclaiming that none of those debates ever too place... Grrr! Needless to say, I was quite upset. His behavior is quite typical. It was clearly an unwillingness to accept change. He discovered he made a mistake and that was his effort to cover it up. Saying that never happened is the expected defense. This is why I like having these personal logs so much. They document what actually happened. Denial like this is how history ends up repeating itself. People convince themselves it simply wasn't possible, that the person pointing it out is incorrect... or in this situation, delusional. Ugh.
- 5-11-2016** **Think About.** It's annoying to read posts starting with this: "*So Toyota was myopic and could only see as far as...*" then going on to end with this: "*That would have really affected sales.*" That came from the other big criticism of the upcoming Prius Prime, the 22-mile EV capacity. Arguments have been that Toyota should have designed a platform able to carry more battery. There's a strong belief of more being better, that twice as much would result in huge demand. It's the very same trap GM fell into with Volt. Fulfilling the daily commute (with complete disregard for any driving other than to & from work) using only electricity is supposedly a necessity. That means it is acceptable for a great deal to be sacrificed to achieve that supposed requirement. I think the pressure to deliver more originates from the feeling of being left behind. It's our polarizing belief that there can only be winners & losers. Simply running a sustainable business is so boring & unappealing, it's not even considered an option. That's why enthusiast publications don't pay any attention to ordinary vehicles like Camry & Corolla, even though those are what a lot of people purchase. Building something for the middle, something that won't stand out isn't given the attention it deserves. Sadly, there isn't much to do about that other than point out the thinks to consider: It would be short-sighted to deliver a design unable to be sold profitably without the tax-credit. I see the effort to share a common platform as attempting to strike a balance to achieve high-volume sustainable sales. Think about the limited number of tax-credits remaining. Think about what happens in just a year or two when the plug-in boom hits. Think about what happens to those dependent upon the subsidy.

5-12-2016 **Family Car.** There's a demographic being overlooked still, those who want a Prius but don't really want a *family* car. That's a lot of people to forget about. I've tried to point out that omission. You'd think such a massive exclusive would get noticed. Turns out, it hasn't been. There has been an obsession online with Prime's lack of a middle seat in back. So far, that's been great publicity for Toyota to draw attention to the fact that a new Prius is on the way. Simply remaining unknown could be a major problem. Volt suffered miserably from that. Enthusiasts desperately cried for GM to promote Volt more, to the point of continuously complaining about the lack of advertisements. They too got obsession... with the wrong thing. Do we really need the 5th seat? That's been thought of as a necessity for purchasing, but all the reasoning has been presented as a want. Having a small spot for squeezing in an extra passenger for short drives is handy. No doubt there. Problem is, that distorts the "*family*" car reach. It implies only families will buy it. That stereotype is harmful. Toyota knows this. They are well aware that DINKS (dual income, no kids) households, people who are single, and people who are retired have interest in a vehicle like Prius too... but don't want the associated reputation for hauling children. Think about how stigmatized the minivan became. Prius was beginning to fall into that same type-casting trap. It should be easy to see that Prime is an effort to diversify. So far, that hasn't been the case... or has it? Offering bucket seating in back rather than the generic bench of a "*family*" car highlights an obvious difference. I've struggled a lot with outspoken daily posters having little to no business backgrounds. That was my minor in college. Besides the accounting classes, I also took economic & marketing classes. No my surprise, those was quite enjoyable. Little did I know back then that the analysis & design studies for my major to become a software developer would be complimented so well. I learned decades ago that engineering skill alone was no where near enough to achieve success. Business is more than just important, it's vital. Know your audience. Recognize the benefits being different can offer. Find a way of offering it without compromising the balance. That's exactly what Toyota is striving for with Prime.

- 5-13-2016** **Change.** If you push, you get labeled as a "troll". If you accept, you get labeled as a "hypocrite". It's a lose-lose situation. No matter what you do, there's no way to win. The situation can be very frustrating. I went through that quite a number of times. What kept me going was the opportunity to witness "*lashing out*" events, those times when an enthusiast is proven to have made an error, then become desperate to justify their position. Rather than join the rest of us, we watch excuse after excuse getting posted. When that eventually fails to get them out of the corner they backed themselves into, the messages turn from reasoning to attacks. They make it personal, posting anything they can think of to draw attention away from them onto you. That fails after awhile too. It gets to the point where we have arrived recently with Volt. The years of personal logs documenting the inevitable downfall have revealed the "*that was the plan all along*" attitude. You must choose to accept the obvious misrepresentation or accept the consequences of staring new pointless battles. The war is over. Nothing can be gained from further engagement... except... learning from that history to prevent it from happening again, again. Remember Two-Mode? They didn't. It's why I could proclaim the inevitability so long ago. I simply recognized the pattern. I look back, reading through my own documentation of what happened in those years long past. I've been able to recognize true change and distinguish it from false hope through seeing those similarities. Notice the complete abandonment of Volt in favor of Bolt? That's exactly what happened with Two-Mode when Volt was introduced. A major effort to "*out Prius*" the competition, at the expense of alienating partners, failed miserably... twice! That's why there was so much resentment toward me. I didn't ever need to say "*I told you this would happen*" for them to act as if I did. Just my presence alone was a painful reminder. Change isn't easy. Hearing about its need can be inspirational for some and painful challenge for others. The key in both is a persistent effort and a clear understanding of goals.
- 5-14-2016** **Yeah!** It's so rewarding to come across an ordinary post like this: "*I drive 100% in the NORMAL mode now. There was no difference between the first month in ECO, and the second month in Normal. And my car seems to perform better in NORMAL.*" It was from new owner trying to figure out what his new Prius has to offer. I joined into the discussion with: ECO provides a gain for temperatures on both ends, not in the middle as you have been experiencing. In the north, during true winter driving (daily highs under freezing), there's a noticeable improvement. ECO alters the coolant threshold, directly affecting when the engine runs for the sake of providing occupant warming heat. ECO also has an influence over the A/C system for occupant cooling. Keep in mind with a new vehicle, there's an efficiency influence caused by break-in. Your observation of ECO first, then NORMAL, could have had a cancel-out effect. In other words, anecdotal observations present challenges. If you want to learn detail about how the hybrid system operates, purchase an aftermarket device. There's a wealth of information available through the OBD-II port. You can watch a wide variety of quantitative data using your smart-phone or a dedicated reader. Simple things like RPM and temperature of the coolant can tell you quite a bit about how Prius achieves such great efficiency while also maintaining an impressive level of emission-reduction.

- 5-14-2016** **Caught Greenwashing.** This particular individual comes on the big Prius forum to promote Volt. That purpose is obvious. He freely admits his loyalty. The catch is, his messages are posted with the intent to mislead. I caught him greenwashing today with this: "*The Volt hasn't suffered the same range degradation as the Leaf, I think largely because it's liquid cooled as opposed to air cooled that the Leaf uses.*" I was pleased to respond to his deception. My guess is he won't, instead, choosing to just ignore it and hope the attempt is buried by other posts. I won't forget. It's easy to look up those quotes later. That's handy when you want to reveal the greenwashing. The pattern of attempts without responses upon being caught speaks for itself. My post was: That's a misrepresentation of battery-management. Cooling is only part of the equation. A factor that's actually more significant is the SOC (state-of-charge) usage limits. Avoiding recharge levels too high and depletion levels too low really makes a difference. GM set Volt's at 87% for the high and 22% for the low. Nissan set Leaf's at 95% for the high and 2% for the low. That choice to push the battery so much harder has proven to have significant consequence... something you failed to mention. We really need to make an effort to not spread incomplete information like that. By the way, the choice for Toyota with Prius PHV was to set the high at 85% and the low at 23.1%.
- 5-14-2016** **New Approach.** The topic of style is interesting. It hasn't been given much attention in the past. Prius was so different, it stood out. That was the end of discussion. No depth ever came about. Style posts were brief, drawing conclusions with very little consideration. The reveal of Prime has changed that. Rather than just a plug-in model coming about as a package option, Toyota took the next step. That's a cost-reduction not taken advantage of. But this plan for national rollout is 5 years later. The market has changed quite a bit since the first generation. This second generation will offer new twists, which bring about new comments like: "*I can't get excited by the carbon fibre or curved rear window, but who knows, maybe that will attract...*" New is what we want, as I explained: Toyota wants to draw in buyers outside of the usual Prius interest. Making Prime different enough to stand out, yet still deliver on the Prius fundamentals, is the point. With a goal of phasing out traditional vehicles, you can't just keep following the traditional approach. This isn't a matter of conquest sales from other automated. It's trying to figure out how to get Toyota's own traditional customers to now choose their hybrids.

5-15-2016 Gas Prices. They are really low. We're seeing a struggle with sales of clean & efficient vehicles as a result. A recent article published stirred a new discussion. I took advantage of that opportunity to climb up on the soapbox:

The business choice of not rolling out Prius PHV further, limiting it to just the 15 initial states, then ending production without any word of future plans caused quite a stir. Some people absolutely refused to accept the reality that a much-improved successor would follow, labeling Toyota as unwilling to support anything with a plug. Their greenwashing efforts, based on nothing but anecdotal evidence, was relentless. It was a sign of industry change and the inability to deal with it. They made up excuses to feel better.

Since then, we have got confirmation that there was indeed a much-improved successor on the way. The conclusions drawn based on just observations of the automaker alone were proven incorrect. The problem was as stated, the market has changed. That new audience would be even more difficult to reach. This article about some hybrid owners switching back to traditional vehicles highlights the problem isn't just how to get people out of traditional vehicles. There's a step backwards occurring.

Personally, I'm really annoyed that so many Volt enthusiasts fought against me, claiming traditional vehicles were not the competition. They were wrong, very wrong. So much time & effort was wasted trying to prove they wouldn't impair sales. They claimed battery technology would improve to such a degree, sales would grow. Nothing else mattered. They'd dismiss evidence to the contrary. Heavy dependence on tax-credit subsidies and the hope of higher gas prices was what they focused on.

They why I focused on Toyota's goal of cost-competitiveness. They never gave into GM's approach of striving to deliver more EV by making tradeoffs. Wandering too far from the purchase priorities of mainstream consumers means a struggle to sell... which is exactly what we've seen with Volt. Low gas prices and the effect that has had on the hybrid market make that rather obvious.

Think about how Toyota was able to share the Prius platform with Prime to keep cost low. How much battery-capacity could be added without raising the floor and having to find a location for the charger without using the middle seat? You wouldn't get much, but we've all seen how much of a space penalty there is for offering a lot more.

Toyota's choice to use a little more space, but require major inconvenience is what we'll be getting. It will be something to entice buyers to take a closer look. That little bit of compromise provides a reinforcing effect, reminding the owner of their choice to not just succumb to low gas prices. It's basically a tiny ego stroke... which is exactly what Prius has provided for the past 16 years.

Something new was needed in this market now facing a saturation issue. Traditional vehicles offering interior features that had once been exclusive to Prius means offering a new draw. 22 miles of EV is just enough to satisfy without increasing cost substantially. It's just enough to make those considering the purchase of a traditional vehicle to take a closer look.

- 5-16-2016** **Surprise.** What comes to mind when you read this: "*Ordering sight unseen can be a surprise.*" I was intrigued. What did he actually mean? Unfortunately, my post didn't result in anything. It was essentially ignored. Knowing the poster well, I knew that point made was received. He didn't have anything noteworthy. It was just a gut reaction. People often do that. It's often the nature of online comments. Constructive exchanges are much more of a challenge. Though, I continue to try: Nowadays, a great deal of research can be done online. Heck, consider how much video footage is available, filmed by owners, supporters, and enthusiasts. There's a wealth of articles & reviews that are easy to find too. I would think just about everything, except what the test-drive experience reveals, can be learned unseen (not in person). Of course, even knowledge of some aspects like acceleration, handling, and comfort can be obtained vicariously. What would you anticipate as potentially a surprise factor?
- 5-17-2016** **2,000,000 Problems.** This is a really big oops.... or was it? Supposedly, there was a clerical error of some sort that resulted in the window-stickers for the 2016 model-year of 3 large GM vehicles to state MPG incorrectly. The mistake showed much greater efficiency than the vehicle actually delivered. In other words, customers didn't get what they paid for. That left a number of watchdogs suspicious. How could that have happened? It was especially perplexing by the fact that nothing had changed between the 2015 and 2016 production. Things just plain didn't add up. Well, turns out, the previous years were wrong too. So, whether or not the resulting information was intentionally wrong or it was accidental really doesn't matter anymore. There are roughly 2 million customers who will be expecting some form of compensation. Think about how many gallons just a few MPG difference makes when you're driving a monster-size guzzler. That's a lot of problems to deal with.
- 5-18-2016** **Anti-Hybrid.** My frustration hit a tipping point. I'm tired of this particular individual. He's an EV owner (a purist) who turned antagonist. This is what pushed me too far: "*The reason Tesla, and other EVs will continue to grow market share while hybrids remain stagnant is hybrids are a one trick pony. The only unique advantage they have is fuel efficiency.*" Post after post has been denial, contradiction, and pessimism. I let him have it, intentionally making it personal: Your dismissal of hybrids in favor of EV never ceases to fascinate. You simply refuse to acknowledge change. Toyota just rolled out a much-improved Prius and will be rolling out a new plug-in model later this year. That alone is a wake-up to the market. They just entered the small SUV hybrid market too. What about that? Then there's the fact that VW diesel owners thrive on efficiency (and supposedly being clean) who will be looking for replacement vehicles. We have new players joining in too. Hyundai, Chrysler, Mitsubishi all offering new hybrid market choices. There is also the economic factor of EV providing an endorsement effect for hybrids. Those who still believed rechargeable batteries weren't good enough for automotive use will finally see they are. In other words, stop being so anti-hybrid. You're not doing any good by disregarding so much recent change.

- 5-18-2016** **Acceptance.** He fired back, attempting a counter-attack by implying I was being hypocritical: "*As for refusing to acknowledge change, that is a very interesting charge from the person who lambasted GM for making a 4 seater, yet applauds it when Toyota does it.*" I found his cherry-picking an dead-giveaway. After having been through this very thing with him several times already, it was quite clear he wasn't going to accept anything presented. So, I just posted what I felt others would learn from this exchange: Ironically, I changed my stance and you continue to refuse to acknowledge why. I accepted the 4-seat reasoning, then moved on to leg & head room. Portraying me as hypocritical for actually accepting the arguments of others is not constructive. I changed. Why can't you accept that? Why stay stuck in the past? The misrepresentation does not advance discussions. You learn something, then accept the change.
- 5-19-2016** **Get Over It!** His choice to make it personal, calling me out but not wanting to accept the facts presented left me at the podium. So, I kept on posting: Another thing you are refusing to acknowledge is the fact that Volt's audience has changed. It was originally marketed as a mainstream vehicle, something for families of all types. As the years progressed, the market changed. It became a specialty vehicle, targeting a more narrow audience... one that 4 seats is fine for... which is why my "*lambasting*" ended. Toyota is targeting that 4-seat audience with Prime right from the start. It's a vehicle different from Prius, not just a plug-in model as PHV was. Heck, Toyota even stated it was for the grown up family, who's children are not older. Those children will be driving sometimes, no longer in a carseat or bringing along a friend to squeeze in back. That comfort and the extra tech-features are not what you'll find in a regular Prius. Again, I tired of getting labeled as hypocritical by omitting detail which shows that's not actually the case. Things change. Look at how different the audience is no compared to back when the gen-1 vehicles were first rolled out. Get over it!

5-20-2016 **42 Miles.** I had a lot of driving around to do. So, I figured... why not do some "*stacking*" last night. That's something I had only done while on vacation, when there's no opportunity to plug the Prius in. It's something not encouraged, since not doing it properly will cause MPG to drop. The technique is simple, you push the EV button whenever you are slowing down. The purpose is simple, to recharge the battery pack. That same recharging would happen anyway, regardless of whether or not you take advantage of the button. The difference is, the electricity generated while still in HV mode is later consumed in HV mode. While in EV mode, the electricity is saved for when you designate it should be used. That comes in handy if you know for certain you will be in a situation that is best served by EV. If not, you actually miss out from the opportunity to have the engine join in. Consequently, overall efficiency will be lower. Remember, Prius PHV is a plug-in hybrid. The engine is there for a reason... to reduce emissions & consumption. It's goal is not to eliminate gas use entirely. Only-Electric has tradeoffs. Balance is better. That's why Toyota only reports EV miles driven as EV values. The HV values include electric-only driving. (We've been calling that "*stealth*" mode for the past 15.5 years.) Anywho, that's what I did today. The results certainly were interesting. From the 2 charges for the day, the result was 88 MPG. Total distance traveled was 86.8 miles. EV miles was 42. For HV, it was 43. You add those up, it only comes to 85. The reason is simple, Toyota truncates the value. That EV was literally only 100 feet or so short of the incrementing. I was carefully watching the odometer. But I wanted to reach my garage with 0.1 EV still remaining, I could take photos without outside glare. Also, my camera was in the house. Needless to say, 42 is well above the expected 22 miles. That's 21 miles of EV between plugging in. It confirms design can deliver, it used well. Of course, the 88 MPG speaks for itself anyway. Heck, even with mindless driving, an average of 70 MPG would still be far better than any traditional hybrid could deliver.

5-21-2016 **Who?** I decided to ask that question of GM about Toyota, clearly showing favorites are not being played. To make that point stand out, I made it in the form of a rant: Why have Volt sales been such a struggle? What makes the particular capacity of 53 miles a draw? Why have both enthusiasts and GM itself moved attention to Bolt instead? There are an abundant number of simple excuses available as answers to those questions. We've seen countless debates over the years. All provide reasoning. None reach beyond enthusiasts though. Appeal to ordinary consumers isn't a matter of logic. For that matter, it isn't a decision based upon emotion either. There's a very real problem of stirring interest. Desire from dealers to offer plug-in choices is extremely low. Why? Not even being able to overcome that hurdle means the customer base will remain enthusiasts only. For a mainstream consumer to even consider a purchase, the vehicle must be readily available. Seeing it on the showroom floor, then being able to immediately go for a test-drive is priceless. That's how sales to ordinary people happen. This thread claiming DOA doesn't address that. Why is such a fundamental principle like that still being overlooked? Toyota's decision to deliver a system "*only*" offering 22 miles actually addresses the issue. You'll get full EV performance that's easy to understand, but won't have to bother discussing EV support. With a pack that size, there's simply no need for a level-2 charger at home. Salespeople can simply point out that faster charging is available, but the 120-volt outlet in their garage is already enough. Nothing else needs to be said. Intimidation, Anxiety, Uncertainty, Skepticism, Concern... they are all dealt with entirely. It's a no-worry sales pitch the customer won't have any reason to question. Prime won't be a plug-in model of Prius either. There are obvious stand-out features, extras no available with Prius. That makes it even more of a draw. True, that will obviously compel some interested in Prius to purchase a Prime instead. However, Prime will also stir interest in some who aren't interested in Prius. It's complimentary product, rather than competing. I wonder why some people don't see those qualities of Prime. My guess is they are quick to judge, unaware of all the factors actually at play. Since many were not paying close attention to the market until recently, that seems a reason thought. After all, if you aren't interested in a purchase soon, why would you participate in discussions? You'd have to be a supporter of the technology... which means you aren't an ordinary consumer. Who is the market for Prime?

- 5-21-2016** **Downplaying Chargers.** This is a very real growing problem: *"Installing a 240v outlet and buying a L2 EVSE is easy for the consumer when they contract out the work. The cost is relatively low compared to the cost of a new vehicle."* Those deeply involved with the EV market forget what it's like to be part of the mainstream. That ordinary consumer perspective is lost. It's really unfortunate. The reminders of that doesn't always go over well either. Today's attempt may or may not. I'm really not sure what the response to this will be: Know your audience. Mainstream consumers will not in any way consider that easy. It's an expense with a very uncertain price (house wiring varies dramatically) and requires the effort to choose which 240-volt charger to actually purchase. That option will not interest KISS buyers. Think about how difficult just the decision of which vehicle to buy is. The last thing we want to do is add an intimidation factor by introducing plug complexity. We have much to do to get ordinary people interested in L2 charging. It's just not realistic for the masses yet. That's the reality of the situation now. Hopefully with Gen-3 offerings, the audience would have changed. Currently, we're stuck with the idea of plugging being far too new still. Starting with 120-volt is a simplicity Toyota plans to take advantage of. Think about how routine daily plugging in was 5 years ago. People would go days between charging their phones. Not anymore, the big screens and data services drain the battery quickly. Plugging in not only has become an ordinary thing to do each night, many people now are taking advantage of wireless pads to recharge during the day too. Patience.
- 5-22-2016** **Exploring Options.** Hopefully, this will stir some constructive messages to be posted: It will have been 19 years for Prius since introduction. Prime will provide a means of the trying something new, finding out what this new "battery centric" market will buy. You want practical? You want a 5th seat? You want a plug-in hybrid? Purchase a Prime version of Camry. Think about the full-size market. What will other automakers offer? The business must expand. Sales will come from a variety of buyers. The configuration of Prime is an effort to explore options.
- 5-23-2016** **9,000,000 Hybrids.** What else needs to be said? I summarize it with one word: *"remarkable"*. Toyota shocked the world back in October 1997 when it revealed Prius, telling everyone that was a production model that would be ready to begin sales late that same year. The other automakers were working to deliver prototype high-efficiency vehicles in 2000. Toyota beat them to market by such an extreme, they were left baffled. Sales did indeed begin in December 1997. The first upgrade was rolled out last August 2000, again beating the other automakers to market... all except Honda... who struggled. Ford did too. GM gave it several tries. Others joined in eventually. Nothing has compared to the success of Toyota though. Today, it was revealed that 9 million of Toyota's hybrid systems have been sold worldwide. Think about how many that truly is, especially the number of models. So many choices. Heck, just Prius alone offered quite the variety. But that pails to the upcoming potential. The system is well-proven already in larger vehicles. Highlander is the premiere platform for power. RAV4 is smaller and sales are starting out really strong. Someday, a Prime model may compliment it. Think about how popular the Mitsubishi Outlander has been over in Europe. Imagine something of that nature here. The improvement of adding a plug & clutch along with a larger battery-pack will be demonstrated later this year. The expectation of growth in the hybrid segment is quite promising... well, for Toyota anyway.

- 5-23-2016** **135,000 Payments.** Strangely, only 135,000 of the 2 million GM customers with incorrect window-stickers will be getting compensation. That sounds wrong. How could so few be the only ones? Whatever the case, the payments going out will range from \$400 to \$1,500 each. Will that be acceptable? I suspect owners will just accept that money without question, since gas prices are still low. Later on, the vehicle could become painful to fill. It's hard to tell what the future holds. Resale value dropped. This will just turn out to be another note in our history of guzzling. We've seen other automakers with similar misrepresentation problems. Hyundai, Mitsubishi, and Ford examples would be significant... if it wasn't for VW with the diesel not only misstating MPG, but also being much dirtier. I guess we can be grateful none of the others had that problem. It's too bad stuff like this happens. No wonder Toyota understates. It's better for customers to discover MPG averages are actually higher rather than lower what's stated on the window-stickers.
- 5-23-2016** **Stop & Slow.** It was a refreshing change to discussion commutes today: *"I hated driving the miata in stop and go traffic. Leg pain unbearable after a while. Prius is a pleasure in that department."* Contributing to that was a pleasure: The unfortunate greenwashing effort currently at play, attempting to undermine the success of Prime, is to disregard the benefit in stop & slow commuting. They spin it to make people believe EV range must cover the entire commute to be effective. In reality, there's a huge payoff where highways intersect and where bridges cross. It's a nice perk to have EV for full drive. But the 50 MPG without plug-supplied electricity is far more than what others get when cruising. And the 999 MPG when stuck in that heavy traffic from intersections & crossings is fantastic. My commute includes recharging at work. That makes my capacity now in the PHV equal to what it will be with a single charge in the Prime. Averaging 125 MPG currently is great. How can that not be a selling point for Prime? Of course, I'll continue charging at work. The 85 kWh solar-array is great for that. It will bump my entire commute to that 999 MPG.
- 5-24-2016** **That New Look.** This was exciting to post: I saw my first commercial use of a gen-4 today. It was white, wrapped with the business's logo. That looked nice. It certainly wasn't the plain business car you'd usually see. Think about how *"not normal"* the regard for Prius has been over the past +15 years anyway. Why not push the styling further into the unique category. That's where the industry is going. Notice how front & rear lights are rapidly taking on distinct looks? Heck, the EV will no longer have a grille, which was only cosmetic to make it look like other vehicles. Think about how boring the SUV has become. The small ones all basically look the same now. What's the draw to that? The age of *"normal"* is coming to an end. Hooray! I miss decades ago, when we saw the same cycle from blah to whoa. This time around though, there's fancy technology too.

- 5-25-2016** **Great News?** This was addressed with mixed feelings: *"The Toyota Prius has just netted the best gas mileage of any car in Consumer Reports' history. The influential product testing magazine netted 52 mpg overall on its test cycle, a huge improvement over the last generation's already parsimonious 44 mpg."* How their testing could result in such low MPG over the years had us scratching our heads. The thought was they did a lot of hard-accelerations and braking too hard to allow regenerating. The system wastes gas when you drop the pedal to the floor to get going and goes straight to the discs when stopping abruptly. True, that is proper validation of system potential, but in no way representative of actual driving conditions. An owner simply wouldn't experience those conditions... which is why they observe so much high MPG. With this newest generation of Prius, that still holds true. However, results from testing aren't as low anymore. Toyota took that type of driving into account too. The report published today clearly confirmed that. 52 MPG is still rather misleading. But knowing owners will get even better is nice and the published value is appealing to those not as well informed. However you look at it, you'll see the news all over. It was a very popular topic online today.
- 5-26-2016** **Cost.** I'm tired of the nonsense. This should speak for itself: The shortcoming with most EV promoters is they aren't able to focus on COST, yet... which forces them to just accept current PRICE with heavy dependency on tax-credits instead. COST determines successful sustainable sales that actually delivers a profit. That's vital and certainly not taken seriously, yet. Take a look at the COST numbers. Best case scenario is \$145 per kWh. Most realistic efficiency is 4 miles per kWh. That works out to \$3,625 for the cells delivering 100 of range, with no longevity buffer. Accounting for a usable capacity of 80% means adding another \$900 to the COST. There's also the need to add COST for the casing, connectors, controllers, and cooling. Who knows what that comes to; lets say roughly \$500. In other words, the COST of 100 miles is somewhere in the neighborhood of \$5,000. That COST makes the 200-mile EV unrealistic for reaching those without disposable income available. The 100-mile EV has a market. Those without the long-distance requirement would choose to pay less.
- 5-26-2016** **Window Sticker.** Ugh. Knowledge from the past sometime isn't passed on. The means of doing that can be a challenge. Of course, if you read blogs like this, there's a chance of preventing mistakes from being repeated. The other hope is to not waste time on ineffective attempts to educate. Sadly, we've learned that mainstream consumers do very little research and are prone to quick decisions with important matters... like purchasing a vehicle. The good intentions of those online often fall apart upon first attempts to share. The short attention-spans and lack of background-knowledge prevent much progress. In other words, the selling of a vehicle like Prius to an ordinary run-of-the-mill buyer is a touchy matter that's prone to failure. That showroom experience should not be ignored. Salespeople have little opportunity and little incentive. At least with Prime, there's a chance of enticement by suggesting a test-drive. We know that Prius often wins the heart of uncertain buyers once behind the wheel. EV should make it easier to stimulate interest. In other words, don't expect much searching or study to take place. I pointed out the problem this way: Know your audience. People don't read the fine print on the window stickers. It already points out results vary based on driving conditions. What would get them look at more information? A major contributor to the problem is they don't understand the factors at play, so providing additional data won't accomplish anything.

- 5-27-2016** **Core Functionality.** I really like reading posts with comments like this: "*...the Prime is giving us a bit more (and better) AER, but at the expense of doing exactly what the PiP didn't - compromising core functionality.*" In other words, some don't deal with change as well as others. It seems a confusing mess. That often comes from groupthink. You fail to see the bigger picture as a result. That narrowing of scope comes about from the need for clarity. Unfortunately, that can me purpose is forgotten as a result of getting side-tracked by smaller goals. That's why stepping back to consider things like core functionality are so important. However, those can be forgotten too. I provided a reminder: That's called not understanding purpose... which is interesting, since the problem is usually not understanding audience. Anywho, availability of short-term middle seating was never on the priority list. That higher & harder cushion wasn't sighted as necessary. It was a "nice to have" though. Prius focused on need. The fact that it also delivered a few wants is what pushed it into the mainstream and kept it there... profitably, without any special incentives. Core functionality was: Reliability, Affordability, Clean Emissions, and Great Efficiency. Later came the ability to transport cargo much larger inside than you could using a vehicle with a trunk. All that still holds true.
- 5-28-2016** **Garbage.** Sometimes, you just have to call it like it is. Upon reading this, I felt empowered: "*Considering how far the Volt has come in terms of battery size, packaging, and cost, what we were shown at the unveiling of the Prime was disappointing. For a battery pack of less than half of the capacity of the gen2 Volt's, the Prime appears to have the same level of compromises.*" As usual, it boils down to who. The consumer may see a great deal in the short-term, but once those incentives, how will it sell? I jumped at the opportunity to sound off: What kind of load of garbage is that? Volt doesn't stand any chance of competing against traditional vehicles without tax-credit help. Profitability from a vehicle offering a battery-pack that size just plain isn't realistic. Volt is smaller on the inside and doesn't get as gas depleted efficiency either. Prime's configuration will allow consumers even with a long commute to take full advantage of the power & capacity its battery-pack will offer. And for out on the open road, depleted efficiency will be outstanding. 8.8 kWh pack will cost much less than the 18.4 with liquid-cooling. The Prime hybrid system will benefit from a number of components shared with Prius. It's a formula with business sustainability in mind. You can spin "*disappointing*" all you want. Consumers shopping the showroom aren't going to bite. In fact, they won't even know about the claims of much greater capacity expectations even existed. Some of us hoped all along Toyota would stay true to principle, not sacrificing affordability for the sake of catering to a want. Toyota's fulfillment of need has been a principle approach for decades. We've seen that with Camry, Corolla, and Prius. Why should Prime be any different?

5-28-2016 **Hurt.** Disenchantment comes in a variety of forms: *"It's obvious prime is intended to attack a new audience, one that is unfamiliar with pip hatch space and rear seat. it's just disappointing to long time prius/pip buyers who have supported Toyota's effort. Ah well, you always hurt the one you love."* That's an effort to remain constructive, but an expression of expectations not having been met. My reply was: Having been a supporter of Prius prior to the United States rollout, back when original model evaluations from survey families and media reviewers was all that we had available (that's 1999 for those unfamiliar with the history), I had very different expectations. I studied the market in great detail and actively interacted with the influencing factors as it progressed. This will be the 6th major upgrade to the platform, with respect to the battery. It started with the D-cell batteries (gen-0). Then came along the prismatic packaging upgrade (gen-1). A much improved cell & pack arrangement (gen-2). Toyota then figured out how to do even more with less, by reducing voltage and introducing a booster (gen-3). Following that was switching to lithium (gen-4). Then, capacity was increased and a plug added (gen-5). With this rollout in the fall (gen-6), capacity will be increased even more, allowing much more power to be delivered for propulsion. Each upgrade always strived to keep cost down. It was a top priority. I never had an expectation of the dramatic increase in EV range others had recently hoped for. The history simply didn't support such a change in approach. Cost would be prohibitive. Does a parent expect a child who as always put a great deal of emphasis on being financially responsible to abandon those principles at some point? Even when they grow up, look much different, and perhaps not be as practical as in the past, there isn't a belief that change will alter purpose. That may *"hurt"* to see the change, but the ultimate goal remains the same. Prime is designed to attract mainstream buyers. It's not a Prius with a larger battery-pack and plug like PHV was. It's that child venturing out on their own after having completed his or her education. Some old friends will remain. Some new friends will be made. The next step is being taken away from *"home"*. Love hurts, eh?

5-28-2016 **Safety.** This was particularly exciting to post: Read through all the posts of this thread again. At some point, a factor of consideration still not taken into account should be noticed: * * SAFETY * * How so many for so long could neglect such an important aspect of vehicle design boggles the mind. Think about the number of decades it took before automakers were required to add a shoulder-restraint for the middle passenger in the back seat. For that matter, how long did it take before even just lap-belts were required? It's really sad that safety is rarely considered. The topic of safety is sometimes fought too. Anyone remember all the hoopla there was with the resistance to providing airbags? With the case of Prime, it makes sense that it is testing consumer reception to the idea of not providing any type of seating in the middle anymore. The possibility of upcoming new regulations from NHTSA requiring safety features for all in sitting back could really add cost to the vehicle, especially with the unique problems a seat in the middle introduces. A low rating hurts sales too. Personally, I cringe at the idea of a side-impact where the middle passenger is crushed up against the other 2 sitting in back. It's unfortunate some will think of this as a scare-tactic for the sake of justifying an approach, but nonetheless, the topic is something to consider. Until now, no one has. This thread serves as some proof of that. Avoiding safety issues & costs by sticking with 4 seats makes sense. It puts Toyota ahead of the rest by embracing the idea early on too.

- 5-30-2016** **Being Competitive.** I posted the following sentence in response to an antagonist who absolutely refuses to acknowledge the true competition: Not liking Toyota's goal of delivering a design capable of competing directly with traditional vehicles once the tax-credits expire... which will be mid-cycle... is no excuse for not accepting it. He's one of those who still holding onto the gen-1 banter. He thrived in those discussions and this new market doesn't support that same outlook. Change doesn't come easy for some. It's also more difficult to see, sometimes. For example: *"Comments from Toyota on the elimination of the fifth seat were for keeping weight down and efficiency up. The required structural and suspension changes for that fifth seat would be a small cost compared to the battery and charger."* He's so fixated the immediate issues, understanding new challenges isn't being taken into consideration. I gave him a gentle nudge: Did you miss the post about safety? NHTSA has been considering the introduction of rating measures to indicate the safety of rear occupants. Squeezing 3 adults in back is far from just a rare event when it comes to services like UBER. Those passengers are touching hips & shoulders and have a good chance of smacking heads in the event of an accident. Who's liable then? Insurance companies want to know the level of exposure each vehicle poses. This new topic of rear safety is something Toyota would already be well aware of and could very well be using Prime as the vehicle to test out consumer reaction to elimination of the sub-standard middle seating we've all become accustomed to. Think about the cost of that safety. Is it really worth it in a non-fullsize vehicle?
- 5-30-2016** **Audience & Goal.** It's becoming easier to respond. Reasons for choices are obvious, at first. Given time and an open mind, they can be seen though. I found this interesting: *"If you listened carefully to the launch event comments, it seems the Prime is a Prius intended for well-heeled Toyota hybrid fans who want to set themselves apart from both the rabble in the C, v, and LB on the one hand, and the fogeys driving Avalon Hybrids on the other hand. I can see how marketers might have talked themselves into this, but can anyone really think all that's going to translate into a big win in the marketplace?"* Coming from a hybrid fan whose expectations were not met, I was intrigued to find out what kind of reaction I'd get from this: Simple, Prime is not for hybrid fans. The launch event was for hybrid fans. Misunderstanding market is easy when you don't take audience into account. Expansion means reaching out to new buyers. The ordinary mainstream consumer hasn't said anything yet, since Prime isn't available. Their opinions won't emerge until after rollout. When pricing and test-drives are available, then their judgment will begin. Repeating the same formula for Prime as Prius or any of the other hybrids won't result in growth. Being able to appeal to new customers requires trying something different. Remember, the ultimate goal is to replace traditional vehicles with clean, high-efficiency choices.

5-30-2016 Hybrid Fans. The latest spin is to make claims of disappointment, but evade any type of audience identification. The who is stated in terms of a stereotype, rather than any particular individuals. It's the generalization we've seen with all the other generations: *"Compared to the Gen4 LB, the Prime absolutely delivers less of everything that today's conventional car buyers want in a car (passenger space, cargo space, likely affordability), and more of what today's "hybrid fans" crave (MPG, true AER, techno whizbangery)." Change doesn't come easy. This is yet another example. Oh well. What can you do? I deal with it this way: Simple, again. You're falling into the same trap countless other have done over the many years Prius has been available. You're assuming buyers are unwilling to accept any type of change whatsoever, that the word "compromise" means giving up something rather than seeking a balance. There are quite a few consumers who expressed interest in a plug-in Prius, but didn't find the first offering compelling enough. They wanted more power and more capacity. That's it. There was no request for jaw-dropping acceleration or anything that could cover their entire daily driving needs under all conditions. They just wanted a souped-up Prius. In other words, they weren't really a "hybrid fan", since the purchase step was never taken. They were interested. Not becoming an owner left them as a traditional supporter though. They chose to remain status quo until something better came along. Prime is that something better.*

5-30-2016 Better. We got another ranting session from a gen-1 Volt enthusiast. Thank goodness the gen-2 enthusiasts don't act that way. In fact, most are quite civil and often work really hard to keep discussion constructive. As for this rant today: *"Still, the Volt, not being a traditional PHEV – does much better. Floor it at the stoplight on those short trips, and the gas engine doesn't ignite. As long as you have charge in the pack, you can drive worry-free that the gas engine will stay dormant."* I was beside myself about all else that had been posted. It was blatant greenwashing, surprisingly worse than some of the nonsense of the past. That goes to show how things have changed. Anywho, this is how I chose to respond: The rest of that post was loaded with misleading & outdated information... not worth the time to bother addressing. So, I selected just the one statement above to ask about: What is a *"traditional PHEV"* ? It simply appears to be just another way of referring to gen-1 offerings. The upcoming Prime matches that *"better"* criteria listed. What does that make it? The lack of clarity begs the question of purpose. What is it? Wasn't the goal originally to alleviate range-anxiety? If so, the 200-mile EV offerings have overcome that. So... what is the purpose now?

5-31-2016 **Greenwashing.** The effort emerged again. It was pretty intense too. There was an attempt yesterday to belittle the supposed Volt competition by calling them "*traditional PHEV*" offerings. In other words, Ford's Energi plug-in technology is making the news again. Remember how intense the initial rollout was? That brought out the worst in some enthusiasts, separating any of their activity from genuine supporters... since they turned to greenwashing. Subtle misleading turned into outright lies. The example today was: "*Plug-in Prius.....it didn't even have an EV-only mode, so conversation stops there.*" This followed: "*Prius Prime? Toyota decided to slap on an "EV mode" button, but it'll be limited similar to the current Ford Energi twins.*" From that point, it was hopeless. The message degraded into a vastly superior declaration, which concluded with: "*Consider yourself educated.*" It never ceases to amaze me how blatant some people become. They just plain don't care. Spreading information intended to deceive is just what they do. There's no moral basis for that choice anymore. They just do it. That's really sad. Oh well. At least it provides the opportunity to share detail about what the situation actually is. I posted: Huh? That's loaded with inaccuracies, claims that aren't the slightest bit correct. Way back in 2009, the EV-only mode was introduced for Prius. When you pushed the button, you'd get an increase in power over HV mode electric-only. It was limited to 25 mph though, since 1.25 kWh battery-pack had a very limited amount of power to offer. When the plug-in model Prius was rolled out in 2012, battery-pack size was increased to 4.4 kWh. That extra capacity provided extra amps, which resulted in a EV-only mode speed increase to 62 mph. When Prius Prime is rolled out this fall, even more power will be available from the 8.8 kWh battery-pack and a clutch to disconnect the gas-engine will be introduced. You'll be able to drop the pedal to the floor to accelerate using only electricity and the EV top-speed will increase to 84 mph.

6-02-2016 **No More.** There was quite a bit of trolling bait dropped today. That daily blog for Volt has become a discussion source for everything but Volt. Even so, there is still the constant belittling of Prius. That never ceases to amaze me how some people absolutely refuse to be constructive. So many others have moved on. Only a few stubborn antagonists remain. No more arguing. Debates when no where. I let them have it with this: Reality is, the market has come to an impasse. The 100-mile EV offerings have been eclipsed by the upcoming 200-mile EV offerings. All attention has shifted over to the longer range potential. That doesn't mean the 100-mile EV will vanish. It just means sales will only happen if they can be affordably priced. Right now, even with \$7,500 of tax-credit and HOV incentives, that looks to be quite a challenge. That situation puts the supposed EV competition in a very difficult position. If Volt really is to be the more desirable choice, it somehow must have a cost advantage. Current pricing hasn't proven to be a compelling draw. Sales of gen-2 are only modestly better than the average for gen-1. Enough battery-capacity to make Volt perform as an EV most of the time is expensive, both in terms of cost and physical tradeoff. Even if GM can demonstrate that 53 miles is enough and the size & weight aren't a penalty, the range needed combined with a full gas-engine and transmission sacrifices any competitive edge. Owners would have to drive with the pack depleted routinely to justify that premium. Why carry so much extra if it is rarely ever used? Other automakers are keeping plug-in hybrid battery-capacity lower to keep cost lower. You'll end up using the gas-engine more often as a result. But if the MPG is quite a bit higher than traditional vehicles anyway, the advantage is not lost. It's still competitive. Like it or not, Toyota is taking that approach with Prius Prime. It's not intended to compete with EV choices, despite offering full EV driving. Owners will see the battery-capacity being depleted entirely (no waste, since all is used), then watch the system switch to delivering 50 MPG. It's a business formula for survival after the tax-credits are gone. Think about how easy it would be to use that same approach for RAV4 hybrid, which is seeing strong initial sales. Notice how GM is attempting something similar?

6-03-2016 **Burning Desire.** Witnessing the change of attitude has been interesting. Loyalty to Volt has become a long, forgotten memory at this point. Even the most stubborn have abandoned it in favor of Bolt. They still like that plug-in hybrid, but it is now referred to as a great engineering achievement from GM proving electric-only is the way to go. The very idea of "*range anxiety*" is a distant memory of the past. There's no point of having such an elaborate approach when affordable 200-mile EV choices are no too far away. In fact, the wait is only 6 months now. Interestingly, it leaves Toyota well positioned. Understanding the purpose of Prius Prime will be so obvious, it will be a much easier sale than when Volt was confusing the market. Prius Prime will deliver 22 miles of strong EV performance, then revert over to a highly-efficiency hybrid after that plug-supplied electricity is used up. Looking to GM for comparison will result in comments like this: "*GM doesn't have a burning desire to sell that many Volts. The Bolt EV gets more ZEV credits and the tax credits are an issue. I'm not saying that GM wouldn't sell more Volts if the orders came in, but at this point there are downsides to higher sales. If the tax credit changes I think we'll see a different approach.*" That was from a former antagonist. Things certainly have changed.

- 6-04-2016** **Grocery Store.** I thoroughly enjoyed the opportunity to post this today: In less than 3 weeks, a giant new grocery store just 0.6 mile from my house will be opening. It already has 4 chargers available. I'll be taking full advantage of that, stopping on the way to work for a quick top-off of the battery-pack while picking up something fresh for lunch. That opportunity to plug in for free while shopping is a nice draw for people like me. Others will see there are plug-in vehicles in their own neighborhood. That sounds like a great way to promote the technology and attract business.
- 6-05-2016** **Step Back.** I provided some encouragement to give it a try: Realistically, just about here has the wrong perspective. They look at what they think is the big-picture by identifying the gen-0 thru gen-4 Prius models, Prius PHV, and Prius Prime. Then they compare to what other automakers offer. That overlooks a vital aspect of the market. Step back even further. What do you see? Most people have no experience at that scale. You need to have the type of career that involves projects which take a decade or more to really get established for you to understand all that's involved. For me as a senior software developer, I have to deal with many cycles of upgrades before finally reaching the intended audience. There simply is no way to go any faster with such an incredibly diverse and change-resistant set of users. In other words, the market is really at the "*just getting started stage*". Heavy reliance on tax-credits and the continued emphasis toward HOV privileges should make that obvious. Unfortunately, there's the "*criticism from within*" that's preventing the bigger big-picture from actually being seen. It's the belief of "*more is better*" that muddles thinking. Consider how long it took for most consumers to finally abandon desktop computers. The next step to portable devices seems so obvious. Yet, there was a major effort to remain status quo for a very long time. Think about just one aspect, hard-drives: spinning verses solid-state. Mainstream acceptance really isn't determined by just having enough capacity. In other words, more is not necessarily being better. Toyota has worked really hard over the past decade and a half to deliver a system that addresses the wide array of consumer preferences, attempting to strike the right balance rather than emphasizing any specific trait. Remember, mainstream buyers have little in common with those of us here.
- 6-06-2016** **Avoid or Acknowledge?** I tried to get the situation out in the open. It didn't work. The post was diverted, as usual. However, there is the reality of a new audience emerging. It's been interesting to witness the change. That daily blog for Volt has been everything but for almost a year now. The reveal of the new generation ushered in change. Whether they liked it or not, membership online would never be the same. Just like with Prius, new owners means some old owners don't participate anymore. In other words, I should stand a change of getting a different response from those remaining. It didn't work. The avoidance we saw in the past continues on. Ugh. Oh well. At least it's well documented of what was witnessed as the events were unfolding. Looking back at this unwillingness later certainly will be interesting. History is often seen as "*obvious*" when looking back long afterward. But as it's happening, the outlook is from anything resembling acknowledgement. There is some flat out denial still... despite the writing on the wall already. I returned to the discussion with: That has nothing to do with 2017 model production. The reason you're obviously avoiding is the limitation being heavily influenced by the number of tax-credits remaining. We've all seen how 200-mile EV offerings wrecked the "*range anxiety*" selling point. That puts Volt in an awkward position. The hope is to discuss next steps and proper setting of expectations. That won't happen without acknowledgement.

- 6-09-2016** **Clueless Salespeople.** It rather frustrating to find out that a salespeople has absolutely no idea what they're talking about. Rather than research how something works, they just make assumptions based on anecdotal evidence. They don't even bother observing it firsthand. Some literally just make up stuff based upon hearsay. Finding that out is quite disturbing. Here's an example of one such encounter: *"When we test drove the dealer cautioned me that using the adaptive-cruise-control in town that it will stop for the car in front of you, but if there is no car, it will drive you thorough a red light if you aren't paying attention! Do'h!"* Talking about not understanding how the system actually works. Ugh. Annoyed, I injected this into the conversation: That's an interesting misunderstanding of how the system actually works. I wonder if that assumption will turn into a misconception... The safety part (radar detection to prevent collisions) is always active, even when you aren't using the cruise-control. You do not have to turn anything on, ever. When you are driving around with the normal accelerator & brake pedal use through town, that protection feature is running. It's disturbing to hear about stories where salespeople don't have correct information. Spreading false beliefs, especially with a feature that's been available for years, is not a good sign. I've had mine, in my 2012 Prius PHV triggered several times from ordinary driving without using cruise. I remember the first in-town experience, when someone abruptly decided to hit the brakes to make a left turn. Another time was when a turkey jumped out in front of the car. In both instances, the system sounded an audible alarm, flashed a message on the screen, retracted the shoulder restraints, and applied the brakes. It was impressive to experience.
- 6-10-2016** **It Finally Happened.** The enthusiasts are now saying what I posted years ago. It's an agreement without acknowledgement. The problems I pointed out that Volt would have to deal with came to be. They weren't any profound prediction. They were just pattern recognition. Knowing that history repeats itself and seeing the same thing beginning again made that easy... to point out. To get any type of constructive discussion... not a chance. It was they didn't want to hear. So, I got everything from undermining to hostility in response. That's all over now. Phew! They see it now too. I posted the situation in today's daily discussion as: Remember all the warnings about focusing solely on great engineering? We all know we can create & build incredible vehicles. That doesn't mean they will actually sell well though. The continued struggle to achieve sales is further proof that the business aspect should not have been so neglected. It's amazing how negative the response was back when that same message was posted. Sure glad that perspective has changed. The underlying problem still exists though... how to sell more. I see Volt trapped in a niche. People simply aren't interested in a small, sporty car. We see the high demand for compact SUVs. Wouldn't it make sense to just leave Volt as is and focus new resources on delivering a plug-in Equinox using the tech Volt established?
- 6-10-2016** **Next Steps.** The response to my post was civil. How about that !?! Seeing the opportunity to capitalize on a seemingly constructive audience, I followed up with: 4,185 of the RAV4 hybrid were purchased last month. Even with many awards, reduced price from tax-credits, and HOV incentives, sales of Volt haven't been able to compete with that. It should be overwhelmingly clear what GM's next step should be.

- 6-11-2016** **Progress.** The response wasn't quite as anticipated, but it wasn't bad either: *"Articles have popped up around the web saying Rav4 Hybrid has taken lots of sales from the Prius V. If economy and efficiency is your goal, and you want more room for a family hauler, Prius V makes more sense than Rav4 Hybrid..."* There was an obvious effort to evade with distraction. Nonetheless, it was something somewhat on topic. There are some who feel let down by Volt falling away in favor of a vehicle inspired by its technology. Others welcome it. I see that advancement as the goal. Being a software developer, I'm quite accustomed to having some things accepted and other things not. It's how you find what works and what doesn't. Don't be afraid of failing. Volt enthusiasts were and let pride get in the way. Thankfully, those having lost the most are finally embracing change. Phew! I put it this way: That's called progress. You find what works, they go with it. If something is discontinued in the process, that's fine. Prius Prime will become the plug-in variant of Prius. RAV4 Prime could do the very same thing... exactly what Volt supporters have been absolutely begging GM to do for years. Small SUVs are popular. One offering a substantial improvement over traditional versions, because it is a hybrid system with a plug, is clearly an effort to fulfill those goals.
- 6-11-2016** **Growth.** The attitude from a certain few goes way beyond smug: *"Hi all, been a while since I have checked in, now that I have the Leaf, but here I am! Maybe I have been detoxed of the Prius Kool Aid, but I did find this thread very interesting, until....!"* That was quite an opening statement. I was befuddled. It was a former chat member who came back to the big Prius forum for the sake of attacking. It was the concluding sentences of the post that really got me riled up: *"So I would estimate that the new Prius PHEV would actually have about 23'ish real miles! That's sad, just sad! I was at first quite interested, but those EV miles killed it for me! I bet the price will rival a Volt too, if so, as stated, why bother!"* He clearly was yet another one of those who wanted to gloat about having upgraded to a full EV. That's the type of person the plug-in owner's group here really worries about. When you are working to grow the market, then are confronted with someone intentionally belittling the effort to reach out, what do you do? My choice was direct confrontation: Clueless? Uncaring? Smug? We have to ask why some EV owners are turning their backs on the mainstream market by being so unsupportive. How does such an attitude help? More isn't necessarily better. Look no further than Volt sales to see that a longer EV range does not equate increased sales. A smaller pack is what will reach ordinary buyers, attracting showroom shoppers. That's an appeal problem with EV choices currently. Ask how will the market grow beyond enthusiasts. Toyota is attempting to reach those interested in EV driving but unwilling to take a major step yet. They'll get an extremely clean & efficient choice offering a plug that's capable of directly competing with traditional vehicles. Think about the challenges faced at dealerships. Think about inventory, commission, and profit. Think about the knowledge required.

6-12-2016 **Realistic.** Ugh. He claimed to be the voice of reason: *"No, realistic, realistic, and ever more, realistic! Shoving this piece of crap on the world is what further reduces common folks from walking the EV path! I at least have a knowledge of what the real world of EV is..."* That level of smug never ceases to amaze me. It's the trophy-mentality I warned out all those years ago. Seeing it emerge over and over again is disheartening, but no surprise. Being blinded by engineering or simply having no background in business is a common problem. My post back to this growing problem thread was: Rather than support a plug-in with the potential of actually reaching ordinary consumers and being cost-competitive in this generation (that means selling at mainstream levels without tax-credit help), you just want to stick with an ideal and hope gas prices go up? That's not realistic. It's a careless disregard for the past. Attracting sales from the showroom floor is far more difficult than simply offering a generous amount of EV capacity. Look at how GM misunderstood their audience with Volt. The first-generation struggle with sales... despite shockingly low lease prices, large subsidies, and HOV privileges. It was hoped to be a product for the masses, but was clearly probably it wasn't. Now, the second-generation seems to have fallen into the same trap. It's very appealing to enthusiasts but offers little draw for the typical driver. The *"why bother"* attitude certainly puts you at odds with history and the current state of the market. How will *"the real world of EV"* achieve sustainable high-volume profitable sales in this newest generation now being rolled out? There continues to be growing pressure from traditional vehicles. Think about how well the compact SUV hybrids with a plug would do. It doesn't take much to imagine an Equinox using the Volt system or a Prime version of RAV4. What EV will be able to affordably be able to compete with that?

6-12-2016 **Introduction.** I was difficult to see whether or not I was actually making any progress: *"You really think it's going to be introduced to people that haven't already been introduced to the Volt or Leaf?"* I kept at it though: Introduction means very little. It provides only the most basic information, by no means what's needed to make a purchase decision. People will hear about them and will stumble across tidbits online. They may end up doing some searches to find out more. Just a raising of awareness is nowhere near enough. We've already learned that selling "green" doesn't attract many buyers. Gas prices are low and the mindset is that efficiency & emissions are sufficient. The reasons for switching over to electricity fall on deaf ears. There simply isn't anything compelling to make most people switch. Nothing compares to the showroom experience. Being able to see the vehicle in-person and take a test-drive is priceless. Many, many Prius purchases were the result of discovery at the dealer. Prius Prime will take advantage of those opportunities. Rather than push the "green" aspect, let the technology draw them in. Sorry if some don't like the approach, but that is reality. Being realistic means finding a way to accept the situation. Change doesn't come from forcing an idea. The consumer must be part of the transition. Skipping a step by offering only an end-state doesn't work.

- 6-12-2016** **Obvious.** There's been a lot of looking back as a result of the EV owner attack. Thankfully, much of it has actually be worthwhile. I jumped in with: It should have been obvious, but clearly wasn't, that Toyota's effort to make the best use of plug-supplied electricity exceeded consumer understanding. Expectations were stuck on keeping the engine off as long as possible... even if it meant sacrificing efficiency. So, Toyota made the choice to delay. Notice what that gets us? Besides the obvious larger capacity due to continued cost reductions with lithium battery technology, we also get an electric heating system much more efficient than the gen-1 plug-in offerings. Combine that with the added power from the bigger battery (there's enough power to accelerate to 84 mph using only electricity), you've got a system much easier to sell to those consumers. Waiting for something better frustrated some. Others felt let down. There were even a few who believed the idea of plugging in had been abandoned entirely. At least we all know why that there was good reason. Reaching out to consumers beyond just enthusiasts was turning out to be much more difficult than anyone had anticipated... for any vehicle with a plug.
- 6-12-2016** **Expectations.** Well, not all goes as hoped. There are some who still express bitterness: *"All I am saying, is that in 2011/2012, Toyota was expecting PiP to go nationwide as well. It didn't."* That unending resentment is a pain. Fortunately, more regular posters are noticing. The pattern of negativity becomes easier to recognize given enough time. I poked back at him with: And you're going to continue *"just saying"* it for years to come... That's really unfortunate. The rest of the story is quite telling. For those who don't know, Toyota rolled out 3 new models of Prius within just a few months of each other. Prius v in December 2011. Prius c in January 2012. Prius PHV in February 2012. That was a major undertaking in a very difficult market. It was a diversification effort in 3 different categories, all at the same time. Toyota carefully watched the market. The 2 new hybrids did really well. The plug-in struggled with the rest of the battery-centric offerings. Deciding to invest more in the rollout of v and c made much more sense. Let the automakers with the big batteries figure out how to penetrate such a stubborn market. In the meantime, continue to invest in research & development of the technology. That worked out well too. Toyota has lots of tax-credits available to help promote rollout of their latest tech (Prius Prime) and the newest hybrid (RAV4) is proving to be popular.

6-15-2016 **Insightful.** The attacks from within have begun: "*When I first joined PriusChat, I've had insightful discussions with him, but since the release of the plug-ins, he has gotten obtuse and heavy on Toyota support.*" It's confirm of change. With this particular individual, he's a well known antagonist who simply enjoys debate. So, the expectation of contradicting posts is the norm. But that was always content related. Now, focus is shifting to shooting the messenger. That doesn't happen much on the big Prius forum. In this case though, there is little conflict. The purpose of Prius Prime is clear. He doesn't like clarity. It prevents endless online exchanges... which I work hard to prevent. So, frustration with approach to provide concise information for people to use for drawing conclusions rubs him the wrong way. Acceptance means no one to respond to his tempting provokes. I replied to his mild attack with: It's the reverse. Other automakers have wandered away from the affordability and offering something for the mainstream. Toyota always held true to that goal. There are many who don't give any importance to business, focusing solely on engineering instead. In other words, they see little value in high-volume sales and profitability. The heavy dependence on tax-credits is an obvious sign of that.

6-15-2016 **Too Bad.** Sometimes, you just get tired of dealing with nonsense like this: "*The thing about high fuel economy is that the 2 to 3 mpg the Prime might have...*" Rather than accept the well-balanced approach, it's a constant claim of shortcomings. In this case, it's the lack of a fifth seat. Even though it rarely ever gets used, isn't as comfortable, and doesn't offer as much room, there's still the portrayal of it being a major issue. If it was actually was a major selling-point, that would be a different story. It's not. The tradeoff of more comfortable seating as a result not being addressed is the first clue that they aren't being constructive. Remember all the reasoning from Volt supporters? Do we really just ignore that? It's why focus shifted to leg & head room instead. We accepted and moved on. Some just plain don't want to. I ended up following that with this: That's a long line of reasoning which doesn't explain what we have actually seen. Think about the sales of RAV4 hybrid. You'd be much better off with a Prius. It's futile to get ordinary people to agree with your logic though. Don't waste your time. They simply aren't interested. It amazes me how that is so hard to accept. That's reality though. People will find an excuse to justify their choice. The switch from wagon & minivan to SUV happened. Like it or not, that's the way it is. We must endorse technology & approach that brings about change. Too bad if it isn't the way you want it.

- 6-15-2016** **Desperation.** I wonder how long nonsense like this will continue: "*Face it - Toyota just hates plug-ins, and they desperately want to believe they will fail...*" Growing tired of the nonsense, this was my stance: Falling for greenwash spin requires the necessity to disregard certain facts. The most obvious is that batteries are still expensive. Why would a top automaker sell a vehicle at a substantial loss? It just plain doesn't make any sense. Yet, some truly believe a miracle will happen and competing directly against traditional offerings without tax-credits is realistic. The other blatant denial is believing electricity is clean & abundant everywhere. It's a cold, hard fact that we still have very dirty energy sources thriving. It's also a harsh reality to accept the fact that there are many who don't have plugs available. Claims that Toyota's approach of offering a modest-sized pluggable battery in a vehicle which seems like more of a hybrid are greenwashing attempts. You have to ignore the EV acceleration, the EV top speed, the EV heating & cooling system for that to be effective. Complete disregard of those attributes with an argument of just short EV range borders on desperation. At least those trying to figure out packaging choice are looking at the approach decision with reasonable assessment.
- 6-15-2016** **The Point.** Not seeing the big picture makes comments like this easy to post: "*My disappointment in Toyota over the Prius Prime has nothing to do with the way I want things. It is because they slacked off, and choose to build a PHEV that competes with the competition of the past.*" That comes from over-simplification. The disbelievers tend to focus solely on the battery-related market, totally disregarding the rest of the vehicles still being produced. That blindness leads to all kinds of problems. Mine should be quite obvious. I don't know how many times the point must be repeated before it finally sinks in: What part of TRADITIONAL VEHICLES is so difficult to accept? They are the true competition, not other plug-in choices. It's blatant denial & dismissal of that which is putting pressure on the adoption of plugging. Focusing on the wrong thing results in a holding back progress. It absolutely amazes me how something seemingly so obvious continues to be a problem.
- 6-16-2016** **No More.** I climbed up on the soapbox again: We have problems attracting ordinary consumers. Dealers are a major contributor to that. Most simply aren't interested in selling a plug-in vehicle. Why? Because it requires a lot of extra effort for very little in return. The lame automaker excuses and constant bickering about supposed deal-breakers isn't accomplishing anything. And yes, we're aware that a few individuals do everything they can to prevent conclusions from being drawn for the sake of keeping the discussions going. No more. Thankfully, the local plug-in owners club here has a very different attitude than some online. They don't see the claim of 22 miles of EV not being enough. They see a system fully capable of delivering an EV drive experience. Then even if the engine fires up afterward, that resulting +100 MPG average in the end is a compelling sales point. It's very easy to stir interest. Potential buyers won't care what we say. They'll be discovering Prius Prime right there at the dealer. Being able to plug in using the outlet already available in their garage and being able to activate EV drive when they want is all they'll need to settle any uncertainty. No intimidation. Unmatched hybrid performance, rock solid Toyota reliability, and a few technical goodies... that will appeal to both consumer & dealer.

- 6-17-2016 Minnesota.** There are no state incentives. It's very unlikely to ever have HOV access. That special privilege isn't something I supported for hybrids or EVs anyway. The goal of mass acceptance means becoming common. You certainly don't want lanes on the highway intended for carpooling to be used for that instead. There's a list of 10 states that offer generous credits of their own to stimulate purchases. That's better, but we certainly don't have that here. Instead, we have brutal Winter to deal with. A vehicle proving its worth in those conditions is rewarding in itself. I get irritated by some who say that money is needed everywhere. We're money progressive. Ethanol was locally researched, locally produced, and locally consumed. It was all within our power to help reduce oil dependency and we did. That's just the way we are. It's too bad that was twisted into something else in other places. Oh well. All I can do is tell it like it is: Here in MN, we haven't ever expected state money. That's way I come across as pushing harder. It was always going to be more of a challenge without incentives like that... and we have real winters to deal with too.
- 6-17-2016 Patience.** What else can be said about waiting for Prius Prime: We hear the same thing every time and others rushing never seem to exhibit any benefit. I went through this in 2000 then 2003 then 2009 then 2012. It's how Toyota operates. Set realistic expectations. Patience.
- 6-17-2016 Cargo Perspective.** There are very few counterpoints remaining. Here's one: *"The loss of trunk space hampers their hybrid sales, and the loss of cargo space will hamper the Prime's."* The fact that it persists surprises me, since it is only in online forums. No one else is stating any concern. So, you lose a little height in back for tall objects. You still get more than some sedan trunks in that regard and dramatically more in length. Width is roughly the same, but diagonal gets you a little bit more play room too. I put the rapidly fading topic (now obvious with the vague nature of the claims) to rest by asking: Sounds like a loss of perspective. The hatchback area is Prius Prime is dramatically larger than a sedan's trunk. Bulky items can easily be transported. What's the supposed problem? Don't give cubic-foot data either. That's clearly a red-herring. What actual real-world cargo are you referring to?
- 6-17-2016 Audience.** I enjoyed seeing this pop up in the now very active thread: *"But pretending that the missing fifth seat and raised cargo floor of the Prius Prime that potential buyers in a dealership can see and touch, and compare to a Prius on the lot, won't have any bearing on their decision is delusional."* It gave me the opportunity to dive into the discussion to poke the antagonist. Like always, the argument comes down to audience. So, it shouldn't take much. Misleading claims are fairly easily exposed simply by stating the situation, as I did: Why are you continuing to state the situation as an absolute? Of course it will have a bearing. The point of a Prime model is not to replace Prius. Stop portraying the situation as if that was the goal. This is the very problem Volt enthusiasts failed to overcome. They refused to acknowledge who the audience actually was.

- 6-17-2016** **Balance.** Sometimes, you feel like the person is clueless. When they keep drawing the same conclusion without reasoning to explain how the different factors end with the same result, what else can you think? Clearly, the very idea of balance eludes some people. The win or lose mentality, with nothing in between, contributes heavily to thinking all situations are polarized. That's annoying. But... I'm willing to put up with it. After all, the term "*spin*" came about for a reason. Some people do it intentionally. In this case, it wasn't. He was having a misunderstanding and I was hoping to be helpful: You did it again! By what other means would you like the situation explained? Clearly, this approach isn't working. I'm open to suggestions... Here's the most simple alternate way I can state it: The past has taught us that people will consider the plug-in when shopping, but will not view it as an "*upgrade*" model. It will stand alone, sharing only certain traits of Prius. The differences will be viewed as tradeoffs, a clear acknowledgment of pros & cons. That overall balance will be the selling point.
- 6-17-2016** **Repetition.** I needed it. The point still wasn't coming across; however, there was a glimmer of hope. "*I understand where you're coming from now... but it still misses the point... not the same audience.*" That was my own comments in response. It didn't work. So, I tried again: In reply to myself, I will quote myself: "*Who is the market for Volt?*" That question was asked scores of times over the years for a very specific reason... to learn about audience. Clearly, some still haven't figured out the underlying purpose of Prius Prime, despite it having been stated many times. It's to grow the market. Simply appealing to prospective Prius buyers won't achieve that. Drawing in new customers, rather than achieving sales through conquest is a terrible business plan. Yet, that's what Volt thrived on. The aspect of drawing in those shopping on the showroom floor was outright dismissed by enthusiasts. They just plain didn't care about those lost opportunities. So, GM kept on catering to them. Toyota isn't following that same approach... since it clearly didn't work. Achieving mainstream sales still hasn't happened. Instead, they will be offering a plug-in Prius that really isn't a Prius. It's different enough to draw the attention of shopper who were just looking around and hadn't ever considered Prius a choice for them. That ability to plug in. The distinct visual appeal. Those enticing tech features. See how some not interested in Prius would give it test-drive? It's an audience who wasn't even looking for an EV driving experience in the first place. That's the ultimate prize. You don't expand the market by appealing to those already interesting in being green. You find a way to entice buyers away from traditional vehicles.
- 6-18-2016** **Corolla Hybrid.** The market in Australia will be getting a hybrid version of Corolla. It's a hatchback model, sharing a resemblance to the discontinued Matrix. It's quite a bit more efficient than the traditional model, 4.1L/100km compared to 6.1L/100km. But it still doesn't match the 3.4L/100km the new Prius delivers. It looks nice. I suspect it will be a candidate for replacing Prius c here. Toyota will be faced with a decision about replacing that smaller model of Prius anyway, why not try a Corolla hybrid here? Though, it wouldn't be a hatchback. That's much like the decision coming up about replacing Prius v too. The hybrid version of RAV4 is a larger cargo-carrying alternative. True, it doesn't deliver the same level of MPG, but the market here for small SUVs is huge. Selling wagons is quite a challenge. Whatever the case, we know choices are being explored. This time, it's in Australia. We've known about others in Japan and Europe for many years now. After all, there have been 9 million Toyota and Lexus hybrids sold now. Only 5.5 million of them have been Prius.

6-19-2016 **Conquest & Cannibalization.**

Back in 2012, Toyota delivered what supporters of Prius had been asking for. It took many years. Toyota simply wasn't interested in delivering a configuration which would allow a plug to be taken advantage of. The reason was simple. Cost of batteries for that was prohibitively high and the source of much of our electricity was dirty.

A tipping point still hadn't been reached yet, but the time had come to prove the system design was capable of what supporters though consumers wanted... a hybrid with significantly improved efficiency. Increased electric-only driving was an expectation, but there was never any priority set on having a full EV experience.

The only supposed "competition" was struggling. Volt had the industry spotlight. GM wasn't able to draw in its own customers though. Sales came primarily from conquests & early-adopters. That was confirmed as the shockingly low lease-prices were phased out. That was followed by dramatically lowered PRICE with no correlation to COST having been reduced. It didn't anyway. Sales continued flat. Now in 2015, we see GM struggling with flat sales of gen-2 Volt and the new problem of cannibalization. Bolt will be stealing away potential Volt buyers.

Toyota is working really hard to avoid falling into the same trap. Rather than trying to conquest or cannibalize, they configured Prius Prime to be different from Prius. The true competition is traditional vehicles. How do you entice a customer who's been absolutely delighted with their Camry or Corolla to consider the purchase of a vehicle offering a plug?

Squeezing a battery-pack large enough into a sedan just plain isn't realistic. Ford has only had modest success with Fusion Energi. The loss of trunk space is so extreme, most potential buyers abandon the idea upon seeing it. Prius Prime doesn't have that limitation. Even with the slightly raised floor (less than the height of a smart phone), the area available for cargo still significantly exceeds that of what Camry or Corolla offer.

The 22-mile range for EV easily covers traffic congestion spans for long work-commutes and the entire distance for short work-commutes. That also covers errand-running around the suburbs in the evening. In other words, it's enough to make selling the idea very easy. Sales people don't even have to bother with any discussion of level-2 chargers. The customer can simply use the standard 120-volt electrical outlet they already have in their garage for recharging.

Think about the test-drive. When someone who was shopping the showroom floor is offered the opportunity and suddenly finds themselves behind the wheel experience the full-power EV drive, what do you think their thoughts will be? They'll be trying to remember when the last time was that they actually had more than 2 people in their Camry or Corolla. They'll wonder if any are available for immediate purchase and what colors are offered. They'll consider what their MPG average will be.

In other words, it's a carefully considered approach to overcome barriers of the past. Toyota did their homework, studying every bit of data the limited Prius PHV availability could provide. The rollout of Prius Prime will be to 35 states which will see

this plug-in as Toyota's first offering. The others will see a greatly improved version. The nation as a whole will see it as an undeniable step away from traditional vehicles.

6-19-2016 **Group Think Problem.** Ramping up for Prius Prime rollout has begun. My push is growing. Some won't like it. Some will be thrilled by leaders emerging in the effort to promote. I thoroughly enjoy doing it. This will be the fifth major release to participate in. Each was very exciting and very fulfilling. I'm looking forward to this Fall. Can you tell from this post: I'm somewhat surprised by how deeply entrenched the group-think problem has become. True, a large chunk of that will fade away as the rollout of Prius Prime progresses. Real-World data can be a very effective tool. But prior to even knowing what the price will be, some have dominated discussions with what could be looked upon as rhetoric. That should be easy to see too, simply because the market-attitude toward plugging in has changed yet the perceived audience has not. In other words, there's still an perspective of us & them. Either you're in the market for a plug-in vehicle or you are not. It's an approach that intentionally limits scope. Rather than take on the monumental problem of traditional vehicles, you choose to stay within the realm of those who won't settle for anything without a plug. It's a head-in-the-sand stance that no one seems to notice. How can so many be so naïve? I'm beyond frustrated with the pig-headed nature of this outlook. It may not be intentional, but it sure is predominant... so much so, it's getting in the way of progress. You've heard of "*being your own worst enemy*" used as a reason for getting stuck. Seemingly harmless habits lead to years of struggle. This group-think problem is becoming the very barrier we've been trying to overcome. It's a self-inflicted situation which prevents goals from being achieved. Don't expect me to stop pointing out the true competition or the reasons for Toyota's approach. Knowing audience & purpose is absolutely vital. Acknowledgement of that is a necessity; otherwise, we'll continue to argue amongst ourselves rather than actually make any progress.

- 6-19-2016** **Time.** Constructive discussion can be quite fulfilling. I enjoyed answering this: *"You keep asking the same question, but your answers fall short in my mind. I can't prove you wrong until the car hits the street. I hope i'm wrong, but I just don't see the attraction of prime for people buying ice vehicles at todays gas prices."* Not having all the information you need, but asking questions rather than making assumption is great. So, I provided: That's because you left something out of the equation. It's a very common oversight. You're in large company. So, no worries. The missing element is time. It will take 2 years following rollout for Prius Prime to become established. Anyone who thinks the distribution, education, and real-world data sharing can be achieved in a shorter duration clearly hasn't studied history. Think about where the industry will be at that point. Many tax-credits would have expired and EV sightings will have become routine. At that point, the MARKET WOULD HAVE CHANGED. It's that upcoming audience is what Prius Prime is targeted at, not what we'll in just 6 months. Think about what their perspective will be. Low gas prices won't have as much of an influence since battery-tech will be affordable. Parking spots with charging-stations becoming common by then is a realistic expectation. Reputation for reliability would be established. Uncertainty of industry intent will have diminished. 8.8 kWh may be thought of as *"too small"* by some now. 2.5 years from now is an entirely different story. That will be entry-level for plugging in, much like around 1.2 kWh became for hybrids. Rather than being treated as insufficient, it will have become an expectation for mainstream competing with traditional vehicles. In other words, a platform like Camry and Corolla still won't be realistic for plug-in hybrid offerings. Prius Prime will. It's configured to become competitive within this generation, even with cheap gas and expired tax-credits. It has the potential to bring about a RAV4 Prime offering as well. What other approach has that going for it, being able to survive as a high-volume profitable vehicle in a market so different from the one it is currently being judged against? Remember, Toyota will still be producing traditional vehicles. That presence on showroom floors represents a serious barrier to overcome in the minds of ordinary consumers.
- 6-21-2016** **14.3 Miles.** That's the highest EV range estimate I have ever seen. It's just a calculation based on prior driving history. Actual EV will obviously vary. Nonetheless, it is interesting to see. That makes me wonder what people will think when Prius Prime becomes available. My videos of driving to work and around town will go from showing really impressive MPG to all-electric in some cases. The further driving examples, when the hybrid system really shines, will be difficult to film. I'd have to have the camera on time-lapse. The complex setup for lighting would be even more of a challenge to sustain for long distances. I'll have to come up with some new approach. In the meantime, I'm enjoying Summer with the Prius PHV. It's still delivering that solid 11 miles of EV... despite what the antagonists claim. That's after over 4 years of driving & recharging too. Toyota clearly designed a nice system aimed at the mass market. There's no doubt about that. The catch is getting the right balance of battery & cost to deliver that electricity use, whether it be EV or EV-BOOST (that's HV with plug-supplied electricity).

- 6-22-2016** **Misdirecting.** This was the spin I got today: "*You do anything to misdirect attention away from Prius.*" It was the result of accepting bluffs from 2 antagonists. They were desperately attempting to disparage the upcoming new plug-in Prius, but didn't actually present any substance. They simply concluded it was a pointless endeavor. Being well aware that detail exposes false claims, I was more than happy to welcome whatever supposed fact they wanted to provide. Neither one delivered. It was nothing but another day of meritless rhetoric. When they have nothing but propaganda to spread, that's a good sign. I'm very much looking forward to rollout this Fall. In the meantime, I'll keep responding to attempts to distract & discredit with stuff like this: Asking directly for feedback about Prius repeatedly is misdirecting? No. We know all too well that they've got nothing to support the failure and do a claims looking forward. As much as they want to dismiss Prius Prime from attention, it simply won't work. There are a number of traits shared with the other plug-in hybrids.
- 6-23-2016** **\$10.2 Billion.** That's what the cost to VW appears to be for the United States. The end of next week, it will be official. Supposedly, two-thirds of that money will go toward upgrading the diesel system to make it clean enough to pass the emission criteria it violated and the other third will be used for paying state & federal fines. Diesel is obviously dead now. There's no point of it for consumer vehicles. The gen-4 Prius outperforms by such a large margin, competing is impossible. To that effect, plans are to drop their only hybrid offering next year. The expectation is that major investment will be made toward offering a variety of EV choices. It's a massive commitment, but what other option is available? Without diesel and having hybrid that doesn't provide a large MPG gain leaves them with only that. The consequence of sticking with diesel until the bitter end was clearly a terrible decision. We always anticipated the emissions & efficiency of hybrids would widen the gap enough to simply draw sales away from diesel, enough to slowly sour the milk. We had no idea it would come in such an abrupt manner. Corruption certainly wasn't expected... though, some of the attitudes did support theorizing that. Some were dishonest. They'd cherry-pick data, showing you only results to show favor. Some were dismissive. They'd state how much cleaner diesel had become, ignoring the fact that it was still among the dirtiest vehicles on the road. Those new "clean diesel" offerings were always suspicious. How could they possibly achieve what was claimed. It just didn't add up. Of course, now we find out the real math. The total is \$10.2 Billion. And that's just here in the United States. Think about the impact in Europe. Think about how much investment it will take to aggressively switch over to electric-only offerings.

6-24-2016 **Compliance Vehicles.** We get long, elaborate posts sometimes. The conclusions are often what set me off. In this case, it was the use of the term "*compliance*" vehicle. I wanted to know what that actually meant to him, especially since the definition has changed over the years. It had become a means of identifying token efforts, where the automaker makes just a minimum to satisfy some type of compliance criteria. Only problem is, we had no idea for what or for who or how many anymore. The term is so generic now, it is used to belittle & degrade rather than actually be informative. So, I asked and got this: *"A car designed primarily with the goal of meeting legal mandates to sell EVs, rather than as a good car. Which is evident in some of the packaging compromises that Toyota made when designing the Prime, rather than redesigning the unibody to maintain most of the versatility of the Liftback."* Notice how no detail was provided... nothing whatsoever. Heck, it wasn't even specified what "*good*" means. I find that quite irritating. It's the rhetoric we have to deal with on a regular basis. Not responding allows it to become propaganda. Obviously, I wasn't going to just watch that happen. This was my response, which almost immediately got 3 likes: Toyota did retain **most** of the design! You still get the great new handling of the improved suspension. You still get the great emissions & efficiency from the hybrid system. You still get the same head & leg room of the hybrid model. You still get a cargo area much larger than competing sedans. Expecting no tradeoffs whatsoever is neither constructive nor realistic.

6-25-2016 **Incentive Problem, part 1.** This conclusion came from an antagonist absolutely obsessed with keeping discussions active. Drawing a conclusion early with weak evidence is a way to stir new responses. It certainly worked on me: *"...but the rest of the competition has battery packs close to the size of the Prime, which leaves the Prime about the same price as them."* Seeing that, I was pleased about him giving up on the square-foot arguments, but frustrated for a new reason. His insistence on more being better was rather desperate. If the dimensions are accommodating, it makes no sense. The most simple of examples kept getting dismissed though: length. No sedan can carry a long object of any substance. Have you seen how small pass-throughs actually are? There's just a tiny hole in an clumsy location. My frustration offer becomes opportunity. I see the benefit of pushing the incentive problem into everyday discussion on the big Prius forum. Doing that on the daily blog for Volt with gen-1 was a disaster. They attacked me relentlessly, claiming a well-engineered vehicle would sell itself. They expressed no concern about dealer or salespeople incentive. That problem has since come back to haunt them. Sales of gen-2 are struggling the very same way. They thought an even more refined system without compromise is all that it would take. In fact, some still mock the tradeoffs Toyota will be making with Prius Prime. I'll start by addressing those on the bit Prius forum about the problem.

- 6-25-2016 Incentive Problem, part 2.** This is what I ended up posting on the big Prius forum: That logic is clouded by audience identification. You are focused solely on the consumer perspective, which in itself is problematic. That's not the only barrier to overcome though. Another must be fulfilled to achieve sales growth. How profitable do you believe the other automakers platforms are? Prius has been around much longer, upgraded aggressively for COST reduction. The resulting PRICE will provide far more incentive for dealers & salespeople to actually carry & sell the car. That's absolutely vital to attract the other audience. Those other automakers don't have that much of an advantage. This is a major concern the Volt enthusiasts dismissed for years. They now realize how wrong it was to not acknowledge such a business fundamental. No matter how appealing a technology may be to prospective buyers, it won't be purchased in large numbers if it is difficult to acquire. Sales have suffered as a result. The plug-in owners group here addresses complaints routinely about how much of a problem is simply trying to find vehicles for purchase. The pig-headed individuals here who complained about Toyota halting the rollout of Prius PHV have grown silent as they learned of this incentive problem. It's not a just matter of the automaker producing & offering inventory. Dealers have to actually want to carry them on the lot. Salespeople must have the desire to show them to customers. That interest comes about when COST is reduced enough to earn the dealer a decent profit and the salesperson an appealing commission. That may mean PRICE doesn't come down much. But it should be easier to see how much more likely a purchase will be.
- 6-25-2016 Incentive Problem, part 3.** Posts on the daily blog for Volt are pretty much dead. They just chat about this & that now. The days of attack, belittle, and insult are gone. Yeah! Like with most gen-2 rollouts, it's either a make or break situation. The uncertainty & discomfort is what stimulates discussions prior to the big day. Afterward, much changes. In this case, no more of the rhetoric. Heck, there isn't even any propaganda anymore either. They've pretty much all moved on to electric-only vehicles. No engine at all is what they really wanted all along anyway. Volt was really just a "*stop gap*" that couldn't be agreed upon for range, price, and audience. Prius Prime, on the other hand, has a much clearer purpose. Yes, there are a few "*vastly superior*" troublemakers, but some have actually turned. We're seeing antagonists of the past admitting that it will likely outsell Volt by a wide margin. Despite the smaller range, the remarkable reliability along with the fantastic depleted efficiency makes a compelling draw that many will not be able to resist. When you see former attitudes fade away prior to rollout, that's a very good sign. It means effort to focus on the incentive problem now should be fairly effective.

- 6-26-2016** **Strange Comments.** This one certainly stirred some posting: "*What was Toyota thinking?*" It came from someone shopping for a plug-in vehicle, but then ended up buying a regular Prius. Huh? If he was so excited about the consideration of a Prius Prime, why didn't he get something else from the disappointment of not enough EV capacity? It makes no sense at all to choose 0 miles. 22 is far more than none at all. I wanted to know more upon seeing an explanation of how it should have been more like a Volt, but then hearing how he purchased a Prius anyway. My guess is brand loyalty kept him from choosing GM. That strong sense of not choosing another automaker is what Volt has struggled so much lately. It doesn't appeal to GM's own customers, so they just purchase a Malibu or Cruze instead. I responded to that with: They saw how Volt has failed to gain market, despite gen-2 improvements and greater range, then decided to take a different approach. The topic has been beaten to death already. You want to appeal to ordinary consumers, you cannot cater to EV enthusiasts. This isn't rocket science; it's just routine business. Sustaining sales in high-volume at a profit without government incentives requires a thoughtful balance of all involved. Looking at the situation from just a consumer perspective will leave you wondering. There's much more to the equation. Think about everything it takes to actually produce & sell a vehicle that way. You purchased a gen-4 Prius, rather than something with a plug. Why?
- 6-28-2016** **\$14.7 Billion.** It looks like VW is in far more trouble than anticipated. That expectation of around \$10 Billion ended up being just the consumer part. Paying for repair or replacement is very important, but there is also the damage to the environment that has already taken place to consider. Money will be needed for that too. It will come in the form of federal & state penalties, which will be reinvested into betterment programs. An obvious gain from this money will be funding to expand the public recharging infrastructure. Now that diesel for consumer vehicles is essentially dead, there is growing interest in the alternative... plugging in. So, that makes sense. I'm still in dismay that the death was so painful. All those greenwashing efforts made it easy to see diesel was struggling already. But when you've got a plug-in hybrid like my Prius PHV, delivering efficiency quite a bit higher and emissions undeniably lower, where's the competition? There was no aspect of challenge already and the second-generation was destined to devastate. Needless to say, we are saying goodbye to that clutter of compression-engines being used for commuting in favor of ever-increasing electricity use.
- 6-30-2016** **Meritless Claims, part 1.** I was absolutely delighted upon reading this today: "*I think GM has a significant edge over the other manufacturers with their Voltec system.*" Nothing has come from claims like that in the past. They had a little merit to them back then too. But since then, the cost, efficiency, and appeal has proven that's not the case. We're seeing other automakers strive to reach the goal GM couldn't as well. I really wanted to know what edge that poster was talking about. So, I asked: Ford, Toyota, and Honda all have plug-in hybrid systems. What makes GM's stand out?

- 6-30-2016** **Meritless Claims, part 2.** I followed up right away, with a separate post to emphasize how meritless I found the claim to be. It's really annoying to get brainless cheerleading like that. It only serves to undermine too. Rather than providing support for the overall goal of reducing emissions & consumption, it just turns into trying to deliver the best niche product. What good is that? It's why I asked: "*Who is the market for Volt?*" Knowing GM wasn't targeting ordinary consumers, that their intent to deliver a mainstream vehicle went horribly wrong, made it imperative to get supporters back on track. They didn't like it at all. In fact, many hated me as a result. I didn't care. Their disregard for the masses ruined their credibility. When their best efforts were obviously insincere, I was encouraged. My own efforts would ultimately reveal what needed to be done. They'd have to suck up their pride and join in to build a partnership. This was yet another post to that effect: Isn't the minivan coming from Chrysler part of the old partnership that GM had with the development of Two-Mode plug-in tech... which ultimately led to Volt? Also, we'll be seeing Hyundai and Mitsubishi rolling out plug-in hybrids. Then, there's BMW now and Nissan planning serial-extendors.
- 7-01-2016** **July Sales.** What a sad situation. June was a mess for the industry anyway. The approach of year-end model clearance puts uncertainty on the market. Slowed sales of everything due to economic pressure adds to that. The shockingly low price for a gallon of gas makes it even worse. Why even consider a hybrid? Fortunately, Toyota really did as some of us had anticipated. The expiration of NiMH patents allowed for new opportunity. That's what provided such a low cost difference for RAV4. The AWD XLE model has a \$28,570 MSRP. The hybrid version of the XLE model has a \$29,270 MSRP. That's only \$700 more. Talking about a sweet deal. It explains the 3,751 sales, despite so many factors working against that type of success. Toyota is clearly capitalizing on the demand for small SUVs. We haven't seen growth for the new Prius either. Sales are basically flat, all things considered. One glimmer of hope is the buybacks of VW cheater diesels present a strong probability for contributing to hybrid growth. It's hard to imagine owners who took pride in high MPG going back to guzzlers. Why not restore some pride by purchasing a hybrid as a replacement vehicle?

- 7-07-2016** **Prius Prime Is Better, comparing.** I rarely start new threads. But when you see this title on an article, then discover why, you must: "*3 Reasons Toyota Expects the Prius Prime to Be a Huge Success*". The reasoning was greenwash material. I was frustrated: It's pretty easy to mislead about past hybrid system characteristics with an audience unfamiliar with the history. We've seen this type of misleading in the past with the regular model of Prius. So, it was pretty much inevitable when the next generation of plug-in model rolled out. It started with this statement about Prius PHV (the first generation of plug-in hybrid): "*It's hard to argue with Toyota executives on this point. The first Prius plug-in was rated by the EPA at 11 EV miles, but a look at fuelconomy.gov reveals it could only go 6 miles on electric power alone.*" That's blatant misleading. The capacity of plug-supplied electricity clearly isn't consumed entirely at the 6-mile mark in the EPA testing cycle. That topic was beaten to death over the first few years following rollout. Greenwash attempts were plentiful, but all fell short when actual kWh capacity was considered. There really is 11 miles of EV available. Driving without a hard-acceleration, like the EPA test has, easily confirms that. The next was frustrating to read: "*Imagine finding a Level 2 (240v) charger and hanging out for 1.5 hours every time you wanted to get the old Prius PHEV fully charged. It sounds ridiculous when you only get 6 electric miles out of the deal, but that's how long it took on a 240v connection. On a standard household outlet (110v), it would take between three and four hours to fill the battery.*" Not only was there that same misleading point about EV range, it also included an outright lie. On a standard household outlet, it only takes 2.5 hours to fully recharge. That attempt to claim it's 3 to 4 hours is so wrong and blatantly incorrect, I can't help but to get angered from reading it. Sadly, the reasons for those statements was to convince us that Prius Prime (the second generation of plug-in hybrid) will be much more successful. That's not the slightest bit constructive. Omitting vital detail and including information that is clearly not right really frustrates, to say the least. Why do some people do that?
- 7-08-2016** **Prius Prime Is Better, real-world data.** Being an entirely new topic to discuss, it was easy to draw interest. An effective way of rallying the troops is to interject real-world data. So, I did: 12.0 miles exactly for EV on the commute home yesterday. All were consecutive. I simply drove and stopped when 0.1 miles of range was left and shut off the Prius for a summary photo. It said 11.9 miles had been traveled with just electricity. I had 2 quick jaunts on the highway at 55 mph and there were 2 big hills to climb. No big deal... and twice the distance claimed. Overall efficiency for the round-trip, with a recharge at work, was 145 MPG. That's great for 39.9 miles of driving with the Prius PHV. Just think what the Prius Prime will be able to do on that same route driven the same way.
- 7-08-2016** **Prius Prime Is Better, tangents.** Inevitably, someone will derail the topic by mentioning fuel-cell vehicles. It's annoying, but understandable. I just simply respond with some perspective to get the discussion back on track: Effective greenwashing has led many to believe fuel-cell and electric-only vehicles are mutually exclusive. In reality, they will coexist. It is a means of getting uninformed readers to undermine discussion threads and discredit Toyota. Ultimately, the goal is to divert attention and prevent awareness of cost & profit importance. Prius Prime taking advantage of Toyota's new production approach aged keeping the pack relatively small helps to establish it as a high-volume vehicle capable of actually competing directly with the true competition without tax-credits traditional vehicles. What other plug-in hybrid is positioned for that?

- 7-08-2016** **Prius Prime Is Better, official FAQ.** It's nice when truly constructive questions pop up in a discussion. In this case, it was to ask what information had been released about charging times from Toyota. Turns out, some people find it challenging to actually find that. After all, online searches return an overwhelming number of links. The act of determining which has what you need and if that source can be trusted isn't easy. Fortunately, I save detail like that. You never know when it could be handy to have readily available. In this case, I was able to share... This is Toyota's official FAQ on recharge time for Prius Prime: *Prius Prime's battery can be charged in 5.5 hours by plugging the included charge cable into a standard household outlet. When using a public charging station (240V), Prius Prime can be fully charged in just under 2.5 hours.*
- 7-08-2016** **Prius Prime Is Better, no value.** It has always been a frustration to read posts with calculations that don't assign any monetary worth to having cleaner emissions and reduced oil-dependency. Sadly, almost all are nothing but MPG numbers. Their focus is to justify the "hybrid premium" based solely on the cost-savings from using less gas. They set the expectation of the "free lunch" scenario virtually every time. Rather than promote the benefit by speaking of its value, they exclude it entirely. That's as absurd as expecting a premium upgrade feature without paying for it. No one ever does that when choosing the larger engine for a vehicle. They are more than willing to pay for the increased power. But when it comes to increased efficiency (and the resulting decreased pollution), they are not. That goes way beyond double-standard. But expression of emotion toward the topic doesn't achieve anything. So, I settle for posting to-the-point comments like this: Applying no value whatsoever to the substitution of electricity in place of gas is the same sales challenge the regular Prius has had since the beginning. That perspective is a major problem for anything green. For that matter, you're far better off financially sticking with your old car.
- 7-08-2016** **Prius Prime Is Better, more is better.** Sometimes, you just plain can't get the message across. There's always someone who falls into the "more is better" trap. That problem coming up in this new topic was inevitable. It can't be avoided. It can't be prevented. It can only be responded to. The ultimate problem is their response is a gut reaction with little actual thought. Rather than joining them by responding with numerical exchanges, the best way to respond to that is to give them something to ponder. Remember how senseless the acceleration-speed arguments were well over a decade ago? Most people have no clue how much of a supposed issue that was. The greenwashing (both unintentional and deliberate) came about from the same belief... numbers. In that case, smaller was supposedly better. No one could prove way though. That's because real-world data proved it was overkill. That's the same in this situation too. More simply isn't necessary. The goal of significantly reduced emissions & consumption is easily achieved with a 22-mile EV capacity. In other words, stop thinking about "range" and start thinking about results. I put it this way: That belief of more EV being better hasn't proven the case so far and continues without substance. It's not so simplistic. The true competition isn't other plug-in vehicles either. Consider audience and production cost. Then think about dealer inventory and salesperson incentive.

7-09-2016 **Prius Prime Is Better, the challenge.** It continued: The themes of "*never enough*" and "*true competition*" come up over and over again. Each new thread may touch the topic, but none really actually address it well. That's the challenge to overcome. Volt just plain didn't attract the attention of the masses, even when gas was really expensive. It was those countless other factors of influence discussion struggle to get into. So, it tends to just fall back on more EV is better. Interestingly, the topic of Tesla popped up today at the barber shop. Even with the 200-mile range, that simply wasn't enough. They just dismissed the idea of electric-only travel and moved on. At least with some focus on 4 or 5 seats, we are seeing some movement beyond the trapped mindset of the past. Will people dismiss Prius Prime just as easily as Tesla was today? The supposed mass-market choices, like Volt and Leaf, certainly aren't coming up in conversations. Heck, we barely here mention of them here anymore. Signs of change are finally emerging. The old daily blog for Volt has been void of Volt topics for quite awhile now. It has transformed into another venue for plug-in support discussions. Posts no longer find Prius a competitor. Reality is finally sinking in that traditional vehicles are really the true competition. Consider how unappealing a plug-in vehicle is to a traditional salesperson. When you can get a commission that's larger and much easier, why bother? Selling a guzzler takes so little effort in comparison. That's where Prius Prime comes in. Even though some here don't like the approach, the lower production-cost (equating to higher commission) and obvious appeal of EV make a compelling reason for salespeople to actually try. A simple test-drive will be enough to get potential buyers to consider the purchase. That's hard to do with a regular Prius when you encounter a loyal Toyota customer on the showroom floor. But with the plug-in offering a new twist on being green, but not requiring significant compromise, there's opportunity.

- 7-10-2016** **Prius Prime Is Better, great example.** As supporters, we have much to share: For ordinary consumers, the topic of PHV verses Prime really doesn't make any difference. Today provided a great example. At that new grocery store, just 0.6 mile from our house, there are 4 charging stations... free and in high traffic locations. (It's a pretty sweet setup.) That draws attention to the Prius PHV. I've had people stop to ask about what I think of owning a car with a plug. They aren't obsessed with detail like many of us here in the forum. They simply want to know about convenience & reliability. Oddly, price isn't asked about. It really is just a matter of having confidence in the technology. That's the key. That's what will help sell it. Today, my wife just stepped back and let me engage in a quick conversation with a passer-by. I answered a series of questions. Range wasn't even asked about. I eventually just mentioned my 72 MPG average and that the newer version coming out this Fall would do even better. Her curiosity, there in the parking lot, looked very much like what I anticipate at the dealership later with Prius Prime. Ordinary people will simply want to know more and the basics are all easy to convey. We learned from Volt that attracting attention of customers wandering around on the showroom floor, just randomly shopping with the hope of stumbling across something to excite them, is vital. GM still hasn't achieved that. Sales for Volt come from conquest. Rather than appealing to their own base, buyers are from other automakers. That's a major opportunity lost and a sign of hard times to come. The goal is to transition from traditional vehicles to cleaner more efficient choices. Not being able to appeal to your own loyal customers is a very big problem. Toyota is attempting to overcome that, trying to avoid falling into the same trap as GM. That's why Prius Prime doesn't fit the profile we've come to expect. Change is challenging. I'm quite optimistic this approach will break out beyond current barriers. 22 miles seems small to us. But to the them, the resulting MPG will blow their minds. It's easy to understand and will be effortless to achieve. That's a winning formula for drawing in the masses.
- 7-11-2016** **Prius Prime Is Better, think about.** When you read this, what do you think: "*Honestly, I have a feeling Toyota will cripple sales of the Prius Prime to try to prove that people don't want to but plug-in's (between lack of 5th seat, price which we don't know yet, and nationwide availability which we'll see if actually happens).*" This is what I posted: That's a terrible way of setting expectations. By that, I don't mean the negative attitude. You're entitled to your opinion. That's fine. It's the vague nature of price & availability doesn't actually tell us anything. In other words, what goals have you set for the measure of success or failure? Keep in mind that not knowing is what crippled other vehicles in the past. People will just spin results without clear expectations having been stated. Think about the state of the market... mandates, credits, automakers, dealers, consumers, and battery technology.

7-11-2016 **Prius Prime Is Better, expectations.**

Setting them key. Prius PHV had a purpose. Remember what it was? That begs the same question of Prius Prime.

When Toyota rolled out their first plug-in hybrid, the design had a clear focus of augmenting the existing design. Give it a larger battery and means of supplying electricity that wasn't derived from gas. Since the design already had untapped abilities, like a more powerful traction motor than what the smaller battery could support, that extra boost was easy to exploit. The engineers had already taken the future into account. It was basically just a matter of waiting for cost to drop.

Turns out though, the market expectation was pushed in another direction following rollout. Volt was directly responsible for that. GM provided proof that power beyond the existing thresholds for Prius were desirable... but wasn't actually able to capitalize on it. GM wasn't able to capture interest from mainstream consumers as hoped. So, Toyota halted rollout plans and instead decided to focus on the limited established markets instead. The question became a matter of how to learn from GM's struggle and their own success with Prius.

What should the next-generation design deliver?

Toyota's approach of platform refinement & reuse has always been the key to sales & profitability. With a plug-in model, much of the design would need to be shared to have that advantage. The 4th generation Prius would become the first to use TNGA, a modular approach to vehicle production. The next PHV (known as "Prime") would follow using it.

Turns out, adding a clutch to disengage the gas-engine allows both electric-motors to deliver propulsion power. No need to alter much else. Switching from a traction/generator relation in the regular Prius to a traction/traction approach for the plug-in really was that simple. The increased battery-capacity could be exploited with little extra cost. More power could be delivered.

The question now is how can Toyota succeed where GM continues to struggle. Toyota will deliver the improvements claimed to be vital to advance gen-1 to gen-2. Like the PHV model, Prime will deliver industry-top efficiency following depletion of plug-supplied electricity. Prior to that, you'll get full EV driving experience, which includes an industry-top cabin heating system.

It boils down to initial reaction. Will ordinary consumers find the 22-mile rating acceptable enough to take a closer look? Since all the expectations are fulfilled, there isn't much else to ask.

- 7-12-2016** **The Point.** There was a new discussion on one of those all-audience blogs for green cars. I couldn't resist diving in upon reading this: "*The Prius Prime would not work for many commuters in the Minneapolis/St. Paul metro area as a commuter vehicle, even if you exclude winter.*" It seemed as though I would be dealing with someone who just plain didn't know how the system actually works. Sadly, I may never find out either. Those venues have threads with short lives and participants are quite random. Oh well. At least I could join in: That misses the point. AER to cover your entire commute isn't necessary. My recharging at work is to replenish the current 4.4 kWh battery. With the new 8.8 kWh, I wouldn't need to since the total round-trip capacity is doubled. Overall MPG will be outstanding, even without recharging at work. You still get the benefits of the hybrid system. You still get the benefit from plug-supplied electricity.
- 7-12-2016** **Wrong Audience.** I actually got a response: "*Necessary, and it being what the vast majority of people purchasing plug-ins expect are two different things. From my experience you are in the minority in not caring.*" He acknowledged the outstanding MPG, but just plain didn't care. Focus was entirely on AER. If that "*All Electric Range*" isn't far enough, he considers the configuration a failure. It's that all-or-none mindset. The purity nonsense went nowhere for 5.5 years. The niche perspective simply doesn't work. Ordinary people don't purchase an absolute; instead, they seek out a balance. Oh well. Some people never learn. For the rest: Those early adopters are not representative of the masses. Mainstream consumers are quite different. They will go for an augmented hybrid. They are not expecting electric-only drive 100% of the time. The 5.5 million Prius owners never had that expectation, but would be willing to pay more for more electric-only driving but still want a hybrid... which is exactly what Prius Prime delivers.
- 7-13-2016** **Reducing Dependency.** This simple message got a few likes: 89 MPG from my commute and evening driving today with my Prius PHV. 65.7 miles total. 2 full charges used. That's 4.4 kWh twice. In other words... it's a representation of what Prius Prime could deliver with a single charge. Keep in mind, the newer will have a more efficient electrical system. That certainly reduces our dependency on oil.
- 7-13-2016** **Purity Obsession.** Some people really don't learn: "*The point being gas is still being used when it might not have to use any at all.*" You sometimes have to wonder just how far someone would take that. Pushing a principle doesn't accomplish much. It's far more effective to lead by example. We see many stepping up to wait for the purchase of an EV. The wait is painful. Many actually will follow through. They are who post comments like that though. That unfortunate "do as I say, not do as I do" approach is annoying. That's why I push for detail. It reveals true intent. I also just push back, like today: No. That is not the point. It is to reduce gas consumption, not eliminate it. You want electric-only, you buy something that offers far more capacity. The effort to focus solely on commute distance is insincere... since most people have a life... meaning they drive somewhere else after work. That means using some gas on a regular basis.

7-15-2016 Prius Prime Is Better, annoyed. He tried to turn it back on me. I was annoyed and wouldn't allow that, especially from such a memorable antagonist. So, I pushed back. This is what ultimately did it: *"Agreed but I was only responding to your posts which in a full circle sort of way gets back to your OP concerning dealing with misleading statements or uninformed opinions."* And I was happy to reply with...

When I provided the opportunity to present some data, you chose to spin instead. That's a letdown and the same waste we had to deal with back when you owned a Volt. Why not try to help everyone move beyond that? Here's an example of what you should have posted:

Prius PHV cuts off EV depletion at 23.5% of total battery-capacity. If the engine is cold, up to 5.5% of the remaining capacity (down to 18.0%) may be used for warm-up. The purpose of consuming that electricity with a high-draw is reduce emissions by limiting the amount of propulsion power demand on the engine by keeping it at a low RPM. The traction-motor handles that burden instead.

Your supposed claim is that Prius Prime should consume that electricity for EV driving, preventing the engine from ever starting due to being close to your destination. This would mode would automatically be activated based upon current GPS location being compared to saved driving history.

In theory, that sounds simple. Looking at the actual data, not so much. Just under 0.25 kWh is available. Using the standard measure of 4 miles per 1 kWh, that electricity is enough to take you 1 mile under favorable driving conditions. With the heater or A/C running, highway speeds, acceleration from a stop, or having to climb a large hill, that distance available is reduced. Those factors will not be apparent to drivers.

In other words, a vague statement of *"like EV+"* only serves to feed assumptions and establish false expectations. By far, the better approach is to present information so discussions can take place about it and other detail & experiences can be shared. I requested that, but didn't get it.

7-15-2016 Support Material. I especially enjoyed sharing this today: Speaking of information sharing, I have been collecting Prius Prime support material from my Prius PHV for over 4 years now. By recharging the 4.4 kWh battery-pack each day at work, that resulting real-world detail provides a basis of expectations for the 8.8 kWh battery-pack with only a single charge. It was reasonable to believe Toyota would attempt to deliver double the current capacity. Little did I know that was exactly what would happen. Fortunately, it did. Now we have something to build upon, even before rollout begins. We know that Toyota has worked hard to increase efficiency of the electrical system too. So, results from Prius Prime should be better just recharging once per day. In my case, the 38-mile commute easily falls within the 22-mile capacity. So, recharging at work will put me into the 999 MPG category when I upgrade. I'm quite curious how the vapor-injected heat-pump will operate in Minnesota Winter driving. I'm also quite excited about the heated steering-wheel and the ability to pre-warm the vehicle using plug-supplied electricity. There's much to look forward to. Hopefully, my wait to upgrade will be less than 5 months.

- 7-15-2016** **More Misleading.** Sometimes, you simply have to blog about to... because some won't believe later that it actually happened: Here's another example of promoting by misleading: *"In 2012, just as other carmakers seduced these buyers with all-electric cars and plug-in hybrids boasting ranges of about 20 miles, Toyota finally offered them a Prius that had a charging port. But it was capable of just 6 miles of electric range—and that was only when it was driven as if an egg were under your right foot."* Not only did a supposedly reputable publisher claim just 6 miles total capacity, they also implied many carmakers were offering plug-in hybrids back then. In reality, capacity was 11 miles and it was only Ford. Another bit of misleading that got my goat was: *"Top speed in EV mode is 84 mph, which makes it more usable than the former Prius Plug-In's (mostly theoretical) 62-mph top end in EV mode."* Since when is the 62 mph EV speed theoretical? I see that routinely. What is the basis of their claim? Why does it matter anyway? Posted highway speeds around here are 55, 60, 65, and 70. There is no need to sustain travel at 62 mph. Needless to say, we're going to see a lot more of this misleading for awhile. That's unfortunate.
- 7-16-2016** **Diesel Is Dead.** Much worse news emerged this week. The hope of supporters to save the consumer market for diesel completely fell apart as a result. European penalties are now expected. Simply ignoring the environmental damage and impairment of hybrid potential isn't appropriate. Outcome from the United States has stirred the need to enforce fines in some way. To deepen wounds even more, the state of California has deemed the proposed fix for the larger (3.0) diesel engine unacceptable. What even more bad news, how about the information that a research group found the proposed fix for European diesel vehicles actually increases emissions by as much as 25 percent in some cases. Needless to say, there is nothing to look forward to anymore. It's time to give up the fight. With so many plug-in hybrids and electric-only vehicles on the way, why bother? Want even more bad news for diesel, consider what Germany just did. They are now offering \$4,000 toward EV purchases. The result has been an abrupt spike in sales of the BMW i3. How about that for declaring diesel for passenger vehicles dead?
- 7-17-2016** **47 MPG.** We took the kayaks to the lake. It was a beautiful Summer day. Spending it outside on the water was perfect. That 30-mile round trip with such a massive load on the roof wouldn't exactly be efficient. Adding a detour to pick up pizza on the way home would only make the situation worse. Yet, we did it anyway. The warm season is too short for such an opportunity on the weekend to be missed. To our surprise, MPG didn't take much of a hit. The result for all that driving with the awkward cargo was 47. It would have been somewhere around 39 without having plugged in. That's my guess anyway. With the other car, I'd see as low as 36 from dragging so much airflow-interrupting recreational equipment. Of course, even that is still impressive. Many vehicles can't get that at their best. My Prius delivered much more. That sad part is, that park actually has 2 charging-stations right there where we park after launching the kayaks. Unfortunately, they were having some type of electrical issue at the time. So, no plugging in this time. Perhaps in a few weeks we'll get to repeat the experience, but head back home afterward with a full battery. That data sure would be interesting to compare with today's.

7-18-2016 **\$2.21 per gallon.** That's the national average now. The prediction is that gas here will drop below \$2 in a few days... since the cost for a barrel of oil just dropped. It's amazing how cheap it has become. The boom was taken advantage of... pushing supply well beyond demand. Traditional suppliers kept pumping oil at the same rate they had been for years. The new sources here in the United States, as well as Canada, continued to introduce new supply. The market became saturated. Pushing high-profit guzzlers became very easy. Oddly, that has brought about an end to the monster-size SUV offerings. There isn't a stigma downsizing to a smaller SUV anymore. So, that's what people are doing in large numbers. Unfortunately, there are likely some who are replacing their cars with them too. Fortunately, Toyota saw this coming. I'm seeing a surprising number of hybrid RAV4 now. Having taken advantage of the low cost for NiMH batteries, the design choice is proving wise. It's becoming a "*right place at the right time*" situation. Why not upgrade from traditional to hybrid for just \$800? That decision is an easy one... which clearly many customers are choosing. Cool.

7-19-2016 **Small Steps.** Comments like this make you think: "*Ultimately we don't want to lose space, we like the PiP - it was the step in the right direction in terms of versatility and EV awareness.*" What was the intended reaction to that? Should I point out that we don't really "lose" anything, since there is a gain of affordability & capacity. Will that idea of trading something for something else make a difference? Are there certain absolutes which are not negotiable? If so, why? This is why there are updates. We get both generation & mid-cycle changes. Some are true upgrades. Others are adjustments to the market to meet changing expectations. Gauging how much to do is a very real problem. That's why taking small steps is so appealing... to the business. Some consumers disagree, wanting more right away instead. I stated my observations: Don't overlook the fact that 4 seats was too. Awareness of Prius Prime was stirred by the prototype revealing such a difference. It demonstrates change and helps to gauge interest. Toyota took advantage of that opportunity. It's brilliant move prior to rollout. Well played. Also, don't forget that mid-cycle updates were nothing but minor tweaks and some cosmetic alterations with traditional vehicles. Most people completely miss the paradigm-shift coming from vehicles taking advantage of battery-packs. They get mid-cycle updates offering much more. We could see the 5th seat return then. We could also see either a lowering of the floor or an increase in EV miles. That's another effort to seek balance. The initial Prius Prime sales will provide wisdom about what the market will actually desire. Remember, Prius PHV initial rollout did the same thing. The market claimed they wanted an augmented hybrid. But as the plug-in market struggled with sales, it became clear what they really didn't want that. Toyota took note and used that knowledge to build Prius Prime. Don't forget, Prius PHV itself was a mid-cycle update. True, the system was designed from the start to handle augmentation, but battery cost and battery density didn't make it practical. In fact, we're only seeing that just now in 2016. Small steps irritate some. Others see the importance when trying to appeal to the masses.

7-20-2016 **Change Considerations.** What do you think of this: *"The 5 passenger hatchback/sedan is ubiquitous and expected- especially when the standard is set in previous iterations. It seems a bad compromise to limit seating to 4 in a car that has a history..."* How important is that history? Think about the cars from 20 years ago. They weren't that wide. They weren't that tall. Sure, everyone knew someone with a larger vehicle. But those weren't plentiful during the 80's or 90's. Many of us grew up with smaller vehicles. Remember how small Camry actually was? I bet you don't. You likely remember the bench seat though. What a pain. If the passenger & driver were different sizes, someone had to make a sacrifice. There were no seat-heaters back then. Heck, where did you put your beverage? Of course, you didn't have a phone then and certainly didn't need to plug it in for recharging. I like the idea of individual seating in back with a center console. The middle seat was always narrow and less comfortable anyway. I sounded off about the situation now with: Sounds like the arguments long ago for keeping a bench seat in front... and you know how that went. Some people wouldn't give up what the buckets brought for anything nowadays. For example, think about how much of a deal breaker it is for some to not have a heated seat. You really think cold seats in back is preferred? That's an important consideration when you are using electricity to warm the car too. Would you really want to crank the heater when all that's necessary is just turning on a seat warmer? That's an easily avoided large draw on the battery-pack.

7-21-2016 **Diversification.** Some people just don't get it: *"I think inadequate seat capacity is a more essential disincentive than the option of heated seats to up gas mileage or power conservation or to accommodate the cold of a passenger that cannot be present, although I can imagine for some childless couples or singles the relative luxury or alternate technology (and those in northern climates with urgent heater needs) are more critical issues than basic practicality of what I imagine is the majority demographic for the Prius."* Getting stuck in a mindset is nothing new. People tend to seek out similarities. In fact, that's what attracts Prius owners to participate online in a forum dedicated to Prius. So naturally, posts counter to the status quo will get challenged. The differences in Prius Prime are causing more of a sour than with generation upgrades. That's likely not a problem. When gen-3 rolled out, a majority of the gen-2 owners didn't engage in discussions anymore. Aspects of the driving experience varied too much. They couldn't relate. It wasn't a bad thing though. Gen-4 is most likely going to do the same thing. We didn't see that with Prius PHV, but a large part of that was due to the extremely limited availability. Prius Prime won't be like that. It wasn't configured to appeal to potential Gen-4 buyers either. It is a true effort to diversify. Some obviously won't like that. I do. I look forward to the new audience. I look forward to more owners replacing their guzzler with a choice that offers a plug, then becomes an impressively efficient hybrid after that electricity is used up. These were my thoughts on the topic: Prius Prime targets a different audience. The point is to grow the market. That means appealing to a new demographic, rather than the existing. That assumption of it being intended to get current Prius owners to upgrade is quite understandable, but not what Toyota has conveyed. Their purpose is the expand hybrid system use, not cannibalize their own sales. Remember, the overall goal is to phaseout traditional vehicles. Doing that requires delivering diverse choices, not just providing a larger battery with plug option.

7-21-2016 **Paradigm Shift.** Change is slow. People are quick to dismiss. Not much consideration is given. It makes the acceptance of a technology a matter of perception, rather than any particular date you can pinpoint. That's how the "*overnight success*" comes about. Someone will work on something for a decade or two, the all of a sudden they get a massive amount of attention. Few cared all those years before. It's unfortunate. That's what is about to happen with the plug-in hybrid technology. It will go from obscure to "*ready*" in a remarkably short amount of time. We can see Toyota preparing for it. The 200-mile EV offerings simply aren't realistic yet. And of course, we haven't seen any sign of gen-2 Volt sales reaching that mainstream level yet. It's never quick anyway. But a key to success is being affordable. Just look around. We've had smart-phones and solid-state drives for years. When did the masses finally embrace them? Why did that happen? Once the hardware has proven reliable, you still have to wait for cost to come down. Ordinary consumers don't look for maximum capacity either. Even notice that? They are perfectly content getting something in the "*enough*" category. They aren't like enthusiasts who absolutely insist on the best & most available. People in general simply want a good buy. To be brief and stir new discussion online, I posted all those thoughts into this summary: Anyone else notice the recent paradigm shift? There are no longer any posts related to the technology itself anymore. That's a profound change. We have collectively moved on to the next stage.

7-22-2016 **The Catch.** Don't you love how people complain, yet don't actually consider what they are asking for? We keep hearing from a small group of people online who really wish Toyota had retained 5 seats and didn't raise the floor in the cargo area for Prius. How exactly would that have been achieved without costs becoming too high? What about the compromises it would require, like lower depleted efficiency and the loss of higher speed recharging? There's issues of complexity too. Keeping it simple tends to contribute to reliability. That also opens up opportunity for reusability. It never ceases to amaze me how some people never consider detail like that. They just respond with emotion, not thinking through what is actually required. Ugh. Needless to say, that's what the whole debacle with gen-1 Volt was all about. There was a surprisingly large group of people who had no concern for how or when or why. They just insisted their way was best. More ugh. Needless to say, we have new examples of the same problem emerging. This time though, I don't believe the situation will get so far out of hand. The niche will remain a niche. It was the promises of mainstream that were unrealistic. That isn't the case with this, as I pointed out: CT6 phev is what many here complaining really want... larger battery-pack that's flattened, much more electric capacity, and seating for 5 adults. The catch is, it will be extremely expensive... not in any way affordable to this audience.

7-23-2016 Exactly What We Want.

I really enjoyed responding to this today: *"Imagine if Toyota hadn't cut corners, spend all that R&D money on converting a Prius into a Prime (using a Prius and its GVWR and replace cargo weight with battery weight) and go straight into R & D a proper 5 seat PHEV with flat trunk floors, they would have save millions and give its target audiences exactly what we want instead of second guessing and hoping we would accept a 4 seat Prius with a raised floor."*

Prius PHV delivered exactly what we want. Clearly, the lesson of what had been learned in the past still isn't well understood yet.

Toyota observed the third-party augmentation efforts and monitored results closely. We knew a top electric-only speed of 100 km/h (62.1 mph) was realistic. We knew the traction-motor could deliver more if the battery possessed more power. We knew enough room existed in the cargo-area to hold increased capacity. Enhancement to the existing hybrid system is what people were demanding... and that's what was delivered.

Turns out, the consumers shifted priorities. Fallout from the early plug-in vehicles made that obvious. Sales struggled. Some of us noticed and were thankful Toyota halted rollout plans, choosing to further study usage in established markets instead. Others made up their own excuses based on anecdotal evidence... most of which have now been disproven. Using that time to stay true to the affordable goal.

You claim 5 seats and a flat floor is vital. How can you just dismiss what we get in the effort to achieve balance and affordability? Think about what the first 2 years of sales will reveal. That feedback is priceless. When the mid-cycle update comes and higher energy-density is available, will Toyota lower the floor or use that extra space to offer more EV miles? So far, the overwhelming request is more EV miles... not a flat floor.

Additionally, how do you know that consumers won't prefer the faster 3.3 kWh charging rate? Being able to replenish the battery-pack in a shorter amount time is very nice. Getting more electricity from plugging in while at the grocery is a really big deal. You can't just disregard such an advantage. To achieve that though, space under the middle back seat was needed for the larger hardware.

In other words, how do you know exactly what we want?

Lastly, how do you know Toyota isn't developing a dedicated plug-in hybrid? After all, they mentioned it in the past and even showed a prototype model.

- 7-23-2016** **Think About It.** This sure got me going: *"Yes - i get it the whole incremental philosophy - perhaps the reason why incremental is frustrating - is because the plugin Mitsu SUV is so staggeringly popular worldwide. That project (a sort-of 'hail Mary' pass - as they say in football) shows the huge benefit of pushing boundaries far beyond incremental ... you end up owning the market - ah la genII prius."* I enjoyed replying: What if Toyota actually did more than anyone has yet to notice? There hasn't been a close inspection of the 8.8 kWh battery-pack. Perhaps the seemingly clumsy size & shape for Prius Prime is actually an effort to speed up *"Prime"* rollouts. Think about it. With battery-pack production refined for rapid volume increase along with accompanying cost reduction, would it be a surprise to find out that same equipment also works with RAV4 hybrid? Think about it. Toyota would have collected extremely valuable real-world operational data in the meantime. That would greatly reduce risk as well as make it easier to market. That's an approach to reach the masses. Think about it.
- 7-23-2016** **Dedicated Platform.** We're hearing this kind of rhetoric a lot now: *"Prius won out because it was the most complete package of them all. It's not perfect but it had the rooms, the reliabilities in both the engine and batteries. It was a dedicated platform and not a converted platform like the civic or the accord..."* It comes from the lack of a small, cramped middle seat in back and a raised floor in the cargo area. I'm finding each new post interesting. The lack of substance is beginning to reveal itself. Rather than arguments growing stronger, weaknesses are emerging. That's the result of constructive discussion. Yeah! Such an outcome is rare. I appreciate the devil's advocate approach some are providing to foster that. This was my say on the comment today: Ironically, Toyota is doing the same thing now and that fact continues to be overlooked. The hatchback model of Prius is almost 13 years old. Any type of interior or exterior match would put it in the same *"converted platform"* category, especially with that being 3 generations. Making Prime stand out as different was an important goal. Yes, it shares some of the hybrid system, but clearly there's a very easy to see difference... the seating... the battery... the body. If it hadn't been given the *"Prius"* prefix, many would think of it as a distinct vehicle. If Prime gets a 5th seat later, unique identification would have already been achieved at that point anyway. Goal fulfilled. People like standout traits, even if it means a tradeoff. RAV4 hybrid is selling well. Why? Efficiency is quite a bit less. Remember how many people in the past said they'd be willing to give up some cargo room for the sake of more EV miles? Also, keep in mind that winning formulas of the past don't necessarily deliver another success when repeated later. Think about how little competition Prius had back then. Having Prime standout from the regular Prius makes sense in this crowded market with a wide variety of choices.

7-25-2016 **Spreadsheets.** I'm finally getting caught up on the number-crunching part of my data sharing. I never stopped collecting all the detail. There simply wasn't time to analyze & summarize. Now, there is. Some of the results are fascinating too. The ultimate goal was determine that value a certain antagonist from over 4 years ago hated. His upset over my insistence upon real-world data was intense. Yes, he was an early Volt owner who pushed absolutes and despised Prius. The balance from blending and the smaller battery-pack to make it affordable enraged him. So, naturally, he resorted to greenwashing. The intentional misleading efforts were annoying. I just kept collecting data. Now, all this time later, I have it. His fighting to prevent this new measurement is how his resentment became obvious. I simply suggested stating how many KWH and GALLONS it took to travel 100 miles. He wanted to hide behind MPG, supporting his objection to tracking electricity consumption. All that mattered to him was using less gas. That's just plain wrong. Guzzling electricity is not appropriate. Agreeing to that point though meant unknowing Prius PHV could compete directly with Volt in certain circumstances. He also knew that Prius PHV was only a mid-cycle release with limited scope. The next generation would be more competitive. And sure enough, that's exactly what Prius Prime will deliver. So... after all that being said... the value after 73,663 miles of driving came to **8.3 kWh + 1.41 Gallons** for every **100 miles** of travel. That's an intriguing result... especially since so few people actually have similar data to share. I documented every single time I plugged in and every time I filled the tank. Those are measured number, not rough estimates. The spreadsheets noting all that are quite extensive. I think it was totally worth doing.

7-26-2016 **Trolling.** I really getting tired of nonsense like this: *"And with a similar number of 3 or less households, 4 seats was a major detractor for the first Volt. Besides, households have extended family, friends, and coworkers. Along no middle seat for a child seat, the lack of the fifth seat meant taking a less efficient car for short outings, lunch with coworkers, when there is 5 people going."* He's been posting vague & misleading statements a lot lately. Omissions is what crossed the line. I wonder how much longer I'll tolerate it. He knows I switch to ignore too: Leaving out vital information paints a misleading picture. Only 4 seats was a major detractor of Volt for the initial rollout. After people discovered the other seating shortcomings (leg & head room in back, along with the low windows), it shifted to minor... and stayed that way... which is why gen-2 of Volt still doesn't offer seating for 5 people. The arguments about family & friends fell short anyway. People simply don't like cramming 3 across. It doesn't work for adults in vehicles of that size... which is why larger vehicles like Camry remain popular. In other words, it's not the big deal you make it out to be.

- 7-27-2016** **Taking The Risk.** I climbed up on the soapbox. The time to sound off was well overdue: We get a lot of spin. Many times, that isn't even intended. It's just a perspective people aren't aware they are stuck in. They have a set of expectations and don't realize what else is available. Over and over, we hear the glass is half empty. They are taking away a seat that rarely gets used for most and used occasionally by others. Why hasn't anyone noticed the other view? The glass can be considered half full too. Why not improve seating in back, starting with the introduction of a center console and bucket seats? We also get the sensors that detect where passengers are and directs the air-circulation accordingly. How come that isn't acknowledged as an effort to offer improvement for back seating? I'm tired of the nonsense and know after so many years of close study that the typical consumer won't raise such a huff. Family dynamics change anyway. What will work with the children while they are young will alter as the years pass. What do you do with the car then? People naturally seek out different after a while too. Toyota is hoping to capitalize on the opportunity... and getting grief for taking the risk... despite breaking out and not playing it safe being the very thing they were told to do. Take a chance, get criticized. Geez!
- 7-29-2016** **Ignore.** This is what did it: "*The EV range, which is increasing a tad for the 2017 model.*" My growing anger hit tolerance. He was clearly attempting to prevent conclusions from being draw. That's why he's considered a troll. Though, when you've been a daily poster for years, that label is seldom associated... despite the obvious behavior. In this case, he was making a comparison to BMW's i3. I was not happy. Rather than just presenting numbers for others to decide, he was drawing conclusions for everyone. That blatant effort to avoid being constructive, seen on a very regular basis, is intolerable. So, I called him out making reference to the quote: Excluding detail, yet again. Makes you wonder... Who would ever call the jump from 81 miles to 114 miles just a tad?
- 7-29-2016** **Exposed.** My effort to reveal the trolling did not go unnoticed. He knew he had been caught. The frustration in the response was obvious. He knew I'd be ignoring him from this point on too... the ultimate defeat, not taking the bait. So, he couldn't even address me. I was refusing to play his game. Phew! Yet another antagonist exposed. Each time something like this happens, it becomes easier to notice. New people attempting to do the same thing get called out sooner. Becoming aware of what to look for is key. This was a nice example to share with the group. On a big forum like that, such activity can go unchecked for a surprisingly long time. People just get caught up in the participation... not taking the time to think about what's happening. The engagement draws them into those pointless discussions. It becomes a huge waste of time that ultimately undermines. Progress is prevented. That's the trolls goal. They thrive on the status quo.

7-31-2016 Truly Desperate, undermining. It has been quite quiet over the last week. Inventory clearances have begun. With the shortage of Prius caused by supplier & production complications in Japan, along with low gas prices here, the situation is a rather odd. We're seeing markdowns on Prius that had only until recently been difficult to find. I expect a decent increase when the new model-year becomes available in a few months. The reality of cheap gas makes the idea of using less a challenging sale though. But then again, the entire industry is struggling. Anywho, while that has been playing out, I've been watching an entirely new problem emerge. Over the course of the last week, a lawsuit against Prius PHV has made the media rounds. The claim is the system doesn't deliver 13 miles of EV as promised and the engine runs whenever the temperature outside is below 55 F degrees. What kind of nonsense is that? I never heard such a promise. And where the heck did that temperature limitation come from? It's so absurd, I just ignored the online comments... until today. A well-known antagonist re-emerged, seeing that as a new opportunity to spread his same old rhetoric again. Ugh. Oh well, it gave me an opportunity to present facts. So, I did.

7-31-2016 Truly Desperate, the post. I was very happy to post this:

Prius PHV was rolled out and promoted as a PLUG-IN HYBRID. Everybody knew back then that it was a Prius augmented with a larger battery and a plug. That gave it the ability to deliver much higher efficiency. At lower speeds, the engine would remain off for longer durations than with the no-plug model. On the highway, it would gain a MPG boost from the plug-supplied electricity.

The claims of AER (All Electric Range) came about after, as a effort to undermine. That intentional misleading got pretty bad too. There was a group of Volt owners who grew quite irritated by the high MPG some Prius PHV owners reported. But rather than compete honesty, they chose to greenwash

Looking at the window-sticker's stated efficiency of 29 kWh per 100 miles, the deception was easy to reveal. It shows that you need 3.19 kWh of electricity to travel 11 miles. Being able to get that from the 4.4 kWh battery-pack should be obvious.

It never ceased to amaze me how desperate some became, pushing the belief that when the hard-acceleration point on the EPA test was reached (the 6-mile mark) there was no plug-supplied electricity remaining the battery-pack. In other words, they were hoping you'd be gullible enough to not check facts.

From my experience owning one, I routinely see at least 11 miles of EV in the warm months. In the coldest here in Minnesota, when it's well below the freezing point, I have seen as much as 9. With the heater on, it's less. But maintaining a lifetime average of over 70 MPG, even when dealing with snow & ice for months, is the point.

I'm not at all surprised to see the undermining effort continue. That seems to be a sign that the upcoming Prius Prime scares some. A clutch will be added, allowing the generator-motor to contribute propulsion-power to the traction-motor. The battery-pack capacity will be doubled. The system itself will be more efficient, requiring less electricity to travel the same distance. Delivering a solid 22 miles of EV with very high MPG following depletion is quite realistic.

To add fuel to the fire, Prius Prime will deliver industry-leading heating for high-efficiency EV operation in Winter driving. It will use a vapor-injected electric heat-pump. How will those desperate to undermine end up spinning that information?

- 7-31-2016** **Truly Desperate, easy as pie.** With my follow up, I got clever putting it this way: Keep in mind, the goal of all start-of-the-art technologies is for them to mature, so mass adoption will take place. The 4th generation Prius brings about cost reductions to the point of being competitive with the true competition... traditional vehicles... even with gas so cheap now. The 2nd generation plug-in Prius will be striving to achieve the same thing. Think about the smaller battery-pack. The size makes it affordable. The size also allows it to be used elsewhere, like in a RAV4 hybrid. That's what some are scared of. The ability to easily scale is an important aspect of business. Specialty vehicles, for example Volt, don't offer that advantage. The seemingly less capable system Toyota has designed is what will be able to reach mainstream buyers in a timing and cost-effective manner. Look at all the other top-selling vehicles. Cars like Camry and Corolla certainly don't carry any "*advanced tech*" type labels, yet that's what sells in high volume. That's what ultimately pays automaker bills and populates our streets. Watch Prius Prime reach an audience none of the other plug-in vehicles have been able to capture. They'll be the ones confident in the reliability & value reputation Prius has earned, looking for an "*easy as pie*" way to also experience some EV driving.
- 8-01-2016** **New Observations.** Having something truly new to discuss is quite rare. It happens though. I was lucky enough to introduce the topic too. It came about from this: "*As the traction packs age, and are less & less capable of holding capacity, in essence, they become a smaller sized pack.*" Few have enough detail to make observations relevant to that statement. I do. In fact, I have a massive amount of detail. I've been populating spreadsheets with my activity for a very, very long time. There's lots to notice patterns with. I started the discussion this way: However, as the battery ages, it would appear as though the chemistry responds differently. My observations over the past 4.5 years is that the internal electrical resistance has become lower. So even though the recharge quantity has dropped from 3.1 kWh to just 2.5 kWh of electricity, the distance I am able to travel with EV has remained consistent. There's also the fact that the vehicle loosens up over time and consequently becomes more efficient. For example, today's commute to work delivered 14 miles of EV driving. 80,000 miles and 2,400 recharges later, that's still right on par for what I got when the Prius was new. In other words, the net result is showing no loss.
- 8-01-2016** **Unanticipated Results.** I sure wish I had been filming today. It was one of those ideal condition days. Traffic was lighter than usual and the weather was quite pleasant. Heck, even the construction delay I've been having to deal with routinely was gone. That made for a very nice drive. It was reflected in the results too. 257 MPG from my 18.6 mile commute. I am clearly not see any degradation from the battery-pack... despite all the miles and the number of charges. Such a timely example of 4.5 years of aging certainly was nice. I definitely reinforces the 150 to 175 MPG that same commute has continued to deliver. People assume there would be a massive drop after enough time. That's not happening... yet. It still could at some point. But what car retains performance later in life? We know for a fact that cylinders in combustion engines lose compression over time. That reduced pressure available results in lost power. More gas is required to achieve the same thing as a result. How come that isn't ever brought up in discussions? Traditional vehicles suffer from that. A plug-in hybrid like Prius won't, since it's engine gets used far less over the same number of miles. I look forward to more unanticipated results like this. Of course, they'll be anticipated... so... um... not sure what to call them.

- 8-03-2016** **Blatant Lies.** The attacks have begun. Any article now posted about Prius Prime results in attempts to undermine from Volt enthusiasts. They clearly see it as a threat. With so much pressure coming from GM in the form of Bolt favor, it's no wonder the support for Volt is falling apart. The fact that we're getting rhetoric in the form of blatant lies is a bit of a surprise though. I hadn't anticipated so desperation to drag on this long. Today, it was: *"With the Volt, it's much colder when the engine needs to run (as cold as 15 degrees) but even then it cycles; with the Prius, it is always on."* I've pointed out how the heater actually works quite a few times now. He knows what he said isn't true, yet posted it anyway. Prius cycles too. I've even provided detail on how, pointing out the coolant temperature threshold triggers and the durations. To pretend to not have ever been told any of that is clearly an act of denial... and a confirmation of being desperate. That's sad.
- 8-03-2016** **Try.** How would you respond to this: *"I'm just not seeing the vision Toyota is seeing in the Prime. Who knows, maybe it'll be a big hit. I'm excited."* It doesn't really tell us much. The vague references are both negative & positive. It gives the impression of missed opportunity, but they suggests a great potential. I asked: How is *"big hit"* defined? What is considered **"vision"** for a plug-in? Most people feel pushing limits is how sales are achieved. Why? In reality, high-volume volume acceptance from the masses comes from making a product affordable. In other words, it won't offer amazing capacity. Notice how the most popular sellers, Camry and Corolla, are just good all-around vehicles. They really don't have any standout traits, yet they sell in great quantity. Positioning to capture a new market is quite a challenge. None of the plug-in offerings so far have reached the mainstream yet. Toyota is giving a new approach a try.
- 8-04-2016** **More Miles.** It doesn't take much to imagine how often stuff like this comes up: *"If folks have a choice for purchasing more EV miles versus less - chances are their dollars will vote for more miles - ah la volt. GM has kept their price reasonable, yet uped the ev range by 18 miles (gm secured a very low production cost per kWh from their battery supplier). Time will tell."* Today's response was: That seems reasonable; however, the market doesn't concur. Volt is not the *"leap frog"* solution it had been hoped to be. The second-generation is floundering like the first. The recent spike of 2,406 sales for July is likely due to model-year clearance pricing. If that could be sustained, it would meet the half mark for mainstream minimum (60K annual). That quantity is very important, since it positions the vehicle to be able to sustain profitable sales without tax-credit dependency. The clock is ticking. Toyota is delivering a package with greater potential to reach that sustaining level in time. The smaller EV range doesn't stir much excitement from the enthusiast perspective, but it should be much easier for dealers to embrace... who play a pivotal roll it the sales process. Also, keep in mind how consumers don't purchase the largest capacity available. We see that with phones, tablets, and computers. More memory is clearly beneficial, but not required. The same is true for Prius Prime.

- 8-04-2016** **Right Now.** We're seeing a lot of interesting perspectives emerge: *"Definitely I welcome Toyota back to the game with the Prius Prime, but there is lots of competition in blended right now."* Most of vague and give the impression Toyota had given up, rather than just waiting for the technology to be realistic for the masses. That implies they weren't doing any research & development in the meantime, which just plain isn't true. But you know how it is. The *"overnight"* success is always the result of decades of unnoticed effort. A bit annoyed, I kept it brief: Right now is a red herring. Consider the entire product cycle. The generation being rolled out must be able to sustain profitable sales for 5 to 6 years.
- 8-05-2016** **Understanding Change.** Coming from a person well known for doing everything in his power to keep conclusions from being draw so discussion won't end, I wasn't the least surprised to read: *"I don't understand this. Plug-ins are strategic products. Toyota certainly has said publicly they expect to lose billions on the mirai, and bleeding will last at least a decade. Why would they need to be profitable in the next 5 years with the Prime. Certainly the market has much higher competition than when toyota initially announced their first gen prius plug-in."* He knows all too well what the situation is. How many times can the same facts & concerns be posted? Anywho, I addressed it this way this time: Thinking the competition is only other plug-in vehicles sets the bar horribly low, pushing mainstream expectations out to the next generation. Why that perspective? Why such a pessimistic outlook? Traditional vehicles are absolutely crushing sales of plug-in vehicles. Simply watching that continue while also remaining dependent upon tax-credits for the next 5 years is absurd. To overcome this, mainstream volume must be reached in the next few years, by mid-cycle. It simply makes no sense taking a niche approach now that the battery-tech has finally reached a point of being affordable and offering enough energy-density to compete with other vehicles in the dealer's lot and on the showroom floor.
- 8-05-2016** **Fence Sitters.** I saw this coming: *"There's nothing about the prime that suggests anyone will switch to it from a gas guzzler, at least until gas goes back over \$4. It's a completely niche vehicle with 4 seats, and little storage. That's the reason for all the negativity, nothing about the lift back is exciting non prius drivers, and prime offers nothing more."* This is where the smaller battery-pack and high-efficiency hybrid system comes into play. Toyota isn't repeating GM's mistake. Remember how Volt remained a niche product, regardless of how much arguing there was that it was intended for the mainstream? It's why I kept asking the *"Who?"* question so often. That was a sincere effort to recognize & understand audience. The experience from that tells me there is far more than nothing. There is just enough to entice, but without going overboard... the mistake. More is not a good thing. Too much is bad. GM learned that the hard way. Toyota is attempting to avoid it. That's difficult to see though. I attempt to provide some clarity though: You're over-thinking the situation... a very common problem with online discussions. Some people are simply looking for an entry-level plug-in vehicle. They're the ones with a some extra \$\$\$ to get something nice that doesn't necessarily have to be 100% practical. I encounter that type of interest on a regular basis now with that new grocery store so close that offers the free charging spots. In other words, Toyota is going after those fence-sitters... who are more abundant than you think.

8-05-2016 **First Review.** Price isn't available, yet people complained about that having been left out of the review. The review itself stated Volt had a "*3rd rear seat*" without any disclaimer of it not offering any space for legs. There's a double cupholder instead. How is that considered proper seating? Ugh. Needless to say, there is very little to work with still. This first basically only revealed the observed EV miles. The total was 28. That's way over the initial estimate of 22. But then again, the pack is 8.8 kWh. The pack from Hyundai is 8.9 kWh, yet it got a rating of 31 in its domestic market. So, my original comments about Toyota targeting double (from 20 to 40 km) is dead on. 25 miles is looking pretty realistic. Looking to the comments, the first posted was advice to just buy a Volt instead. It was the same brain-dead advice you could expect to hear... more EV is better. I pointed out that mistake with: Prius Prime will offer some improvements over Volt. Most significant will be the vapor-injected heat-pump, which should provide much more efficient electric heating in the winter. Efficiency in hybrid mode will be notably higher (expected mid 50's rather than low 40's). And the head room for the rear seating will be greater (expected 37.4 inches rather than 35.8 inches). I don't believe Volt offers a driving recharge mode either.

8-06-2016 **Intended Audience.** Here's more from another antagonist: "*Could it be that Toyota rally screwed up the hatchback and the Prime?*" I jumped on that immediately:

Wow! That reminds me a lot of the anecdotal comment made last year, when the production of Prius PHV ended. Many of the comments were just plain wrong too. Having virtually no data to work with and disregarding certain facts is a dead giveaway the discussion is not constructive...

Start with the inventory shortage. Availability of the gen-4 Prius was severely hampered by a third-party supplier suffering from a major fire at a production facility. Without those needed parts, there's simply no way to deliver the vehicle. That's not speculation. That's not rocket science. That's not spin. It's basic business fundamentals. No parts. No product.

Next is the reality of a very confusing market. To expect the gen-4 Prius to be an instant success upon rollout is not realistic. Consumers are becoming overwhelmed by all the information now being spread. Look no further than the auto-show circuit this Spring. Notice the wide variety of green choices being promoted? How the heck is an ordinary person supposed to figure out that mess quickly?

The most telling though is the comparisons to Volt capacity. Since when is it appropriate to compare EV miles to a vehicle struggling with sales? Prius was always the basis of comparison due to its strong demand. That's not the outcome from GM's offering. Why in the world would you say Toyota should follow the same course when it hasn't been successful?

As for the supposed "delay" belief, since when does a rollout early-summer make any sense? That's when production ends for retooling and clearance takes place. Having a rollout occur then simply makes no sense. The cycle has been for that to take place at the close of the calendar year. Think about how long it takes to begin production, then ship the vehicles here.

Remember, the goal is to appeal to the masses. That means delivering an affordable vehicle which won't stir excitement among enthusiasts. Prius Prime will be an entry-level choice for plug-in hybrids... a very compelling one, different enough to stand out, but the technology not intimidating.

Expecting more reveals a misunderstanding of intended audience.

8-06-2016 **Driving Recharge Mode.** Much like the brain-dead advice of "more is better" with the EV dismissal, there's that of recharging the battery-pack using gas. Overall efficiency is completely disregarded. They don't think about how the engine & motors are being used, they just assume outcome. This is that "know your audience" problem I have to deal with on a regular basis in blogs & forums. They don't understand the perspective of ordinary consumers. That fundamental oversight messes up discussions. They build a mental image of the situation that's inaccurate. I find that so annoying. My efforts to convey clarity typically don't go well either. Lack of a business background on their part means engineering is the only consideration. There's no balance. Normally, that's bad. But in the case of trying to figure out driving recharge mode, you'd think they'd figure it out. That's all about engineering. Unfortunately, assumptions are made rather than calculations. Long story short, the use of the engine to recharge the battery requires gas. That's viewed upon as wasteful. Why? Prius Prime should deliver around 55 MPG from hybrid driving. My Prius PHV delivers over 50 MPG that way. So what if the penalty for recharging the battery-pack caused around 10 MPG to be lost. 45 MPG is still great. The resulting end of your highway cruise with a full capacity is fantastic. The driving to follow will be in EV, where it is most beneficial. Overall efficiency will be higher because of that. It's basically the hybrid system taken to a new level. How come these engineering-oriented people can't see that?

8-06-2016 **Constructive Discussion.** The challenge to have it continues. In response to an on-going thread about Prius Prime, I posted:

Then consider yourself informed now. The internet is loaded with intentionally misleading information. There's is also a lot of speculation that turns into "*fact*" simply through the act of passing it along. Squashing that as soon as detected is what some of us make an effort to do.

The case with Prius Prime is especially noteworthy... because Toyota is attempting to expand the market by reaching new customers through the reputation of Prius, but not taking a cannibalizing approach. Just think if they made it too much like Prius. There wouldn't be any growth. Buyers would simply shift from a 55 MPG hybrid to a 120 MPGe plug-in hybrid. That's not the desired outcome.

It upsets & dismays some supporters of Prius that such an approach would be taken. That's to be expected. Diversification means appealing to another group, not just more of the same.

Gen-1 offerings of plug-in vehicles consisted primarily of conquest sales which depended heavily upon tax-credit & HOV incentives. The expectation by our readers is for that trend to continue with Gen-2 offerings. After all, gas is cheap and business-sustaining high-volume production of large-capacity battery-packs is still years away.

Toyota is attempting to try something different, hoping to gain new interest as a result. Delivering a configuration with seemingly too little capacity and making too great of a cargo tradeoff is what many enthusiasts & antagonists focus on... rather than recognizing the goal of growth... and what it takes to achieve that.

The topic of profitability isn't interesting to most people. That prevents constructive discussion. Risk taking is often perceived as making a mistake. That prevents constructive discussion. Historical choices are often referred later to as obvious. That also prevents constructive discussion.

In other words, there is much to discuss and it is quite a challenge when there isn't even clarity about what was said and what goals are.

8-07-2016 **Mid-Engine Corvette.** This has been a high-performance vehicle with low-performance results. Efficiency has been disregarded since it's inception. Thankfully, upcoming efficiency standards will force a change. Moving the engine back will not only open up the opportunity to introduce motors and a battery-pack, it will also improve handling. Notice how a majority of the truly high-performance guzzlers didn't have an engine in the front? This change seems long overdue. How will enthusiasts respond to the news announced today? Think about how well a Tesla Model S performs. That's a family car. Shouldn't a sports car like Corvette be able to accelerate like that too?

- 8-07-2016** **Topic Drift.** Seeing the bigger picture as a result of topic drift, that's constructive discussion tangents, can be revealing... as I pointed out today: Drift can be revealing though. In this case, we're seeing a pattern emerge. The "5 seat" complaints are beginning to resemble the "full size" complaints. Full-Size prospective buyers would post their disappointment about not fitting comfortably in a mid-size car. The advice was always to consider the purchase of a full-size hybrid instead. How is this any different? If you have a full-size family, why are you considering the purchase of a mid-size car? And for that matter, why are you insisting that those of us who don't need that room should tradeoff back seat comfort/convenience (buckets with center-console are nicer) to accommodate a middle position that won't ever be used? This is why consideration of the bigger picture is so important. Focusing on just a single offering makes points like that easy to overlook.
- 8-07-2016** **Summer Filming.** Hooray! I'm seeing things settle down now. Getting married and moving was a much a higher priority than providing educational material for Prius. It just happened to be a good time for more personal activities anyway. Interest in gen-3 Prius dropped significantly and real-world data from gen-4 Prius would be available for awhile. That left even more of an opportunity for the plug-in model. Lots of time gave me the chance to relax & plan. Today, I put that plan into action. I bought a new video camera and had been experimenting with it. The imagine stabilization it provided along with a new method of mounting it in the car meant capturing even higher quality footage. I also tried out a newer OBD-II reader. But sadly, that didn't resolve the buffering issue due to the want to capture so much data. Anywho, it was a beautiful Summer morning. The temperature was extremely comfortable and traffic light. I still had to contend with all the stoplights and hills on that new commute route, but it was a nice drive nonetheless. The footage came out great too, both the instrument display as well as the road activity. I'll combine, render, and publish that... hopefully soon. I also filmed the commute from work too... arriving at home with equally pleasing results. Yeah! It's great having such comprehensive captures like that available, especially when we all know the comparisons which will come when Prius Prime is rolled out. Prius PHV performs much better than what people claim. This helps to prove it.

8-08-2016 **Who?** The topic came up, yet again. This time though, it was on a general green blog. No more Volt-only rhetoric. Phew! That sure got old. Virtually all who pushed the impossible-to-achieve promises have vanished. It's just a really bad memory. Now, we address how most customers are totally clueless. The very idea of plugging is overwhelming for them. They have nothing basis of comparison. Being a totally new subject matter, it's hard to know where to start. That's where I come in. With 16 years of study and active participation, it has left me well prepped to begin the process of addressing mainstream buyers directly. No more enthusiasts. Those interested in actual change for the masses are dominating discussions. Here's a contribution to that:

Understanding audience has been a fundamental problem. Think about how confusing MPG values were. Each report was different. Who found how much appealing?

GM made the mistake of targeting Volt enthusiasts... which wasn't a huge problem with gen-1, but the approach continues with gen-2. There's little to draw in their loyal customers. Those buyers of Malibu & Cruze will just replace them with new ones later, not even considering Volt.

Ford had the idea of augmenting their Fusion hybrid. That overcame some of the reluctance to change to another vehicle entirely, but introduced the problem of trunk room loss. C-Max had that hump in the cargo area to deal with, so that wasn't a help either.

Toyota has been the other player... but held back upon confirming the very problem mentioned here. Rather than rolling out beyond the 15 initial states, they decided to study the existing markets and adapt accordingly with gen-2... hoping to strike a balance that draws in new interest... those who didn't give Prius any consideration.

Prius Prime will fulfill that role. For the 35 states that never saw Prius PHV, it's an opportunity to start fresh too... an advantage neither GM nor Ford have anymore. The "*to the floor*" EV power will obviously be an easy characteristic to appeal to potential buyers with. There's a vapor-injected heat-pump and a driving recharge mode, both which each out the other plug-in hybrids, won't mean squat to them. However, owners will spread the word, which is far more effective than advertising or even salespeople.

That's the key. Like with Prius way back, well over a decade ago, it was endorsements from owners that played a major role in acceptance. It makes identifying audience easier. It's how a unifying message of purpose emerges too. Watch for it. Note what is favored and what is not by actual buyers, not enthusiasts. Knowing that is how market growth will be achieved.

For all, it should be easier this time around. In the past, promoting wildly varying MPG results only served to confuse. None handled that well. Lesson learned. Drives with EV miles, even if they are short or segmented, are what the typical car shopper will pick up on quickly. They'll understand the benefits of that engine-off experience.

Even small steps are still progress forward. With a market so complicated, so many choices, and gas so cheap, that's a really be deal.

- 8-11-2016** **Battery Degradation.** You can't do much more than share experiences, hypothesize about outcomes, and ask lots of questions. That's what is happening now... as a result of yet another vague press release from GM. The stated "fact" is that no battery-pack in Volt has ever been replaced due to degradation. The catch is, the state of degradation is never actually defined. The references to aging are so vague, they could be anything. That's the typical propaganda we've come to expect. They tell you something without really telling you anything usual. Oh well. This is what I had to say about that topic, on the big Prius forum: So... how does it work with Prius PHV degradation? Today's random errand running resulted in 11.2 miles of consecutive EV driving. Since the system supposedly only delivered 6 miles of EV in the first place, according to quite a few Volt owners, the opposite must have happened. The battery improved as it got older! (And yes, I'm quite pleased to have real-world data proving the naysayers were just spreading FUD.) I am actually seeing results that reveal an unexpected aspect of aging. According to the data from my recharges of the last 4.5 years, the amount of electricity to reach "*full*" has declined. Yet, I'm consistently experiencing the same EV distance as when still new. The thought behind that is the car itself is well broken in now (after 80,000 miles, along with 2,400 recharges) and the electrical resistance inside the battery itself has dropped. In other words, I'm not seeing a net change. Perhaps I would later, when the miles are doubled. But wouldn't I have already got my money's worth by then? And what if a new battery-pack was purchased? How much would that actually cost then? It would bring the car back to a near new status at that point too. Just think of how many more miles it could be driven still. Brushless electric motors keep going and going and going...
- 8-12-2016** **Safety.** We got detail today about Toyota's safety intentions. The price of Prius will go up a little bit. In return, some formerly optional safety features will become standard. That's great. Unfortunately, things like that go unnoticed by the typical consumer and exploited by those hoping to undermine. Specifically, the "Safety Sense P" package will now be included on all models. That consists of: adaptive cruise-control, pre-collision warning with pedestrian detection, automatic high-beam headlights, and a lane-departure alert system. The pricing increase ranges from \$45 to \$515, depending upon the model. That's really nice. It falls well into the category of delivering a well-balanced vehicle. Safety is clearly not being compromised for the sake of efficiency. Don't forget, we also get a major suspension upgrade too. That improvement to handling didn't contribute to an efficiency increase. In fact, the extra weight resulted in a minor penalty. Other aspects of design, like top-rated safety, are important too.

- 8-12-2016** **Adaptation, success.** It has been interesting to see where the "5 seat" discussions take us. A few believe Toyota made a serious mistake and will correct that in a few years by changing Prius Prime to accommodate a 5th person inside. I personally don't envision the many wanting a cramped, less comfortable spot in the middle. I consider the trade for buckets with a center-console an upgrade. Doesn't anyone ever think about their comfort? The shape of the seat along with a padded armrest is nice. Anywho, the most thought-provoking comment are coming from current Prius PHV owners. They look at Prius Prime as a gen-2 offering, rather than the fresh new approach Toyota has stated. Things change. Success means being able to adapt. I started with posting: Prius Prime is different than Prius PHV in a variety of ways, including who it will draw interest from. Most people don't remember the goals prior to rollout, back in 2010 when config had not be finalized. Things have changed since then. The market has shifted and Toyota is pursuing a new target. Adaption is a key to success.
- 8-13-2016** **Adaptation, luxuries.** His response to my post was: *"...and I'll say it again, but if someone is in the rear of my car, they are getting a free ride. I'm uninterested in how luxurious the rear of my vehicle is for those getting a free ride."* So much for the comfort consideration. He clearly see a different audience. I wonder what this will stir: That's why you are not the intended market. Know the audience. Some people do want that. Some also see the value in a large screen, heads-up display, LED lights, and a double-wave window. All are luxuries. For that matter, so are the larger battery & plug.
- 8-13-2016** **Adaptation, growth.** I didn't wait for a reply. I followed up shortly by adding: Speaking of adaptation, that was a grudge I always held against gen-1 Volt. There was no willingness to meet in the middle. That attitude of sacrificing all for the sake of EV didn't prove a draw. Loyal GM customers simply weren't interested. Oddly, gen-2 Volt retained many of the same hold backs. So, there's naturally a bit of a "compared to what" problem with many of the recent discussions. That's why we need to ask the "Who?" question. Having learned from Volt, it's absolute essential to understand audience. GM targeted enthusiasts... and did a great job appealing to them. Unfortunately, that wasn't the goal. Mainstream sales were never achieved and they still remain a struggle. Once the clearance inventory is sold in a few months, we'll be looking at a new market. Bolt will become available. Oddly, that 200-mile EV doesn't seem to be targeted at the mainstream either. To provide a large seating area, both cargo-capacity & aerodynamics were sacrificed. Who will be interested in a vehicle like that? In other words, what do the current owners of Malibu & Cruze really want from their vehicle? Same question for that of Toyota cars. Will Prius Prime appeal to Camry & Corolla owners looking for a replacement? For those who continue to complain here, their perspective is that Prius Prime is targeted at Prius owners. I disagree. I see greater appeal and potential. I see Scion owners having become older now looking for a Toyota to purchase. I see those who grew up with Celica looking for something modern with that draw from the past. I see those who like the perks of Avalon but don't want a car that large. Notice how Toyota is trying something new? Why insist that they retain a design aspect so few actually seek? Is it so bad to want a choice that doesn't resemble all the others? They are making an effort to adapt to the changing market.

8-13-2016 **Adaptation, reset.** Prius has matured to the point where it is so well proven and well refined, the word "hybrid" has become synonymous with it. In other words, it is just an ordinary mainstream vehicle at this point. Every few years, people expect a variety of smaller improvements... but nothing amazing anymore. It delivers well on specific goals. Gen-4 has nailed it. Done.

So, no matter how much some supporters push to retain the status quo, it's ultimately going to fail. Progress cannot be made that way. The established technology alone simply isn't enough. My technology observations over the past few decades tells of bigger change to draw new interest. In other words, the current market is saturated. To grow, something new must be tried.

Prius Prime is that... not a fifth-generation Prius or a second-generation PHV model. True, it builds upon existing technology... but that's the case for pretty much every combustion vehicle. They all take advantage of the past. But that's all hidden. Seeing that Prime different is a step out from beyond the box.

Sales from the first 2 years will indicate what is needed next. That's the opportunity mid-cycle updates provide. We won't know what those new customers really want (not need) until they are given a chance to decide. Most comments from existing PHV owners don't have the perspective required. They don't have "*to the floor*" EV acceleration. They don't have a vapor-injected heat-pump. They don't have a battery-capacity large enough entire commutes. We won't know the true value of those things until people actually experience them.

For me, I'll be going from impressive MPG to an all EV commute. That's new, no comparison available. The electric heater will be quite a treat. I can't imagine what it will be like approaching a car that's sat outside all day, yet is warm inside. And of course, I can't wait to find out what interest those on-the-fence about getting one will think of the stories I share.

It should be clear that the purpose of Prius PHV and Prius Prime are not the same, they do not target the same buyers, they don't even have the same scope. Like other well-proven technology, the time for a reset has come. Think of how desktop computers became smart-phones. That process was long, complex, and came with a few unexpected changes along the way.

8-14-2016 **Adaptation, opposition.** That previous entry was my rant post. I was annoyed by having received a reply so reminiscent of the past. Of course, the confrontations now on the big Prius forum were anticipated. That's one of the big benefits of having done the same on the daily blog for Volt. That was practice, to identify all the argument-points there we'd inevitably see here later. The pattern repeats. GM failed to recognize that reality. The same disaster Two-Mode has become is what they allowed Volt to become as well. To be so naive as to think history wouldn't repeat without making any effort to prevent it... ugh. Anywho, I'm not going to allow that to happen with Toyota. Watching for the signs, then addressing them as early as possible is key. Enthusiasts of Volt absolutely refused to acknowledge Two-Mode's past. They figured that technology and those executive decisions has nothing in common. They were wrong, very wrong. We now have those experiences to learn from. Building upon successes, even with the knowledge of what not to do, can be quite a challenge though. Scaling up isn't as simple as refining a design, then making more. There's where diversification comes in. People need choices. Opposition emerges when decisions about what to offer don't appeal. Not everyone will be pleased. That's all too clear with the seating for 4 choice. Oddly though, we aren't with the raised floor anymore. Seats down cargo room is still quite large. It's not as tall, but that isn't often what owners will need anyway. And if it is, there's still the extra height available closer to the front. Long story short, there are opposing views. Some will not be happy. Point is, they don't need to be. As long as one of the choices appeal to them, goal achieved.

8-14-2016 **Adaptation, mistake.** Pre-Rollout banter continues. That's expected. We want to shake out concerns and address them thoroughly, prior to sales actually beginning. Most consumers won't take notice of any detail until early next year. Now is the time to take advantage, considering this a practice opportunity to refine rebuttals with well thought out points to reply with. Here's more to that end:

What I find telling is those who label the attempt for Toyota to expand reach as a "*mistake*".

We went through this exercise already with GM. The outcome wasn't adding an actual 5th seat; instead, they choose to deliver other configurations... which is what they needed to do anyway. How many here actually remember all those fights? Someone would call for diversification and it would get interpreted as an effort to kill Volt? It was absolutely absurd. Enthusiasts were in a panic state for years, fearing any suggestion of change was really undermining. They seriously believed another offering would dilute, rather than strengthen.

You recognize the early signs of that here?

It starts innocently enough. There are legitimate claims to use of that middle spot; however, scope is quite limited. Most owners never use it. On the rare occasion they actually do, it comes with an apology for the discomfort. That's why the option simply isn't realize for the masses in Prius Prime. Why not offer it elsewhere instead? After all, the effort of developing the technology is to use it.

Look at how Prius v has progressed. Sales have always been respectable. 30,000 per year is sustainable, but not desired. How will Toyota stir more interest? What if it becomes the Prius model to offer the 5th seat? After all, it offers a larger cargo area. That's the better family car. Wouldn't it make sense for Toyota to capitalize on that, recategorizing the regular model Prius in the process. After all, it now offers much nicer suspension... something that clearly wasn't necessary, but certainly is nice.

Prius v could also offer Prime version too.

It's the lack of wanting to consider Toyota's entire product-line that makes the arguments here & now a problem. It follows the very same problem GM supporters had with Volt years ago. The pattern should be obvious. That same "*mistake*" was repeated too. The first time around, it was called "Two-Mode".

Do you really think Toyota didn't consider those lessons learned before making the choices they did with Prius Prime?

8-14-2016 **6 Years Ago.** It's hard to believe so much time has went by since then... when I got to drive a prototype of Prius PHV. There is was in my driveway, without any supervision. They delivered the car and had me sign some paperwork. I could explore the technology on my own... and I did. Thankfully, the wait for my own to keep wasn't too terribly long. Battery technology still needed to mature. Cost was still beyond the reach of mainstream consumers. Energy density was a bit lacking as well. It simply didn't make sense for mass rollout back then... or the 2 years later when I made my purchase. Much could be learned though. That's why the prototype was getting driven my pioneer buyers like me and why the limited markets got inventory to sell. The teaching was quite extensive too. The mere existence stirred quite a bit of industry attention. Why in the world would Toyota try to squeeze out so much from so little? Why not just take the easy route of using a larger capacity battery-pack instead? After all, prices would be lower years later... right? Turns out, they weren't. The chemistry & production had many complexities to deal with. Consumers themselves did too. Prius PHV certainly delivered on the goals it set. Unfortunately, the market itself changed. Low gas prices were quite unexpected. Even more so though was the indifference to MPG improvement. Prius buyers were drawn to that. Those seeking the plug-in experience were indifferent about blending. That 100 MPG target aftermarket sellers had capitalized on didn't draw new interest. The market had been saturated. For Toyota, no big deal. Prius PHV was only a mid-cycle release. The next-gen would be on the way soon anyway. For GM, that was a big problem. Volt had to endure the wait of a full cycle and it wouldn't offer as much of a generational improvement. Upgrades would be incremental. It didn't have a hybrid counterpart either. That's why I'm so excited about Prius Prime. The introduction of a clutch to allow the second motor to contribute power, along with the vapor-injected heat-pump, is something to really look forward to. It's a new draw, taking advantage of market change... without neglecting that all-too-important priority of keeping cost competitive. Supposedly, that will result in a very attractive price. We'll find out in about a month or so. The first 6 years went by quick. This final wait is becoming a long one.

8-14-2016 Prius Plug-In History. I posted these thoughts for consideration:

Shortly after the 2nd generation rolled out, we were already discussing what potential the ability to travel up to 100 km/h using only electricity had to offer. Unfortunately, back then all that was available was NiMH batteries, which were robust & affordable but lacked enough energy density.

Lithium chemistries emerged a few years later, showing realistic battery-pack opportunity. Toyota began testing. When the 3rd generation was later rolled out, we could see the power-split-device had been improved. Higher RPM from the motors was available. That would be conducive to more efficient EV driving.

6 years ago, I got to drive one of the prototypes. It was equipped with a 5.2 kWh lithium battery along with a heat-pump for cabin-warming in the Winter. Both features ended up being scaled back. The larger pack meant a raise floor. The heat-pump meant very short EV distances. Neither were supportive of being a PLUG-IN HYBRID anyway.

Blending was key. The system would take advantage of the gas engine whenever it presented an efficiency benefit. Maximizing EV travel simply wasn't a goal of Prius PHV.

Soon, we'll be seeing Prius Prime. That brings back the 2 design attributes previously dropped. It also introduces "to the floor" acceleration in EV. All of which put emphasis on electricity use, not taking advantage of the gas engine at times. The larger battery has become key instead.

True, the hybrid system will still be remarkable efficient, but the optimum balance of features will not. That alteration of priorities changes the consumers targeted. Toyota says that's ok though, since some of their long-time customers have changed anyway. They grew up with Prius. Now, they seek something different. There are also customers of Toyota who owned a Camry or Corolla, found Prius interesting... but not compelling enough. Prius Prime is intentionally different.

Remember, the ultimate goal is to expand the market. That growth cannot be achieved by continuing to appeal to the same audience. That catch is, appealing to a different audience means not pleasing the other.

8-16-2016 **For All We Know.** The speculation is interesting, especially when looking back years later. What seemed so important at the time can later become so trivial, it is sometimes almost totally forgotten. That's why I like documenting quotes like this: *"Toyota's already working on a 5 seat Prime even before the 4 seat Prime even hit the market."* Saved for the sake of learning from history is valuable. If it was mistake, much can be learned. If it was pointless, how was that recognized? In this case, I wait with anticipation to confirm my thoughts: You have already fallen into the same trap Volt enthusiasts did when GM said something. You heard what you wanted. The engineer stated he looked forward to doing that work. He designs things and finds the process very rewarding. No where was there any promise of actually delivering it on a Prius Prime, nor was a timeline even given. For all we know, it could end up on a different plug-in hybrid. Think about how Prius v could use that. You get one Prius oriented to offer nicer features and other that delivers an extremely practical configuration. After all, your logic of being responsible makes more sense with that approach.

8-16-2016 **Who?** That question is finally being asked by others. It isn't about Volt anymore either. That past was about preparing for this future, the present, in which this question emerged: *"Here we are talking about selectable EV, heat pumps and the ability to charge on the fly while it is reported that most buyers do not even 'get' the need for a plug in hybrid. Toyota serves those people, too. That is why I don't quite understand your saying that the Prime is for a different market. Aren't we the market for the PHEV?"* I replied with:

No, we are not. History has taught that lesson all too well. Back in 2009, a entire year before Volt was rolled out, I began pointing out how the "40 mile" promise would fall way short. The enthusiasts attacked, claiming I was attempting to undermine GM's vehicle. They just plain wouldn't listen. No matter how much I pointed out the realities of winter, they didn't want to hear it. The fighting was pretty intense... until they got confirmation on their own, discovering I was right all along. The resistance heater consumed even more EV miles than I had predicted. Warming the cabin in Winter resulted in a significant plenty.

I tried to set realistic expectations. This time around, we are constructively discussing the situation even before rollout. That's profoundly different. We aren't the market. We are the educators. Our knowledge & experience will help inform "most buyers" of the importance. It's meaningless in this format. They'll have no clue what the difference is between a resistance heater, a regular heat-pump, and a vapor-injected heat-pump. But they will figure out that the one is somehow better than the other, that not as many EV miles will be sacrificed for warming.

Prius Prime will attempt to overcome the market we represent, punching through to reach the untapped masses... those who know little to nothing about plugging in. That's a major challenge. How do you entice someone with no engineering background whatsoever?

Try explaining "charge on the fly" to some random stranger. How will you get them to not only care, but to also want to know more? You'll be able to hold their attention for a maximum of 20 seconds. By early next year, you'll know how. Reports like this... getting 28 miles from a battery rated for 22 miles... is how it starts. That's the attention getter.

8-17-2016 **Likelihood.** Shopping difficulty is a challenge to understand. Neither the buyer, nor the seller really know what's wanted. Need can be determined, but that's not enough. It's the emotion which sways the person to finalize the deal. It's based upon what is often unanticipated. It's can be unlikely. That's why this caught my attention: "*What is the likelihood that they happen to have the exact car, with the exact features, with the exact colors that a person wants?*" The not really knowing is why I put so much emphasis on the showroom floor experience. That can be an exploration of desire. You sit behind the wheel to make firsthand discoveries. After all, who is aware of what new features are available until doing some poking around? Some salespeople really do try to help with the process. Others are clueless, but you find certain things appealing anyway. Think about how much a person researches before such a major purchase. Surprisingly, most do very little. Toyota knows this. That's why targeting Prius Prime at those who are simply curious could end up to be a well thought out approach. Not everyone will bite. In fact, most may not. Enough probably will though. We'll find out next year. In the meantime, think about this perspective: It's very, very likely. Ordinary consumers simply shop current inventories, with the help of salespeople who direct them to choices immediately available. That's why Prius Prime is configured to be compelling, sharing some traits with Prius but still standout'ish. Think about how easy it will be to capture a potential buyer's interest just by taking a test-drive. That to-the-floor EV, yet still a hybrid, will be a draw.

8-19-2016 **Food For Thought.** I liked reading & responding to this: "Just food for thought. Ultimately, automakers know their situation far better than armchair pundits ever will." It came from the moderator of the daily blog. Hopefully, others will sound of with something constructive. I tried to help that process along:

The local plug-in owners group in MN met last night. Discussions there are far more in depth than any type of exchange online. Representation is wide too. Like you, some of the members have traveled else to see vehicles & infrastructure now available here. We focus on the true competition, traditional vehicles.

What I added to the discussion was how the impression of the big automakers doesn't match what they are actually doing. Toyota was the example. It seems as though they aren't interested in EV, yet there are subtle signs to the contrary. The biggest is lithium battery usage. Not seeing any plug-in vehicles available makes it seem there is no effort to advance taking place. But in reality, all but the base model of Prius has switched over. That's a lot of lithium. There's also the industry-leading advance with heat-pumps coming for Prime. This will be the first vapor-injected offering to market. Also coming with Prime, though exclusive to Japan, is the option for CHAdeMO charging. It appears odd to have such high-speed recharging ability for such a small battery. But when you think of future applications, the limited real-world rollout early will prove to be a wise move.

Look at how well the Mitsubishi Outlander plug-in hybrid is selling. Just think if they did that with Toyota RAV4 hybrid, leveraging upon what they established using other rollouts prior to that. A plug-in model could do remarkably well, here... in the land of SUVs.

We also had a discussion in length about charging infrastructure. There's a very real problem looming of how to deliver more than just a handful of charging-stations in each parking lot. There's also the look into how to provide much higher power recharging than what the current super-chargers deliver. How? Who? When?

We also talked about how to get dealers more involved, along with stirring support from utility providers. It goes well beyond just the vehicles themselves. The technology is only the first step. That's why I was so hard on the Volt enthusiasts to look beyond what's in their driveway. Stimulating interest from both consumer & salesperson presents major challenges still.

With the case of Toyota, the hope is to capture those showroom floor opportunities. Rather than seek out someone looking to purchase a plug-in vehicle anyway, the hope is to draw their own customers over. Getting them to take a close look at a Prime before considering a Camry or a Corolla is a major challenge. Heck, even getting someone interested in Prius to take a closer look at what a plug has to offer won't be easy... and we certainly know the pundits aren't taking the situation serious.

It's those quick impressions that are very difficult to overcome. What is the approach for gen-2 Volt? What will it be for Bolt? Think about what the upcoming gen-2 Leaf announcement will stir. And of course, the momentum for Tesla continues to grow.

The situation is complicated, even without having the problem of cheap gas and expiring tax-credits to worry about.

8-20-2016 **Consumer Objections, finally.** Those terrible days of "*vastly superior*" are over. I'm still amazed just how bad it got. The claims of targeting the mainstream were a massive waste. The niche was so obvious. There simply wasn't any effective way of dealing with such a fundamental mistake though. Poor assumptions were made that couldn't be backpedaled from... though they certainly tried each time something else went back. Anywho, that's finally history. It's over. Now, we move on to what I've been pushing for a very, very long time... the market for ordinary consumers. The following entries are my thoughts on that now, starting with: It's nice to see that most of the gen-1 rhetoric has subsided, now that gen-2 rollouts have begun. Finally being able to address the actual competition is great. Traditional vehicles have been absolutely crushing sales of PLUG-IN vehicles. Constructive discussion on the challenges we still face is long overdue. This topic contributes well to that effort to overcome them.

8-20-2016 **Consumer Objections: not enough electric range.** That was the first issue addressed. People just instinctively use numbers as their basis of measure, using the "*more is better*" as the method of judgment. I know from having been involved in the personal computer market from the very beginning that mindset never applied to mainstream consumers. The typical buyer would look for a balance. Even though greater capacity was available, that isn't what they'd purchase. The same has been true in the automotive market. Speed, Size, Power... things like that were always the focus of advertising. Yet, that isn't what people would actually buy. Why do plug-in enthusiasts think that won't be true for EV capacity, especially if you have an engine available? Needless to say, I have much to say about this particular point. However, it's best to keep most posts on it brief: This isn't really much of an issue anymore. Conversations with random strangers about the 22-mile range for Prius Prime come with an automatic understanding of there being a gas-engine to take over when the battery-pack is depleted. No big deal. They recognize what PLUG-IN HYBRIDS offer and the minimum seems to cover most routine driving well. With the upcoming rollouts of 200-mile EV choices, that isn't much of an issue either. No concern. They get it.

- 8-20-2016 Consumer Objections: dual powertrain too complex.** This was the next listed. It's what we heard long ago, when people first discovered hybrids. They were clueless as to how their own vehicle was actually designed. That made it very difficult to rebut. The simplicity of the power-split-device in Prius replacing the surprisingly complex design of modern automatic transmissions was beyond their grasp. They just assumed what they are currently driving wasn't a reliability concern... despite evidence to the contrary. New engineering approaches... as we have seen with Prius... were attempts to overcome those problems of the past. Convincing ordinary people of that was an incredible challenge though. Their belief stems from the assumption that sacrifices are being made to achieve higher efficiency. That isn't the case. Hopefully, these new rollouts combined with knowledge of the past will help resolve those misunderstandings. I replied to that with: One of the biggest favor factors for Prius Prime is the fact that Prius has already proven the "dual" argue doesn't have any merit. With 3 generations of Prius confirming reliability, the addition of a plug for charging a larger battery-pack is no big deal. FUD (Fear, Uncertainty, Doubt) is extremely difficult to spread at this point. Other PLUG-IN HYBRIDS don't have this direct advantage, but realistically that shouldn't matter. The category is established & understood.
- 8-20-2016 Consumer Objections: engine is redundant.** This is an interesting one. Many haven't noticed the change yet. Industry realignment is a slow, painfully slow. People get hung up on argument points, missing those signs as a result. My effort now is pointing out how things are different. Looking around doesn't work either. They just see more of the same. It's the result of treating the "market" as those who are only interested in purchasing a plug-in vehicle. That makes the overall goal of eliminating traditional vehicles harder. Taking smaller steps seems like a big waste... to those with the knowledge & money to purchase more sooner. Mainstream consumers certainly aren't in that category. That's why they praise themselves for buying a smaller, more efficient SUV with only an engine, rather than actually considering a hybrid model. Thank goodness RAV4 hybrid is doing so well. That's a good sign when considering the addition of a plug later. As for right now, it's dealing with the situation this way: Do we really believe that EV purists will shoot themselves in the foot by continuing to fight against PLUG-IN HYBRIDS at this point? I'm not seeing it with my encounters. Sure, it was easy in the past to find examples of the smug, but ordinary consumers couldn't care less. That was always isolated to enthusiast groups. Simplicity and cost-savings is obvious. That's still a challenging argument though with EV price at a premium. The mainstream isn't concerned yet.
- 8-20-2016 Consumer Objections: won't pay back.** Ugh. How do we deal with this? Most supporters fall into the trap of trying to explain the numbers. That hasn't been effective in the past. Why do they think repeating the same failed approach will work now? I don't bother. My attempts are to refocus effort, to provide a new perspective on the situation. For example: Number crunching results for overall expenses aren't of much interest to the typical showroom floor shopper. With them as an audience, there's a paradigm shift. The old arguments simply don't work. These buyers look at the bottom line, how much their monthly payments will be. That's why tax-credit benefit doesn't mean as much; they'll expire mid-cycle anyway. So, it's depending upon other draws instead... like a test-drive in EV mode. Remember, the audience is someone looking to purchase another traditional vehicle, not people already determined to get something with a plug.

8-20-2016 **Consumer Objections: new unproven technology.** This one requires time. Reaching the masses is a long process anyway. We attract whomever we can when they are ready. No amount of convincing points will sway some. That's just the way it is. They will figure it out on their own, in their own way, on their own schedule. So, all we can do is provide information and how for the best... as I attempted: That's a tough one, for now. Basically, if they feel uncomfortable, it's really an excuse to not consider the purchase for awhile. In other words, nothing you can say will convince them. However, you can eventually win people over simply by driving the vehicle. After enough are seen on the road, their concern will fade. Some don't like anything new. That's a reality of the diverse market we have to deal with.

8-21-2016 **Taking The Time.** Wow! This rant certainly caught my attention: *"I've driven the Gen 4 and wasn't impressed. It's bigger, bulkier and has the same problem - it runs the engine all the time even when driving slow just to warm it up and warm the water up to heat the cabin! I've written Toyota many times on this. The same phenomena causes one to get in the low 20's for mileage when driving 1-2 miles on short trips daily when it's moderate to cool outside. There's plenty of battery power and I turn OFF the cabin heat, yet it still runs the engine constantly - shame on you Toyota."* Rather than simply providing some insight, I took the rare approach of making it personal with hopes for the best:

Shame on you for complaining without researching. Sorry, but sometimes it's best to confront directly. In fact, that's how a few of our best advocates have emerged... from a misunderstanding based on incomplete information. So, it's worth taking the time.

In this case, you make no reference whatsoever to the reason for the warm-up process. It's to reduce emissions by getting the engine up to optimal operating temperature as quickly as possible. The supposed waste of gas you witness is actually the cleanest way of achieving that. Traditional vehicles attempt the same thing, but they cannot deliver as well lacking an electric motor which provides a buffer.

You also made no reference whatsoever to battery recharging or longevity. Do you really expect great overall efficiency and a pack that never needs replacing with the suggested operation of not warming up? A cold engine not only operates in an inefficient and dirty manner, it also has to endure greater wear. Toyota has went to extremes to optimize that process.

You have made no reference to the rest of the market either. Toyota offers the best hybrid system available. It's most efficient, most clean, and most affordable. That's just among no-plug offerings too. The upcoming Prius Prime not only resolves all of your complains, it should also score the highest efficiency rating (estimated at 120 MPGe).

You can consider yourself schooled, no worries about having been unaware of some information either. Making it personal sometimes really is effective. Just take the time now to study what's being posted for your benefit. Notice how others are also taking the time to make sure you have a thorough understanding of design & intent too. We all end up better off by exchanges like this.

What do you think now?

- 8-21-2016** **New Plug-In.** This was interesting to read: *"My commitment to sustainability is now tested by Toyota's lack of commitment to having any EV or PHEV available at all. How disappointing."* It was from someone who's been arguing against Toyota's approach for years, showing favor for Volt instead. So, seeing a post that he ended up purchasing a Volt didn't surprise me. It seemed inevitable. It wasn't pleased with his stance though, making generalizations all this time, then abruptly spinning it to really be about his specific purchase. I didn't buy that for a second. I gave me good reason to post this too: For some perspective... Prius Prime is just 3 months away and it will be rolled out worldwide all at once. Toyota is also planning a production of 60,000 the first year. How is that lacking? To add to that, all but the base model of Prius now uses lithium batteries. That most definitely is a commitment to advancing plug-in opportunities. It's a major effort to reduce cost and improve production. Want more? Look at the CHAdeMO option being offered in Japan. It bumps the current recharge rate from 2.2 to 6.6 kWh. Knowing that, there's simply no way to say they are working toward that sustainability. How about this too? We'll be getting a vapor-injected heat-pump for winter cabin-warming. It will offer a top-industry efficiency for EV travel. There clearly is commitment. The advancements being delivered are undeniable. Sorry, but your disappointment doesn't add up. You wanted a Volt. We've known that for a long time. We can thank you for contributing toward the effort to improve personal travel, but we cannot accept the claim of lack of commitment though. Enjoy your new plug-in.
- 8-22-2016** **More To Mention.** Others joined in to point out other benefits, like solar roof, blind-spot monitoring, rear cross-traffic warning, and lane-keep-assist. Naturally, I had more to contribute: Along with a much nicer heater, auto-detect venting, dynamic cruise, pedestrian safety, LED head & tail lights, drive-mode recharging, and higher MPGe. In Japan, there's also the option of CHAdeMO charging and a 1500-watt inverter. The dual-wave window in back is nice cosmetic stand-out with aero-dynamic vendor as well.
- 8-22-2016** **The End?** That was his prediction: *"Unless there's a big increase in the price of fuel, when the tax-credit disappears, Volt sales will tumble."* Not being able to get anything constructive from enthusiasts is what brought about his provoke. I poked about the end, just not in such a terse manner: The simple rebuttal to that is for someone to suggest a plan, how GM should respond when the subsidy money really does fade away? We see Toyota ramping up lithium production, by selling all the but base model (trim package two, not the eco variant) Prius with that type of battery already. It will help them reach economy-of-scale lower costs from the high volume. We also see them positioning RAV4 hybrid to take advantage of the small SUV craze, being able to offer a plug-in model when the market is ready. GM could very well do something similar. The catch is, they cannot wait. If Bolt truly is to be a Tesla competitor, it must become widely available quickly. That means bringing about the end of tax-credits for Volt sooner. In other words, we're going to see all the gen-2 offerings from every automaker face a very real cost issue mid-cycle. The significance of this should not be understated.

8-22-2016 **Next Steps.** Taking the situation seriously is a challenge... but less so now. At least I get to ask questions without fierce pushback anymore. That's progress, as this tries to convey: With hope for plug-in choices to thrive, it requires a serious look at the competition. It's not other hybrids. It's not other automakers. It's vehicles sharing the same showroom floor. What is GM's plan? Seriously. As was pointed out, gen-2 Volt is struggling even with help. Malibu hybrid is just barely squeaking by. How should expectations for growth be set for either of them? Will Bolt hit the ground running or should we give it some time to settle? What's realistic for 2017? The plan for Toyota is clear. 1.4 Million hybrids is the sales projection for this year. Gen-4 Prius will take hold. RAV4 should remain strong. Prius Prime could stir mainstream interest. C-HR debuts next year. The potential for growth is realistic. Seriously, how will the challenges be addressed? Traditional vehicles cannot be allowed to continue stealing away sales opportunities. What are the next steps?

8-24-2016 **Naming Problem.** An entirely new topic emerged today. I wonder if this would get attention prior to rollout. I've encountered the problem of "*Bolt*" sounding like "*Volt*" a number of times now. Turns out, others have too. That antagonist with a blatant hate for Prius got all riled up about it. Why? It seemed rather odd to attack Toyota. Yet, there it was. Even though the variety of Prius hybrids all operate the same way, he got all bent out of shape about package numbers and not being able to tell the difference between the *c* and *v* models. Who care? They all have an engine, two motors, power-split device, and no plug. Heck, even the battery sizes are roughly the same. What is there to mix up? The category is clear. That most definitely is not the case with Bolt & Volt. Yet, there was an attack attempt anyway. I blasted back with: Since they all the Prius models operate the same way, there is no need for clarification. Heck, even adding the words "*plug-in*" worked just fine. No understanding issue. For example, the words "*plug-in Prius*" have been used without any trouble at all over the past 5 years. With Bolt & Volt, even in the plug-in owners group we are already having problems. GM really set themselves up for trouble with this one. Ugh. Toyota added "*Prime*" in their labeling, knowing that "*Prius Prime*" would get referred to with the short name of just "*Prime*". That has already become a common reference too. That marketing forethought will allow them to associate it elsewhere later. For example, "*RAV4 Prime*" will clearly identify it as the "*plug-in hybrid*" model. No confusion with either the hybrid or the traditional model will happen as a result. GM seriously needs to reconsider the naming. Bolt is too different to allow it to get mixed up with Volt on a regular basis.

- 8-24-2016** **Holding On.** That one particular person who absolutely refused to move forward is still causing trouble. He's desperately holding on to the past. I wonder why. Hmm? Obviously, things are going well for gen-2 Volt. But why not embrace the plug-in support-group we're assembling? He aimed and fired back with: *"Apparently you don't like 'constructive' criticism of Toyota, but it's the only way forward to the future. They can't operate with blinders on."* I was ready for it, as this states: You're doing everything you possibly can to put up blinders. Everyone sees the effort being expended to avoid answering the simple "next" questions. Stop with the gen-1 rhetoric already. Geez! You are literally the only one still hanging on to that past. Gen-2 presents new issues, due to the new goal of needing to grow sales and survive without tax-credits. The rest of us are addressing how to deal with that. We see the plug-in choices as the assortment to overcome the barriers traditional vehicles face. Why in the world are you still trying to prove GM is better than Toyota? It doesn't even make any sense. Losing sales to Malibu & Cruze is the problem for Volt. Do you really want that to be the case for Bolt too? It's hard to believe in the later half of 2016 we still have to deal with such denial. The showroom floor is where battles are being lost. Stop creating new ones here, fighting the very people trying to expand the plug-in market.
- 8-25-2016** **Why?** The level of emotion rose dramatically. Why did he begin to show such desperation on such a benign topic? Who cares if the name changes? The attachment should be to the goal, not any particular labeling. But then again, we hear semantic arguments all the time. They accomplish nothing. Yet, they happen. Most are a dead giveaway of a fundamental problem having been uncovered. That would seem to be the case with this too. I poked to find out: Hollywood changes names. A few of our favorite movies were called something else all through production. You watch the behind-the-scenes footage and will discover during the shooting it was called something else. The same thing happens with other industries, like with software. Why are you blowing this so far out of proportion? Geez! It's as bad as those who threw a fit when the gen-1 Volt was revealed and it looked nothing like the original concept. People got over that, which was a collection of actual changes. This is nothing but a name. As for the attempt to compare to Toyota, that falls apart quickly. You know all too well the plug-in Prius will be referred to as just Prime, which is a different name entirely.
- 8-26-2016** **Go Away!** I got that classic *"head in the sand"* response. Pretending there isn't a problem doesn't make it go away. Some people take a long time to learn that lesson. Some never do. I wanted to know more, to find out what I am truly dealing with at this point. So, I posted: Do a search on this topic. Notice the other websites that come up? Whether or not I'm the one providing the information you don't want to hear doesn't matter. Others are already doing it. This almost sounds like you've got something against Bolt... which tends to make sense, knowing how much resentment there has been toward EV offerings in the past. Bolt has a nicer back seat than Volt too. The tall interior is a major appeal factor and the 200-mile capacity easily overcomes range anxiety. Whatever the case, it boils down to the same problem again. Other vehicles sharing the showroom floor are stealing away sales from Volt. That has nothing whatsoever to do with Toyota. That is entirely GM's own production-line being competitive for its own customers. Remember, the goal is to promote plug-in offerings for those mainstream buyers. It doesn't matter what GM vehicle accomplishes that. The point is to phase out traditional vehicle sales. It may very well be Bolt that achieves the low-cost, high-volume market for GM customers.

8-27-2016 **Get Over It.** I finally let him have it. With only 1 person left fighting efforts to unite, the time had come. Make it personal. Make it obvious. So, I did:

I've read through previous posts on this and other threads. A pattern has emerged. Examples of using me as a distraction & scapegoat are abundant. Seeing that got me curious as to why. What has been the motivation for that behavior?

The claim of me being against of all things GM is easy to disprove. My only thing against Volt is its portrayal as a mainstream contender. It's not, period. The seating in the back is impractical. That lack of headroom, 1.6 inches more in Prius, makes it clear what stirs your resentment. The high cost for 53-miles of EV capacity with liquid cooling presents major affordability challenges for Volt. Seeing Toyota rollout a system offering 22 miles EV capacity with to-the-floor acceleration makes anger understandable. But since I have praised Volt for its reliability and very nice performance (power, speed, handling), there isn't good reason for the "*anti*" label. I'm being used as a source for venting.

Next, we look to Bolt for confirmation. The only negative I have said about it is questioning the low production expectations. Why only 30,000? Of course, I have repeatedly pointed out that emphasis on Bolt popularity would hurt Volt. Only a fixed amount of tax-credits are available. Since gen-2 Volt has not stirred much market interest and 200-mile EV choices have, it makes sense allowing Volt to remain a niche. You obviously don't like that.

Eureka! You lash out at me whenever Volt loses attention in favor of Bolt. That explains the irrational posts about things like changing the name. It all makes sense now. You've been anti-EV for so long, seeing Bolt draw strong interest goes entirely against what you've been promoting for years. And even worse, it actually endorses what I've been promoting. A double whammy! That explains it. Excitement for Bolt takes away from what you've been working so hard to achieve with Volt.

Sorry, but you're going to have to find a way to get over it. I'm part of the group struggling to grow the market for plugging in and ending the dominance of traditional vehicles. That means having to cooperate, crossing automaker lines and being forthright about audience. So what if Volt remains a niche? Bolt will stir EV buyer excitement and the plug-in version of Malibu hybrid will demonstrate PHEV potential. That's all for GM shoppers, capturing their interest on the showroom floor.

Toyota, Nissan, Ford, Honda, Chrysler, etc. all have their own shoppers. Either those supporters can tough it out on their own or reach out to other automaker supporters for help. Uniting makes far more sense. Stop with the attack nonsense. Get realistic. It's time to address the real problems.

- 8-27-2016** **475,000 Buyback?** What more can be asked now? The disaster for VW referred to the world as "dieselgate" has moved beyond any sign of hope. No engineering solution proposed has been good enough. There are far too many problems. It's costly and will negatively impact performance. To make matters worse, the gen-4 Prius is starting to attract TDI owners. I read of my first report, where the words "*fun to drive*" were used. Toyota was wise to put emphasis on handling dynamics for this generational upgrade. Of course, when efficiency exceeds 55 MPG, why wouldn't you? That's better than what any diesel can deliver in real-world driving. Heck, even best-case scenario struggles to deliver that. The hybrid technology is so well proven, there's no competing anymore. Of course, those who were responsible for the cheat already knew that... hence the deception. Now, it's the owners coming to that same conclusion. As a result, it looks more and more like VW could end up buying back all of their diesels in violation of emission standards. That's 475,000 vehicles here in the United States.
- 8-28-2016** **Just the Facts.** I've been watching things for GM fall apart. The name fiasco was confirmation of problems to come. The reasoning for that is simple: no concise message. When someone just thrashes out desperately for no good reason and everyone else just allows it, that sign of trouble should be obvious. We've seen it so many times in the past, that pattern is easy to recognize. That "*Go Away!*" was rather blatant. It was followed by "*You're not helping.*" without anything else. Nothing constructive other than an attempt to draw focus away from an emotional outlash marks a turning point. I attempted to reply with something constructive, but I expect little at this point. The problem is quite clear. Uncertainty is beginning to overwhelm. This is what I posted: Notice how no one else mention other GM names just prior to rollout? Notice what all of the following have in common: "*Dual-Mode*" and "*Two-Mode*" as well as "*BAS*" and "*E-Assist*" along with "*Volt*" and "*Bolt*". There's "*Ampera*" and "*Ampera-E*" now too. All are names used to de-emphasize technologies of the past. Like it or not, there's a common complaint among Volt supports... minimal dealer support... minimal advertising... minimal automaker interest. We had hoped PHEV growth would come, but the stated reason for production in China and shipping to the US is lack of demand. Volt has found a niche, which it will serve well. Mainstream aspirations have shifted elsewhere though. In this case, we're seeing GM refocusing attention over to the EV. Whether you think I'm helping or not, those are the facts.
- 8-29-2016** **4.5 Years Later, video.** I particularly enjoyed capturing this drive on video... With over 80,000 miles driven and having plugged in to recharge over 2,400 times, the real-world results speak for themselves. This particular drive was my morning commute, taking advantage of the suburb route to enjoy maximum EV distance. I did too. 13.9 miles of consecutive drive before the engine started. That overwhelmingly proves the claims of getting far less are nothing but rhetoric, especially now with the car 4.5 years old. The drive is the first with my new route. I moved 1.5 years ago, to a location 1 mile further from work. There are a lot more hills. The up & down is no big deal though; Prius PHV handles them just fine. Surprisingly, overall MPG didn't drop much. It's quite scenic and I still have the choice of several suburb & highway routes. The camera for the dashboard information is new. The image stabilization is much better. No more vibration. It's been eliminated entirely. There isn't any refresh flickering from the screen either. That's gone too. This setup works really well for capturing drives, even with difficult lighting from sun glare in the morning. 19.5 miles was the total distance. It consumed the entire EV capacity, resulting in an overall average of 283 MPG. [Prius PHV - 4.5 Years Later](#)

- 8-30-2016** **Leap Frog.** Again with the never-ending rhetoric. It's amazing how some of the greenwash lives on, many years after those who pushed it are long gone. The "*leap frog*" topic emerged, yet again, with: "*Are some people assuming Prius Prime is going to come along and leapfrog the competition? That may not happen and Prime is also pretty late to the party.*" I was quite annoyed. Anyone who still thinks other plug-in vehicles are the competition is just mindlessly passing on evidence of desperation and blindness from pride. With gas prices so low and sales of small traditional SUVs booming, how could anyone believe plug-in vehicles are an isolated market? True, many ignore them entirely, convinced that oil-dependency and climate-change are just political banter. But to acknowledge plug-in potential only as far as the green audience is a disservice. What good does that do? My reply to the post was short & sweet: Traditional vehicles are the competition. Prime is right on time.
- 8-30-2016** **Expectations.** Seeing people ask expectation questions is a good sign. In the past, it was simply an exclamation of fear. That's turning into inquisitive posts. How do we set expectations? What subject matter is of greatest importance? Who is even the proper authority? There are no standards yet. For that matter, there is very little history to leverage from to make decisions. Discovery is on-going. All we can really do at this point is share observations and ask questions. This was my contribution to that today: How much MPG loss or HORSEPOWER loss is acceptable for traditional vehicles? The system simply doesn't work as well when it ages. That has been the norm since the automotive industry began. It's quite unrealistic to expect it to work like new as the years roll by. With batteries, what should the aging expectation be?
- 8-31-2016** **More Time.** It was interesting to read this: "*My fear is that GM will decide to milk the tax credits for as long as they can, and thus not go for breakthrough sales numbers with this car. The more time they have before their last credit is used up, the better position they'll be in to actually sell these cars profitably once it does.*" It sure is nice seeing posts like that now. Rhetoric of the past made them scarce. Heck, I was even able to respond without much stir: You're not alone with the concern for that missed opportunity. Ironically, your second sentence is what had been used countless times for arguing against Toyota. That "*more time*" approach has proven a wise one too. The gen-1 plug-in Prius provided great real-world data for them to study, while the production process was being refined, the design improved, and the battery technology advanced. The gen-2 model is now in an excellent position to take on the true competition: traditional vehicles. As for the pace of Bolt rollout, pushing into the mainstream (to achieve sustainable profit prior to the tax-credit vanishing) means leaving Volt a niche. Once the quantity threshold is reached, the phase-out timer starts. That "*more time*" is great, to a point, then the high-volume must be delivered. In isolation, no big deal, especially with gas so cheap. But we know the price will go up and that others will also exhaust their tax-credits. Pressure from Nissan will be intense. If they gamble exclusively on delivering a profitable EV, their resources are better served than with GM's split between Bolt & Volt. The struggle with Volt has been primarily blamed upon GM not promoting it (little advertising, small inventory). What should we expect for Bolt?

- 8-31-2016 Battery Questions.** Getting asked about how the plug-in Prius operates is always a pleasure to respond to. Today, that came about from this: *"Will this battery range even extend, if your average speed will be lets say -5mph less and accelerate more gently from stop? Can you tell me also please, if I will go to motorway with depleted battery, and I will drive 100 miles, how much will battery recharge? Thanks a lot."* I posted: Speed, stopping, accelerating, temperature, and terrain all play a major role in what you get out of the battery. What you saw in the video would have been a great high-efficiency commute, had there been fewer & smaller hills. Nonetheless, I'm still pleased with the results, especially after 4.5 years. As for recharging while you drive, Prius PHV was configured to deliver maximum efficiency following depletion. That meant not replenishing battery-capacity beyond the HV threshold. Prius Prime will be different, allowing the EV to be replenished as well. Remember, 2012 was a very different time and the market was asking for that. It changed. Now, they want more EV... which is realistic with the more efficient gas engine and larger battery. You'll be able to exit the motorway and do that driving in EV. Think about how much Toyota was able to accomplish with just 4.4 kWh. That small battery and gen-3 system really delivered a lot.
- 8-31-2016 EV-BOOST.** Interest is growing for not only Prius Prime, but also Prius PHV. There are some who are looking to jump on the opportunity to purchase a used one. So naturally, we are getting questions about how it works. This is what caught interest on that topic today: *"I am still all right based on this info, what PIP is doing at high speeds over 100kmh?"* With all the intentional misleading we had to deal with on that topic over the years, it's no surprise this is getting asked. Sadly, this is proof some of the greenwashing efforts worked. That's why owners like me to try to share lots of real-world data. Overwhelming discussions with actual ownership experience is a very effective way of scaring away those wanting to undermine. Anywho, this was my reply: Driving in HV mode (whether or not you have EV capacity available) will deliver efficiency slightly better than the regular model Prius. The reason for that advantage is the battery difference. Lithium can squeeze out more opportunity than NiMH. Driving in EV mode at speeds higher than 100 km/h isn't available from Prius PHV (gen-1). Driving in EV-BOOST mode is though. That's when the system takes advantage of plug-supplied electricity when going faster than the 100 km/h limitation. It's often referred to as *"blending"*, since it is EV power with the engine joining in to help. You'll notice that the draw from the battery-pack is stretched out. Toyota did a remarkable job of achieving balance. The resulting is efficiency above the 100 MPG mark.

9-01-2016 **Falling Apart.** Any posting at this point would just degenerate to anger. The group of Volt enthusiasts has become unwilling to listen. It's just the mindless cheerleading we're getting now. How many technologies in the past experienced the same? This certainly sounds familiar: *"GM underpromises but always overdelivers. We shall see soon this happen!"* I was blown away upon reading that. I couldn't believe such nonsense was being posted. Heck, even Toyota a loss from time to time. That's normal. Not every attempt is a winner. That's how the advancement process works. You learn from previous attempts. Anywho, that absolute is a dead giveaway, a sure sign of trouble... in other words, denial. Believing in that absolute of perfection is not constructive. Most isn't quite that obvious though. It's more like this: *"The new Volt is better in every measurable category than the Gen I and the Gen I was/is stellar."* That comes from the engineering blindness, choosing to only see what they want. Those categories are cherry picked. The only select to measure what they feel is important, rather than addressing every category. The on-going disregard for rear-seating is most telling. Rear headroom went from 36.0 to 35.8 inches. How is that not measurable? It's something that was complained about on a regular basis too, especially when the interest in 5th-person seating faded. I remember how shocked supporters were to discover the headroom was actually reduced a little. To make matters worse, you can point out the 37.4 inches in Prius. That's a huge difference. What I especially don't like is the fact that Prius seating in the back is nicely covered by padding & metal. In Volt, it's nothing but glass. That makes it uncomfortable in the cold & hot as well as less safe. Ugh. This is why things are falling apart. The Volt enthusiasts simply don't want to address shortcomings. They just keep cheering. Watch what happens. You'll hear more and more about Bolt in response, yet still much praise for Volt. The aspiration for it to become mainstream is gone. Perhaps that's for the best. After all, Bolt's resemblance to the popular Honda Fit and Nissan Versa is a big positive for it.

9-02-2016 **Net Yet, But Soon.** What will happen and when is what keeps some intrigued and others on edge. This transition from gen-3 to gen-4 Prius is a topic of history in the making. People are watching & wondering. I'm trying to provide a sense of anticipation, having experienced this back in 2000 (Original to Classic), then again in 2003 (Classic to Iconic), then again in 2009 (Iconic to gen-3), then again in 2012 (gen-3 to PHV), and now watching the gen-4 model rollout. That is the only upgrade I won't be experiencing firsthand. Mine will later this year, with the replacement of my PHV with a Prime. That's sort of a double-generation. I'll get the new hybrid system along with the new plug-in system all at the same time. Collecting that real-world data early on will be fascinating. It's exciting to read about the gen-4 owner experiences. My expression of what's taking place right this very moment is... not yet, but soon: The transition to a next generation is interesting. Old articles like this hold attention until done threshold, then the outgoing falls off rather abruptly. You'll see posts for gen-4 dramatically increase at some point. My guess is close to the end of the year. They're simply aren't enough on the road yet to dominate discussions.

9-03-2016 **Cargo Capacity.** The discussions about Prius Prime are growing. They are shifting away from the lack of a 5th seat too. Taking a serious look at what Volt actually offered has extinguished most of that. The rest has come from giving deeper consideration to it, rather than just having gut-reaction posts. That means moving on to the more realistic concerns, like what cargo will actually be carried. I was annoyed to no end about how shallow those arguments had been. Obvious antagonists were stirred up rhetoric by posting only volume measurements. They stayed away from discussion about actual items to transport. The push for detail will often derail attempts to undermine. Anywho, now that the constructive posts are emerging, I contributed with: Figuring out the cargo capacity isn't rocket science. I simply found a 3-inch tall box and put it in the back to see if that made much of a difference with what I routinely transport. It didn't. My bags and backpack aren't that big. The bike isn't either. The cooler never fit with the cover unrolled anyway. So, height is a non-issue. True, I will find a squeeze on rare occasions, like the patio table we purchased this spring. But then again, I could have easily just rented the pickup there at the hardware store if I truly needed it. Delivery for one-time purchases like that is always an option too. The requirement is usually length. Will I still be able to transport long cargo, like new shelves. The answer is yes. Assumingly, the massive amount of yard-waste I cut from our pond's edge that needed transport to the compost last month will still fit just fine. It was an absurd sight driving a plug-in Prius into that place. One of the guy's driving a dump truck filled with old branches went out of his way to stop and yell out: "*Wow! That's dedication.*" upon seeing it. I'll be glad when I get my Prime... hopefully soon, so some of this speculation can be put to rest. It reminds me of what people speculated about way back with gen-2 Prius, when the hatchback model was introduced.

9-03-2016 **Generations & Supporters.** I was intrigued by this snippet posted today: "*...most ardent supporters have departed...*" It was buried within a train-of-thought on a discussion thread about gen-4 Prius. Most people have no clue what happened when the Classic model Prius was replaced by the Iconic model. Since that was a very long time ago, the belief is that it really didn't make any difference anyway. I disagree. Having witnessed the large group of supporters grow out of nowhere, with no previous legacy, to fade away from overwhelming support of the new generation is a really big deal. You'd think their existence would stand out. It didn't. Instead, it was drown out. Only a handful of us predicted that too. So when that entire generation of Iconic owners faced posts from the replacing upgrade, they were at a loss about what to expect. You'd think the history would give them an idea. It didn't. That makes my anticipation of the same overwhelm to occur again a topic of fascination. Can't they see it happening this time? Prius is so well known, so well accepted, and so well proven, it is now a mainstream vehicle. That state of becoming ubiquitous apparently is beyond the grasp of some. Understanding the big picture is often elusive. That's why extremely long-term project aren't managed by just front-line leaders. It really is hard to see... sometimes. In this case, I'm not sure how many will catch on. Accepting traditional vehicles as the true competition is still a popular denial issue. Hopefully, that will change over the next year. The second generation plug-in vehicles should help make it obvious that the gen-4 Prius is the new norm. Put as shortly as possible, I summed up the situation now playing out as: That is the very definition of generation: the next taking over. Only a small number of elders will remain, to help along with the transition. We will have a new audience supported by new supporters.

- 9-03-2016** **Future Hybrids.** Discussions of what will happen in the market beyond Prius liftback (regular & plug-in) are interesting. Concern is growing for the wagon model's future. There's the popularity of small SUVs to consider too. What do ordinary consumers want? How will profit pressures influence business decisions? When should we expect widespread market acceptance of clean & efficient technology over traditional choices? I posted these thoughts to that effect: I see RAV4 hybrid pushing Prius v really hard. It's easy to see how incredibly practical they are as taxis. So, that aspect of them could provide business-sustaining justification. That may mean less frequent upgrades though. As service vehicles, that's just fine. RAV4 hybrid as a mainstream contender is an entirely different story. We all knew the return of cheap gas meant high demand for small SUV offerings. Toyota has taken advantage of that by providing a hybrid model for a very competitive price. That move is paying off too. Last month's sales bump it up to just under the mainstream minimum (5,000 per month). In other words, seeing RAV4 hybrid grow to the point of becoming so popular it puts heavy pressure on other automakers to compete directly is quite realistic... which is the unfulfilled dream Ford had a decade ago with Escape hybrid. So, expecting them to re-enter the competition is almost a given. Toyota is proving market potential.
- 9-04-2016** **Too Little, Too Slowly (revisited).** I found this declaration posted yesterday ironic: *"After 5 1/2 years people are finally discovering Volt, the greatest car in history..."* Prior to the rollout of Volt, the concern was raised about GM falling into the trap of delivering a vehicle not able to reach the mainstream. That originated from the group overseeing the bankruptcy recovery, expressing the problem caused by a rollout of something unable to generate profitable high-volume sales. Well, all these years later they have been proven correct and all those who ratified the concern vindicated. Volt was a disaster... because it did indeed pursue that goal, but failed to achieve it. There will be a lot of spin & excuses, looking back. None will fix the current problem though, looking forward. The second generation has climbed to the potential of possibly reaching half of mainstream minimum. Sales that low for a vehicle facing heavy challenge from within is a problem. Asking repeatedly what GM intends with Bolt has been met with disregard initially, then turned to resentment. No one likes to answer the difficult questions. Pressure from having a limited quantity of tax-credits cannot be ignored. Toyota halted Prius PHV rollout in the United States as soon as it became apparent the market had shifted. GM did not. As a consequence, Toyota has many more tax-credits (around 155,000) still available and 35 states without any legacy sales to deal with. Volt enthusiasts mocked Toyota for that move and attacked supporters. Now, they have the reality of roughly only 95,000 tax-credits available when the rollout of Bolt begins and new marketing & education to provide for all 50 states. That division of resources and information conflicting with the past is a direct result of not having capitalized on Volt back when it had a monopoly on the plug-in hybrid market. Gas was very expensive back then too. More & Faster could have made quite a difference. What happens now that so much is stacked against Volt? See why I documented so much history as it was playing out? This situation was foreseen. Concerned was expressed. Recommendations were not taken seriously. Finally? Greatest?

9-05-2016 **EV Criticism.** The attitudes of a select few who upgraded from Prius to a plug-in vehicle is that of antagonists. If they don't see dramatic change, they exhibit a deep negativity. They don't try to be constructive. They don't care about taking small steps. They only want an announcement to play along, even if the act doesn't amount to anything. I'm growing tired of it. How does that help? They are turning into greenwashing, portraying an image of abandonment. I'm unwilling to just watch that happen, especially having witnessed this history play out already. So, today I posted this on a new thread created to discuss Toyota's take on the EV market:

The same criteria still persists. Toyota's want to deliver a product for the masses. If it cannot reach the mainstream, becoming profitable & high-volume within a product-cycle, they'll keep the technology in a research phase.

With Prius PHV, we saw that in the form of only rolling out limited quantity in select states. They held off until that affordability threshold could be achieved. Prius Prime will be that product realistic for ordinary consumers. With Mirai, we will continue to see extremely limited availability for many years to come. It simply makes no sense offering the technology to a wider audience when that business move cannot self-sustain.

There's a lot of resentment toward Toyota by a small group of individuals for not making EV announcements like the other automakers, even if those other automakers actions are nothing but token gestures. That's annoying and unproductive. You don't advance the masses by not actually changing. To make a difference, we need choices that are actually competitive with what showroom floor shoppers would otherwise purchase.

As of late 2016, there are not any EV offerings capable of competing with traditional vehicles. That's ok, if they are able to drop cost enough prior to tax-credits expiring to retain interest. Otherwise, the very same problem with hybrids will also happen with EVs. Notice how the typical consumer couldn't care less about reducing emissions and is unwilling to pay a premium to use less fuel?

Leadership means striving to deliver a product for the masses. Look no further than Volt for an example of claiming leadership, but not actually fulfilling that criteria. Cost of what was delivered was far too high to produce & sell it in large quantity. Simply delivering more miles of EV alone is not enough. That's why aspects, like spacious seating, have proven favor for Tesla and what GM hopes to capture with Bolt. That's also why Prius Prime will deliver outstanding MPG once the plug-supplied electricity is used up.

Notice how other EV offerings, like Ford Focus EV, VW e-Golf, and Hyundai Soul EV all sell in tiny numbers, yet the automaker gets praise for embracing electric vehicles? It's a reality some choose to disregard, embracing the "*me too*" approach rather than pushing for showroom floor competition. That's sad & unfortunate.

9-05-2016 **Lithium Support.** Unwilling to give the antagonists any opportunity to respond, I immediately followed up my previous post with:

I fit well into our local plug-in owners club, despite owning a plug-in with such a small battery-capacity. The reason why is simple, my endorsement and heavy support for lithium batteries. With all the promoting I do for Prius PHV online through forum & blog posts, driving videos, and my own website, it's ok for me to self-promote a little... since the reason why is helpful to others. They can see my support extends beyond just Toyota. It's the advancement of the batteries that I'm really pushing favor for.

At the meeting last month, the topic of Toyota's high-volume production of lithium batteries due to Gen4 Prius was brought up. The automaker is considered a giant no one is paying much attention to. They are quietly building up capacity, the ability to deliver affordable choices with high reliability and consumer confidence.

Think about how many of the 1.4 Million hybrids Toyota sells this year that will have shifted from NiMH to Lithium batteries. Do consumers have any idea that the battery-pack is different from that in the past? Would they even care if they did know? The point is that they are being used by new owners, the market is expanding. Toyota is penetrating the market outside enthusiasts, something all other automakers continue struggling to achieve.

We'll see more of that progress with Prius Prime. That's a plug-in vehicle configured to entice showroom floor shoppers. How many other plug-in choices specifically target those consumers? They are the who profit on-going profit for the business. Enthusiasts certainly don't fulfill that role. Automakers are unwilling to take on huge risk. Toyota found a way to reach further into the mainstream without having to do that... and get criticized as a result. Why? Think about how many lithium battery cells they will produce in the next year.

9-05-2016 Sales Struggle. Painting a rosy picture for Volt is less of a problem now. In fact, there's a degree of constructive discussion now. This caught my interest on a daily thread discussing August results: *"As someone else posted before, the 2017 Chevy Bolt EV will cut into Volt sales, since it is a full battery-electric vehicle (no range extender needed), with sufficient EV range for almost everyone, and a much larger and comfortable interior for five adults."* It was a discrete admission of change, without recognition of who had pointed out this was coming quite a number of years ago. Oh well, better late than never. I chimed in with:

Bolt is a nice step up from Volt. Many have said that, including me. No doubt it will sell better as a result. We certainly have not seen the Volt sales growth that was expected from gen-2. Focus has already been shifting to Bolt.

The big worry is not having any specific target audience identified. Remember what was among the biggest criticisms of Volt? It was the lack of promotion from GM. Clarity needs to come prior to rollout who intended buyers are. Pushing the *"200 mile"* capacity for Bolt means sacrificing the *"range anxiety"* strength of Volt. Some won't like that, but they will be in favor of the positioning that puts Bolt it for competing with Tesla Model 3.

There's the reality of tax-credits hitting phaseout quickly as a result of sales success. GM will have around 95,000 available. Retaining the trend of a little over 2,000 sales per month for Volt and achieving the 2,500 monthly rate (half mainstream minimum) for Bolt means year-end for 2017 would have consumed all but 30,000 of the full tax-credits available.

Phaseout would get triggered in the second half of 2018, if Bolt sale remains a niche. Achieving the popularity supporters are hoping for would mean sooner. That's mid-cycle, far too early for a major cost-reduction upgrade. It's also when pressure from the other automakers will become intense. Nissan & Tesla aren't going to just abandon efforts when their tax-credits expire. They have the added benefit of not rolling out as soon as Bolt too. Delay can be advantageous.

We want advancement of plug-in choices, but they must be sustainable. Challenges await. We all see them coming. This isn't a *"wait for the next generation"* situation anymore. What should happen to prevent future sales struggle?

- 9-05-2016** **Solutions, part 1.** There has been an on-going discussion about target-market for Prius Prime. Some current Prius owners are baffled by their assumption of it being for them getting disputed. Since Prius PHV was a natural progression from hybrid to plug-in hybrid, finding out that isn't the case for this second generation has stirred many posts. I find it odd how so many threads have included acknowledgement of Toyota's effort to reach out to new consumers is met with such confusion. My theory is they believe that only applies to other Toyota vehicles, that Prius itself would never attempt new focus... despite the plug. The true supporters have paid close enough attention to notice the market shift and recognize Toyota's adjustment. After all, design flexibility accounted for such a need. A good friend of mine stated the situation this way: *"I thought the Gen 4 was meant to keep Prius owners (and some upgraded from their Gen 2). I don't think the Prime is destined to mainly attract Prius owners. Current owners who want to move forward would've bought a Leaf, Volt, or if they have the means, a Model S. They want that EV experience. The Prime will probably have to be marketed to non-Prius owners who are thinking of electrification. They have to market the fact that the Prius Prime will have the Prius name to back it up. It looks less weird/out there than the Gen 4 (or past Prii) and they have to push the currently unknown factor of MSRP."*
- 9-05-2016** **Solutions, part 2.** That post was great. I was thrilled such a well thought out reply had been provided. It was nice being able to rectify his thoughts too, confirming his careful study was what others have also concluded. This was my response to that: Bingo! It never ceases to amaze me how some don't notice that bigger picture at play. The audience is completely overlooked. Toyota has stated many times how they want to expand the market by offering new choices to appeal to new audiences. Prius Prime is most definitely one of those new choices. RAV4 hybrid is another. That's why I get annoyed by arguments about Prius shoppers being turned off by the cabin & cargo arrangement for Prius Prime. It's a red herring. The purpose of appealing to those thinking of electrification should be obvious. It's not a hybrid relying solely on gas for power. Different alternatives to traditional vehicles will have different tradeoffs. Direct comparisons simply don't make sense. The industry mindset has been conquest & cannibalize. That actually works for initial rollouts, especially when large subsidies are available. When you want to phase out older products, that is a terrible approach. You have to find a way to entice those who have yet to show any interest, not to get those who already have to upgrade. It's what economics is all about. You have to look beyond engineering & accounting. Marketing to non-Prius owners presents new challenges... which means old solutions won't work.

- 9-06-2016** **Wasteful.** The state of California is considering a new set of incentives for the purchase of a plug-in vehicle. They want to encourage continued growth of the clean & efficient choices, but simply don't have any more HOV stickers available. That option is totally exhausted. Not everyone has to deal with the heavy commute traffic anyway. Unfortunately, we still get replies like this from Volt enthusiasts: "*The rebate should be based on the battery size.*" That obsession with bigger always being better is a challenge to deal with. I want to expand discussions beyond the usual rhetoric. That means countering the posts, but presenting new perspective. After all, I know they'll try to fallback on EPA rating. The AER (All Electric Range) focus got them nowhere. Understanding MPGe is still an issue. Fortunately, that opens opportunity to look at other aspects of being clean & efficient. The biggest is winter heating for the cabin, something they outright dismissed for years. It is now finally getting some attention. Perhaps this will help that along: Why not base upon efficiency results instead? There are measurements available to gauge use of electricity. For example, a plug-in vehicle with a resistance-heater will be nowhere near as efficient in cold-weather driving than one with a gas-injected heat-pump. In other words, the less efficient will require a larger battery to deliver the same outcome. Using more electricity in that manner should not be encouraged. We don't want to provide larger subsidies for wasteful plug-in designs.
- 9-07-2016** **Electronics 101.** Sadly, the rhetoric immediate ensued. I was annoyed. I knew MPGe would be brought up, even though I had intentionally excluded it. Unfortunately, the reason why was totally elusive. The enthusiasts just plain don't take the time to figure things out. That's why they are enthusiasts, rather than supporters. A true supporter will take the time to ask questions and consider outcomes. An enthusiasts just parrots talking points. Anywho, I decided to keep my response simply, by conveying some basic education on the topic: KWH >> BTU. Some heaters require more electricity to deliver the same amount of heat. That's why Volt was upgraded from a resistance type heater to a heat-pump. That's also why Prius Prime will use an even more efficient heater, a heat-pump with gas-injection. Electricity can be wasted. Not all designs are the same. The level of efficiency is not measured by just distance traveled.
- 9-08-2016** **No Heat Pump.** Turns out, the second-generation Volt didn't actually get the upgrade. Older designs had the shortcoming of losing effectiveness in the extreme cold. That meant if you were driving in temperatures well below freezing, you'd get warm air in the cabin rather than hot. The traditional resistance-heaters overcome that, but the tradeoff is much higher electricity use. They give Toyota a very hard time for side-investing in fuel-cell advancement... never paying attention to the reality that those vehicles employ new technology that the hybrids will be able to take advantage of... like the advanced heat-pump Prius Prime will be getting. Not only is it capable of delivering heat in much colder conditions, it also includes vapor-injection. That's a feature used in commercial heating for increasing efficiency. Prius Prime will be the first ever mainstream vehicle to use that too. When technology reaches personal use, you know good things are to come. Well, you do anyway. Those enthusiasts are still clueless. They're the same one obsessed with battery-size. It clouds their judgment, preventing them from seeing what advancements are needed for acceptance by the masses... like the move beyond resistance heating. Ugh.

- 9-09-2016** **Constructive Discussion.** It's finally happening. I responded to this: "*Electric range is the primary reason why anyone would buy a plug-in hybrid in the first place.*" The post immediately disappeared. I wonder if something technically had went amiss. So, I posted it again, from a different computer. Same thing happened again. Since I couldn't get any feedback, I waited. Sure enough, the moderator had taken the advice. It was his topic detail I was making comments about. Those references had been revised. That was great. He was making a sincere effort to keep things constructive. I was thrilled to see discussions being aimed away from the rhetoric we've had to deal with in the past. Here's what I posted twice, both of which were hidden shortly afterward: The plug-in owners group here is working hard to make sure data is up-to-date and complete, so statements like that can be as constructive as possible... Ford's EV range is listed at 19 miles. That's old. It is now 22 miles. BMW's i3 tank capacity is listed as 1.9 gallons. That's old. It is now 2.4 gallons. BMW's i3 range for EV is missing entirely. The newest model offers 112 miles. Remember, the ultimate goal is to replace traditional vehicles with plug-in choices. That means being thorough, especially when encouraging competition from within the plug-in market. It shows consumers how far along the market for vehicles carrying battery-packs has progressed.
- 9-10-2016** **Coffee At Sunset, video.** Here's another documenting experiences with my Prius PHV: Same coffee shop, different starting location. I moved and now live closer. My drive there is within the EV capacity available from the battery-pack. Capturing that on video could not be resisted. I waited until a nice summer evening arrived, then headed out just as the sun was reaching the horizon. It was an 8.9 mile drive. The bulk of that is along a 55 mph road with rolling hills. Upon completion of the round trip, an estimated 2.7 miles of EV remained. That comes in handy if you need to slip out to relax, for some coffee & blogging. Since grocery, retail, hardware, restaurant, and movies are all within that same distance, taking advantage of plug-supplied electricity has been very easy with my Prius PHV. [Prius PHV - Coffee At Sunset](#)

9-11-2016 **Not Constructive.** I waited until the following day to respond to this: "*Now letting PHEVs with puny electric range (especially the original PiP...what a joke that was allowed the green stickers) receive HOV decals is something that should change. Make some minimum AER requirement (30 or 50 miles). The PiP couldn't even go the speed limit in EV mode for crying out loud! What a joke!*" It came from a well known antagonist. Rather than focus on strengths of Volt, he demean Prius PHV instead. Having to deal with the brainless banter is annoying, but nothing new... especially at this point. I carefully considered my response, choosing to make it personal rather than just post detail: The goal is reduced emissions & consumption. A larger battery-pack doesn't necessarily accomplish that. HOV lanes exist to relieve congestion in areas that commute traffic causes. Notice the locations? They are where major interchanges meet and when crosses over bridges. HOV advantage is only effective when traffic is traveling much slower than the speed limit. In other words, claiming a requirement of faster than 62 MPH is an easy to disprove red herring. As for the electric range, that heavy commute traffic where the HOV advantage exists is covered. More doesn't accomplish anything, since it's just open highway otherwise... which PiP delivers unmatched hybrid efficiency. What's most telling though is the look backward at a bill not yet passed. That makes no sense. PiP isn't available for purchase anymore. So, the entire argument is clearly not constructive. We want to promote plug-in vehicle purchases. That means being forthcoming about the market. Notice how the rear seating for Volt was described in the video? That was direct & honest. Here's what you get. Some people will like it, some won't. The point is knowing detail upfront to make proper decisions. In that light, Prius Prime will be available later this year. It will offer double the battery-capacity and to-the-floor EV drive. So, no one is laughing at your joke. We're all in this together. Don't misrepresent the situations or choices. You'll continue to get called out when that happens.

9-12-2016 **Summer Commute Work, video.** I was able to deliver another video. This was actually the first of those with the new camera from the new location. Editing in order wasn't necessary. I'm trying to capture as much as I can, now that I have the personal time available. That means lots of testing to verify all is working as expected. Lucky for me, the equipment performed well. The Prius itself did too. Here's what I posted, along with the link to see it: This is my commute to work. Since it's summer, driving in EV through the suburbs to the highway (9 miles) is pretty easy, even with rolling hills. Just prior to getting onto the 70 MPH highway, I switch over to HV mode. That saves some of the plug-supplied electricity for later. I switch back to EV mode as the decent into the river valley approaches. The rest of the drive is pretty much all with just electricity from there. The entire drive is 18.5 miles. A total of 14 miles were registered as EV for this particular trip. It varies based on traffic, temperature, stoplights, etc. Depleting the battery-pack to the recharge point resulted in a 244 MPG average. I plug in at work, where chargers powered by solar are available. So, the commute home is equally rewarding. [Prius PHV - Summer Commute Work](#)

9-12-2016 **Turning Point.** How do you know when the enthusiasts have changed their stance? Quotes like this make it obvious: "*Also, many don't qualify for the tax credit.*" Volt had been aggressively promoted as \$7,500 less for everyone. Any mention of not having enough liability from your taxes paid to get the full amount were replied to with hostility. All we got for the entire first generation was greenwash promotion that Volt's price was that of Prius. It was maddening. I have so many blog references to that nonsense, describing the situation as a source of extreme frustration can't do it justice. I eventually turned that emotion to a feeling of annoyance. It became fairly easy to confirm those postings that had no concern for anything beyond an immediate purchase, especially when they were loaded with Prius insults. The goal of mainstream penetration to achieve sustainable high-volume sales that could deliver a profit was beyond their grasp. Pride prevented it. Turns out, if you wait long enough, that sense of pride will dwindle. They eventually feel they've said their piece, then back down. That's way provocation isn't counter-productive. Not only does it reveal clues at times, it also wears them down. In the meantime, I was able to continuously push the fact that traditional vehicles were the true competition, not other plug-in vehicles. Well, all that, combined with flat sales, low gas prices, and the reality of tax-credit expiration pushed them to change. Naturally, it's in the form of downplay. Nonetheless, that is recognition. One less greenwashing effort to deal with, a very big one too. We've hit that turning point. Yeah!

9-13-2016 **Size Matters.** This is what I saw coming, years ago. GM revealed the EPA rating for Bolt today. It's 238 miles. That's more than the 215 miles expected from Tesla's Model 3. Bragging rights are what enthusiasts have thrived on. They push all else aside for them... which means Volt is now in a very awkward position. The concern of tax-credit usage has revealed cause for true worry. Everyone is focusing on Bolt now. That affordable Chevy EV has caught the attention of plug-in followers. It will be intriguing to see how the industry responds, especially with Bolt being so much less sport like than Model 3... definitely no "cool" factor. Will practical really be a winner with this crowd? What about the masses? How will they view this newest offering? Prius Prime was designed with those considerations already. Toyota has strived to find that "just right" size for the battery, as well as include some cool features. Remember how well that worked for the regular Prius? The fact that you couldn't squeeze out long electric-only drives didn't matter. The available capacity got you through the span of heavy traffic. That's what mattered. You got some creature comforts too. Now, this one with a plug will extend upon that approach. It won't strive to deliver an all-electric experience 99% of the time, a goal Volt enthusiasts have proclaimed vital... which now doesn't make sense with Bolt available. To make matters worse, they routinely quoted you'd have to drive over 150 miles for any advantage of the gas engine in Prius to matter... which definitely puts Volt in a difficult position. They set that precedent, not me. 238 miles is much further than that. Ironically, the situation has been described as a "*game changer*". Turns out, size matters. The catch is, bigger is not necessarily better. Finding the balance to achieve mass acceptance is a major challenge, not one to be taken lightly... as history has confirmed.

9-13-2016 **Now What?** This is what the thread asked: "*What Range is Enough to Allow EV Mass Acceptance?*" This is what I had to say: Today's announcement marked the end of "*range anxiety*". It's gone. Concern of getting stranded by a dead battery have become a challenge of the past, just a memory now. It has been overcome and leaves us without any doubt of how the market will advance. Portraying the EV as a choice for everyday use has become much easier. Leadership isn't measured by progress forward alone though. With the acceptable range threshold achieved, much more emphasis will be placed on cost reduction. That pressure will grow much more intense. It will force change. That leaves Volt in an awkward position. With range substantially smaller, what will become its selling point? Keeping a performance & handling focus on Bolt to stage it as a Model 3 competitor leaves Volt with what? How will it attract buyers? It has a noticeably smaller seating area in the rear compared to Bolt. It has a look to make it fit in with other mainstream cars too. Seriously, what does this mean for Volt, especially with gen-2 still being so new? I'd sincerely like to know, so my promotion of plug-in vehicles matches expectations of supporters. How will it fit in with other offerings from other automakers? Will it be redefined as direct competition to Prius Prime? If so, that means having to attract mainstream consumers rather than the niche Volt has enjoyed. Keep in mind that the radical look of the regular Prius is catching on. Remember how the previous generation really stood out at first, then became the gold-standard for hybrids. What's not to say the same doesn't happen again? Prime offers some edge too, with it's own distinct look. It will also deliver outstanding MPG after battery depletion and is rumored to be aggressively priced. That's why I'd like to know from those who had been quite dedicated to Volt what they believe GM's next steps should be for it. Remember, some of us see the competition as traditional vehicles, not other plug-in vehicles. Your thoughts?

9-14-2016 **One Day Later.** I don't expect the enthusiasts to like this observation: Looking around at online comments from various websites, it's as if Volt no longer exists. Clearly, people have moved on. Longer distances EV has dominates interest. Seeing GM leave Volt as a niche should be just fine. After all, there is definitely a place for that in their product-line. Not everyone wants to drive a Malibu. As for those Malibu buyers, I suspect the next step for GM will be offering the Malibu hybrid with a plug.

9-15-2016 **Caught Greenwashing.** Since the very beginning, I've been looking for allies. It doesn't always work out. Today's example was among the top... Absolutely desperate at this point, the only antagonist still struggle to save some pride lashed out. It was pretty sad. That's a good sign. Finally ending this chapter is long overdue. His final act was to declare GM the leader, selling more plug-in vehicles than anyone else. Ugh. I was really surprised to see that. Not only was it that not true, it was also a very easy claim to disprove. So, I did a few searches, then posted my results: The bar was set by Toyota for hybrid efficiency and Tesla for EV range. For GM to set a bar for sales, those sales must actually happen. Claiming #1 in sales would require ignoring overseas activity, like Nissan in Japan and outside brands like Renault in Europe. Bolt certainly has the potential. Kudos to GM for that. Counts of them on the road will determine status. The way actual sales are avoided and limiting scope to just the United States is quite telling. Renault-Nissan alliance EV sales (Leaf & Zoe combined) worldwide surpassed 350,000 total. In March 2016, worldwide sales of the Mitsubishi Outlander PHEV hit the 100,000 mark. In other words, GM is a strong player. Stop pushing the #1 claims. That simply isn't true and all that does is put down those who want to work as a team to overcome the popularity of traditional vehicles.

9-15-2016 **What Goals?** Totally clueless and not even bothering to actually read what I post, this was added to the flurry of desperate messages: *"To continue to improve in all aspects, reduce costs, expand the market/technology, and educate the customer base."* That's what I got when asking for a goal. Ugh. This is all I could manage for a reply, shocked anyone could be so clueless: That is a mission statement, not a goal. A goal is a measurable objective, something with a clear quantitative value or milestone to achieve. That couldn't be any more vague. Remember the price, power, range, and count values of the past? Abandoning them is a dead giveaway of trouble. No wonder the *"troll"* alarm was sounded. Geez! Looking at the threads, the reason for moving the goalposts becomes obvious. Volt is supposed to be superior, in your mind. Prius Prime has the potential to deliver all 4 of those specific goals... \$30,000 price, to-the-floor acceleration, enough EV to cover most commutes, and sales of at least 5,000 per month. It's too bad you weren't looking for an ally.

- 9-15-2016** **Final Act.** When there's nothing left and shooting the messenger doesn't do any good, you lash out at the perceived enemy: *"What has Toyota been doing for all this time? That's why everyone has been saying too little too late."* At that point, it was obvious nothing constructive could be conveyed anymore. When pride gets in the way, there's no reasoning. All is lost. So, I summed it up the best I could, then pounded that final nail into the coffin. Chapter closed, as concluded with: Who? Even the GM enthusiasts were expecting more from Volt at this point. That's why so much attention has shifted over to Bolt instead. As for Toyota, they've switched their premiere hybrid over to using lithium batteries this year. Their 10,000,000th hybrid will be sold later this year. Also this year, they introduced a compact SUV hybrid, a Crossover hybrid, and will be rolling out a new plug-in hybrid... which will use the industry's first vapor-injected heat-pump. In addition, they will be introducing a dual-wave windshield to improve aerodynamics and carbon-fiber to reduce weight. Most importantly, they've been aggressively working to reduce cost to a level capable of drawing interest from their own loyal traditional vehicle buyers. As this thread points out, the threshold of acceptance has been reached. Priorities are now focused on delivering an affordable product well balanced for mass-appeal. The measure of success is based upon sales... not the most miles... not the most seats... not even the most posts. The new chapter is only just beginning.
- 9-15-2016** **Too Late, part 1.** I read a post from the only other troublemaker remaining. By the time I had posted a reply, he had already retracted the following statement: *"Toyota is milking HSD. They've found themselves in a very curious position where - like the silicon chip in personal electronics, there will be a point where returns on investment of time and research become smaller and smaller. We already see the limitations of HSD compared to the Volt, which is still making very large gains in electric range and MPG on the gas range extender. No Prius has a range extender. Every Prius uses the gas engine as primary propulsion - plug or no plug."* Too late. I had already included it in my submission. So, I'm keeping a copy of it here as well as the one within my post online. I found it ironic how he was pointing out diminishing returns now, as if it was entirely new. I've been posting about them in response to him for years. Anyhow, his spin was to make it seem like Toyota isn't about to deliver a capable technology. It's the same old downplay, avoiding actual quantities... just like our favorite antagonist. I got a kick out of that. No one is willing to consider detail. They know Prius Prime is quite capable of delivering impressive EV performance. They'll see impressive numbers soon enough, ones so good they won't be able to escape from them. Those with short commutes or long ones who have the opportunity to recharge at work (like I do) will be quite happy to share their real-world data. It's too late in many respects.

- 9-15-2016** **Too Late, part 2.** This is what I ended up posting in response: Toyota is now producing a massive number of lithium battery cells. All models of Prius but the base have transitioned to them. The propulsion system offers to-the-floor EV acceleration, complete with electric heating & cooling. So what if the capacity of the battery is currently too small for your liking. It's still uses all the components needed for electric-only travel. Pretending that isn't the case by not calling it a "*range extender*" doesn't change anything. Think about the production costs dropping due to that high-volume. So what if it is spread out among the masses? It's still genuine change. What are the claimed limitations of the technology? This is turning into truly desperate spin. Claims of failure don't have merit. Consider this; have a fully charged Prius Prime and Volt drive 22 miles. What differences would there be other than one having a depleted battery-pack and the other with 31 miles remaining? The answer is simple, none. Both delivering a full EV experience means what? The entire drive would be powered by plug-supplied electricity. That certainly doesn't validate the "*milking it*" claim.
- 9-16-2016** **Too Late, part 3.** This is what I saw upon waking up the next day: "*Hybrids are part of the 'too little too late'.* Like I said, they need to get serious about plug-ins." The discussion had degenerated down to just mindless rhetoric. It provided a nice opportunity to remind him what the goals are: That doesn't actually tell us anything. In fact, that's as vague as a person could possibly get. Evading discussion of detail provides confirmation that there's no substance to the claim... \$30,000 price, to-the-floor EV acceleration, enough EV to cover most commutes, and sales of at least 5,000 per month.
- 9-16-2016** **Too Late, part 4.** Denial. Rage. Dishonest. Ridicule. Demanding. Contradiction. Insulting. Hate. Exaggeration. Dismissal. Spin. It was all there. I was amazed to see such an extreme post. Since he obviously didn't care at that point (the same wounded & frighten animal behavior witnessed in the past), it didn't matter what I said. Fortunately, pretty much everyone else has moved on. Realistically, he probably has too and this only served as a sense of closure. To that end, I posted: That quite possibly could be the best rant posted since C-Max Energi was rolled out. Back then, it was also a Volt enthusiast who went off the deep end. That pattern is easily recognized. Same result too. Things fell apart and the outcome was far from what had been hoped for. The door of that chapter was slammed hard. Everyone quietly dispersed afterward. The next chapter begins.

9-17-2016 **Too Late, part 5.** My conclusion will hopefully bring about an end to the rhetoric. What a waste having to deal with such nonsense. It should be a matter of addressing issues, then moving on. Some have a much harder time dealing with change though... as this exchange has clearly points out:

That claim of "too late" does serve as confirmation of closing a chapter.

The problem is your disturbing take on what should happen next: "*Quantity will be determined by market demand, as it should be.*" That formula doesn't work. Volt overwhelming proved the masses won't change simply if you deliver a well performing vehicle. No matter how much praise enthusiasts gave Volt about performance traits, the reality of compact seating and disinterest for saving gas kept sales down.

9.9 million GM vehicles sold last year should have been the wake-up call. The other was virtually non-existent posts on the big GM forum. Volt had already been ratified as a specialty vehicle, much like GM's others. The choices for gen-2 configuration resulted in them moving on. Bolt would become the plug-in vehicle to hold the spotlight. Online posts about the announcement this week solidified that. The rant confirmed it.

Turning outrage on Toyota doesn't accomplish anything. California, Oregon, Washington, Arizona, Maine, Massachusetts, Vermont, New Hampshire, Rhode Island, Connecticut, New York, New Jersey, Maryland, Virginia, and Hawaii were the only states Prius PHV was offered in. That meant the generous incentives from Georgia, Oregon, and Colorado were never taken advantage of. Yet, despite limited availability, there were still 42,341 sales. They served to prove the technology and highlight what improvements to include in the next generation.

The topic of demand obviously stings. Downplay from your quote and the proceeding rant attest to that. It's over. Chapter closed. Focusing attention on Toyota is an obvious attempt to distract. That red herring is dead. Bolt's ability to deliver 238 miles of EV ended Volt's quest for mainstream acceptance. Market demand wasn't there. As many have pointed out, a plug-in hybrid model of Equinox holds great potential. 4,919 sales of RAV4 hybrid last month validates interest. Imagine what adding a plug could achieve. My guess is you already have, hence the lashing out at Toyota.

That claim of "*too late*" doesn't become a non-issue upon delivery of the first vehicle either... as gen-2 Volt has shown. Sales must grow. Since Toyota already had Prius Prime developed, so they figurative plug for Prius PHV was pulled... saving the growth for later. Way bother rolling it out to the remaining 35 states knowing a much improvement version as on the way, especially with consumer education required. GM has throttled back on Volt for similar reasons. Bolt is much improved. Not only will it eliminate "*range anxiety*" concerns, it also provides a more roomy interior.

Both automakers are starting fresh the end of this year. Too bad if you don't like them sharing the same business mission of significantly reducing emissions & consumption but taking entirely different approaches. Intermediate goals will differ greatly, but both face the inevitable reality of tax-credit expiration. Sharing the need to deal with traditional vehicle demands makes the plug-in market a common interest.

In other words, I couldn't care less if you don't want to cooperate. Rant all you want. There are enough of us trying to make a spirit of uniting together for the same cause convey throughout the minds of mainstream consumers. Volt wasn't the vehicle to do that. Whatever. Let it go. Move on to Bolt with the other GM supporters. Geez!

Do you really think it's all about Toyota anyway? What about the push soon coming from Hyundai? What about the long-awaited debut of Mitsubishi? What about the intent Ford has stated? Think about what Nissan is planning. And of course, there's Tesla.

9-17-2016 Video for New Shopper. Someone who joined the big Prius forum just 3 months ago with interest in Prius Prime posted a new thread, asking for reasons why it may be a better choice than Volt. I was intrigued to see where this new discussion opportunity would take us. So, I jumped in with: It depends upon what your priorities are. If you don't need more EV range, why bother with a car offering a larger battery-pack, especially if the tradeoff is less headroom for rear seating? Prius Prime will deliver much better MPG after depletion too. There's also the electricity consumption to take into consideration. Your location in the Midwest would mean a greater benefit from the vapor-injected heat-pump Prius Prime will include, rather than the less efficient resistance type heater. Having 82,000 miles on my Prius PHV, which has been averaging 72 MPG over the past 4.5 years, the decision to upgrade to a Prius Prime right away is a no-brainer. I can recharge at work using solar electricity, which will bump my 19-mile commute average from around 110 MPG to possibly 999 MPG. Since I take long trips routinely, the improved efficiency of the gas-engine will be a nice benefit too. I'm also looking forward to the variety of goodies Prius Prime will offer that have nothing to do with being clean & efficient. The LED lighting will be sweet, the color head-up-display and new screens will be fantastic, and the dual-wave rear window will be the boom. Carrying my kayaks on top will be interesting, where high-tech and the outdoors collide. For some perspective, here's a video of a commute to work I filmed last month: [Prius PHV - Summer Commute Home](#)

9-17-2016 The new "Who?" Question. I asked it this way: For some perspective on market diversity, note the recent reveal of the next-gen Outlander PHEV. It is said to deliver a 120 km range for EV. That's 74.5 miles and will offer a larger interior. That helps emphasize the "*too late*" situation. If something is tried and doesn't work, try something else. GM is. Toyota will be. Heck, even Nissan is planning to. Seeing the success of gen-1 Outlander in Europe should be a clue as to the success of gen-2 here. Who do you think the competition is?

- 9-18-2016 *The Push.*** Pointing out to someone that they have backed themselves into a corner rarely goes well. They tend to get hysterical, lashing out at anything they can... but trying the best to make what they say seem rational. This was the point at which things finally broke down: "*Volt Gen2 has the 5th seat.*" You know it's falling apart for that person when they begin to outright lie. He knew there was no way to win that argument, yet tried anyway. It's so easy to prove Volt doesn't. That spot in the middle has a seat-belt, but there isn't a place for legs. How is that a seat? Do anyone really expect an adult to share their leg area with another? It's only a compact in the first place. That makes it even smaller. Ugh. Providing proof or not really doesn't matter. It's simple to see that the claim was counter-productive. Accepting the "5th" would result in a mark against Bolt, which I was happy to point out: Eventually, you'll figure out why I've pushed for you to look at GM's own product-line. Currently, the obsession with being better than Toyota is blinding you from seeing it. For example, your quote above does a huge disservice to Bolt. The rear seating in Volt is compact. You have to duck down and lean forward to see out of the window. That isn't the case with Bolt. Your head touches the ceiling. That isn't case with Bolt. You have to squish your legs into the same area as the two other passengers in back to squeeze into the 5th seat. That isn't the case for Bolt. Who cares whether or not Prius Prime has that. You are harming Bolt by portraying Volt as if it is the same. Bolt supporters will not be pleased.
- 9-19-2016 *Summer Commute Home, video.*** Here's the description I posted of that newest video: This is my commute home, the return drive from the "*Summer Commute Work*" video. Same route, different traffic. The resulting MPG from that direction & time is lower, but 142 MPG certainly isn't anything to complain about. This particular summer drive was rather ordinary. The temperature was comfortable, due to all the clouds, and the number of vehicles was typical. I like the drive through the suburbs. The up & down through all the hills uses up more electricity than just flat roads would, but the hybrid system handles that just fine. You can see climbing them in EV is no big deal. There's plenty of power for that. As for the filming itself, the new camera for the dashboard information works great. There's no refresh flicker anymore and the vibration becomes a soft sway from the camera's stabilization.
- 9-19-2016 *No Worries.*** The craziness isn't over. This transition was never expected to be easy anyway. So much attention has been placed on plugging in. That's especially hard on regular hybrids when gas is so cheap. Discussions like this provide a welcoming refresh. No surprise, a new owner was unknowingly fighting the system, attempting to squeeze out the most possible EV driving. I posted: First, it's important to keep the "*JUST DRIVE IT*" motto mind whenever you are behind the wheel. Literally thousands of new Prius owners make the very same assumption, that more EV is better. It's not, hence the motto. They try to squeeze out as much as possible, not realizing the penalty that comes later from having to replenish the consumed electricity. That can actually result in lower overall MPG. That's not the outcome they hope for, but at least no damage comes from it. The system is simply compensating from you fighting the hybrid system. Instead, just drive it. If something was truly wrong, you'd find out after a tank or two of gas. For example, the engine never shuts off, even when stopped waiting for a light to turn green. Poor MPG would indicate that. Simply not seeing much EV means the electricity being generated is used for HV instead. Great MPG would indicate that. Enjoy your new Prius. No worries.

- 9-20-2016** **Making Stuff Up.** The eruption online was intense. That pointing out of harm being done to Bolt by defending Volt didn't go over well. It exposed his desperation. His loyalties were to Volt only, not GM. That's why all arguments against Toyota were always focused on Prius, even though their other hybrids were routinely mentioned. That's a sin you're dealing with a pride issue, rather than something actually constructive. He wasn't interested in the well being of the automaker or the industry. It was all about saving face. That's sad. Needless to say, he was just making stuff up at this point... which was a surprise, since the usual tactic was to misquote. He simply didn't care anymore. It became a survival struggle, for him anyway. I've been through this cycle several times now. Remaining true to the goal of delivering something affordable & dependable for the masses is what gets you through all the rhetoric. If it's not truly green, that weakness will eventually be revealed too. Patience is key. But sometimes, it is acceptable to throw a punch of your own: Now you're making stuff up too. It all goes to confirm the previous chapter has ended. The very idea of not being "*light-years ahead*", or as it had been stated in the past "*vastly superior*", is repugnant. Well, suck it up. Volt got outclassed by Bolt. GM's own offering brought about the change.
- 9-20-2016** **Happening Regardless.** There's a lot of anger & upset. It's inevitable the outcome won't be accepted by someone. How they handle it varies. I foresee an aftermath. With the chapter closed, there is nothing else to dwell on. We look back at the damage caused from all those battles. Whether or not acceptance of the war ending is acknowledged, the victory from EVs overcoming "*range anxiety*" is obvious. There's no denying that. Resentment will emerge. Letting those dealing with losses have their opportunity to vent can be quite effective. Of course, that entitles others to provide their own retrospective. I will too, though that isn't necessary. Having on-going blogs documents what happened as it happened... which avoids distortion from looking back. Feelings at the time were preserved. Anywho, I followed up with: The attempt to portray as "*anti-Volt*" simply doesn't work. Look back at the countless posts endorsing a "*lite*" version of Volt and the push to get Voltec spread to other vehicles, especially Equinox. In other words, I don't have any trouble with the technology. It's the configuration... and we know how die-hard Volt enthusiasts hated the idea of losing purity. (They also fiercely opposed EV offerings from GM.) That diversification was fought against intensely. That's sad. Fortunately, it's happening regardless of the opposition. We have Bolt, an EV. We have Malibu, a hybrid system with higher efficiency. And we'll see the CT6 plug-in, a variant of Voltec.
- 9-21-2016** **Repeating History.** Marking the end is near. Nothing else can be said... all rebut opportunities exhausted... all excuses exploited to their fullest... all hope faded away into nothingness. It's over. We see the cycle beginning again. This is a new chapter. Unfortunately, it's already looking like a repeat. The same history playing out is usually a bad sign, given the previous ended so fruitlessly. Early signs point at that same outcome. Remember the "*over promise, under deliver*" problem? Rather than rehash that, the choice was to state it as "*too little, too slowly*" instead. It made no difference. I noted the big-picture observation as: This is exactly what we saw when Two-Mode went out in favor of Volt. The antagonist would cry troll, followed by a flurry of childish spin. Being an adult would be to recognize the pattern and admit the leap-frog with Volt never happened. Sales remained flat, not achieving the hoped for minimum to reach mainstream buyers. Bolt will be taking on that role now.

- 9-21-2016** **Final.** He gave up with his own identity. Switching over to the one that is used only for attacks didn't do any good either. Though, I find it intriguing to see that happen, since everyone notices it. Tracking discussions is much easier. That's a benefit for both of us. Looking up posts later, knowing the most intense was used with the other, is easier. Realistically, that doesn't matter. It's just like when other chapters ended. We all knew it was final. The most significant was the Two-Mode fallout. Volt simply took its place. The same situation seems to be playing out with Bolt. That pattern matches well. All we need now is word from GM stating some type of status. As for the enthusiasts, we already got that.. as I noted: That's final confirmation. When the spin here is spun so much, the past is denied. In other words, the diversification now happening is claimed to be the plan all along... when the posts & blogs clearly confirm that wasn't what actually happened. Of course, admitting that means agreeing with those who had been saying that all along... which we know won't ever occur... hence the spin to attempt to obscure that. Whatever. Like I said, it's happening regardless. btw, this website was highly opposed to EVs until recently. So, labeling me as a troll is rather pointless, since so many others have switched over. Notice the dramatic change in daily topics?
- 9-22-2016** **Packages & Colors.** What a fitting way say to actually mark the end. With perfect timing, the spotlight just naturally shifted over to Prius Prime. We got package details today. There will be a "*Plus*", a "*Premium*", and an "*Advanced*" model. I'll be getting Advanced, which is the top offering. It's very exciting to finally get such information. That means delivery isn't too far off. Of course, I can't order one yet. But at least we know what production plans are. That includes colors too. The one that has me captivated is Blue Magnetism. It's a deeper blue than I have now with a shade of green and a metallic luster. It's a color exclusive to Prius Prime too. We'll find out pricing in a week and a half. Then, I bet specifics about ordering will emerge. The wait is interesting. We have a major election happening on roughly the same schedule. Though, the outcome certainty from Toyota is far more predictable. Anywho, I'm quite excited and the feeling is certainly not exclusive. There are quite a number of others sharing the same anticipation. We're getting closer.
- 9-23-2016** **Dealer Visit.** I stopped to visit and share information. Those package & color details was far more than they had. Though, I did find out what the number was for the package I want. Two orders were in the system for that region, but who they'd go to was uncertain. No big deal. I can wait to submit my own later. It would be nice to repeat the process like in the past... place an order online myself, then get confirmation from the dealer I chose. That makes it easier for everyone involved. It's exciting to reach this milestone. Patience is no big deal. I learned that ages ago. That's essential when dealing with Prius. The wait has been well worth it every time too. Actually be able to get in line officially ups the ante. Progress from the reveal to waiting for delivery is a step I've anticipated for a very long time. Oddly, I still remember the wait for my first Prius. The memory is quite vivid, despite it being over 16 years now. Making new ones is exhilarating. I can't imagine forgetting this stage. Portions are known. Other bits are not yet. It's a big puzzle with parts all suddenly fitting together. Yeah!

- 9-23-2016 Capacity & Range.** Constructive questions are getting asked now... on the big Prius forum, anyway. This particular one caught my interest today: *"What's the usable battery of the current pip? I thought it was 3.3 kWh. Anyone know if the primes usable battery is just double or is it more. Does it make sense to put a % of the battery in reserve or only a set amount? I think Chevy is one to change it up a bit from Gen 1 to 2..."* I was happy to contribute some detail to stimulate more discussion: Knowing how Toyota routinely understates, it makes sense that we'll actually get more EV miles than what's officially stated. The math seems to suggest that too. Volt gen-1 (11.2 kWh of 17.1) = 65%; Volt gen-2 (14.0 kWh of 18.4) = 76%; Prius PHV (85% SOC - 23.5%) = 61.5% EV; Prius PHV (85% SOC - 18.0%) = 67.0% EV+HV. We can see there's opportunity to use more energy from the battery, that a longevity-buffer so large probably isn't necessary. In other words, the doubling of the original 11 miles to 22 because total capacity grew from 4.4 kWh to 8.8 is likely on the low side, especially since we know the efficiency of the system itself has improved.
- 9-24-2016 Aftermath, hostility.** There was a lot of hostility. Rather than seek a partnership, they touted a *"vastly superior"* attitude.. which sadly, prevented any type of cooperation. I worried about that right from the start. Back then, it was referred to as the *"trophy mentality"*. Being awarded recognition for engineering achievement was all that mattered to those Volt enthusiasts, even if it didn't contribute to the end goal. That praise was more important than actually making a difference. I was annoyed... until Ford's rollout. They delivered a plug-in hybrid that fit the new definition for Volt. The original definition is what the EPA still uses for EREV; it is a SERIES type hybrid. C-Max Energi fit the same criteria enthusiasts had spelled out for Volt. They weren't seeking an ally. So anyone endorsing that, like myself, ended up having to deal with hostile posts. You'd get labeled as a "troll" for saying anything that didn't cast a light of supremacy. Looking back, it's hard to believe the 4 years that followed were nothing but a stream antagonistic posts. Fortunately, the supporters of Volt did all they could to keep a distance from those enthusiasts. Unfortunately, that meant no help stopping them from greenwash efforts... like the *"6 mile"* misleading... which ended up becoming the spread of outright lies. Ugh.
- 9-24-2016 Aftermath, upgrades.** My resentment for the double-standard coming from Volt enthusiasts seemed endless. Fortunately, I knew what they claimed impossible would come to be. The spin was that Prius was a dead-end, a waste of time not worth any type of investment. The portrayal was that of hopelessness. It was a dangerous precedent to set. So much so, I became quite surprised that it persisted all the way until Bolt's distance reveal... which was just 2 weeks ago. They kept holding on to the hope that Volt's larger battery-capacity alone would make it a popular seller, since Toyota was about to deliver several upgrades. The to-the-floor acceleration was the most profound loss. Prius wasn't supposed to be able to deliver that much EV power. Prius Prime is about to prove them wrong, very wrong. The ultimate Achilles heal for Volt was heater drain. In Winter driving, that use of electricity for warming rather than propulsion was painful. Range reduction was a major problem... and Prius Prime will be delivering a more efficient solution, making size of the battery less important. But what drove the final nail in the coffin was from GM itself with Bolt. The jump from 53 to 238 is massive. That's so big, the entire purpose for Volt falls apart. The problem of *"range anxiety"* now has a better solution. Oops!

- 9-24-2016** **Aftermath, promotion.** The resistance from me against Volt comes from promoting it as a mainstream vehicle. Sales are flat and limited to those well outside the norm for what anyone would call an ordinary car buyer. It's a specialty vehicle... which is fine. Why not offer something that appeals to those seeking more than just a reliable transport which is affordable & practical? After all, even Toyota is doing that by offering a divergent model of Prius. Notice how Prime pushes those limits? Think about it. I see the potential in the technology. I simply don't like the choice of a compact car with heavy emphasis on range & power. That was never a good idea. But cars like Camry and Corolla are labeled as boring. So, trying to draw attention to Malibu and Cruze as viable platforms to electrify is basically futile. Enthusiasts will fight that, as the blogs have overwhelmingly confirmed. That brings us to the problem of promotion. How do you promote something that really shouldn't have attention drawn to it? Mainstream consumers couldn't care less how the propulsion system operates. They just want results. It's a fundamental conflict.
- 9-24-2016** **Aftermath, outlook.** There's an optimistic outlook. True, we still here from those who misrepresent, but the solution is the same we've seen in the past... prove them wrong with a massive amount of real-world data. Those reports of owner experiences drown out the rhetoric. All you have to do is share stories of your daily driving. That's it. The lack of any real competition to Volt gave enthusiasts an inflated sense of victory. They felt the "*mission accomplished*" feeling. Reusing to look at the bigger picture was their downfall. Thank goodness that's over. It's a new chapter started. Claims of range being "*not enough*" will fall on deaf ears. The showroom shoppers simply won't ever hear any of that nonsense. True, there will be very real apprehension about 22 miles being enough from Prius Prime. But the expectation is that Toyota will take a stance of aggressive pricing. They won't squander the tax-credits. First year will be the build up, giving enough pieces in place to be able to push hard. The hope is this product-cycle (generation) will result in 1 million sales worldwide. That's the kind of volume all automakers need to overcome production costs, as well as dealer hesitation. Don't forget the absolutely vital aspect of participation. Supposedly, only two-thirds of GM dealers are certified to sell Volt. Among those, many don't bother to actually sell them. Inventory is limited and salespeople aren't interested. They steer shoppers to traditional vehicles. Toyota wants to address this problem head on. That's no easy task. Simplicity is the key.

9-24-2016 **Aftermath, simplicity.** The precedent was set by Volt. That's why I keep referring about it directly, rather than discussing the industry as a whole. It was complex. The very act of explaining how it operated turned off most who were curious. GM didn't have the option of simply saying, "*It's a Prius with a plug.*" Toyota does. That opportunity has been thoughtfully postponed too. Waiting until cost & capacity could be improved to the point of it never stirring much concern was key. A simple look at the window-sticker will cease any worry in that regard. That's the simplicity dealer & salesperson desire. They can focus on selling aspects of the car instead. For Prius Prime, that means pointing out the many features of the vehicle, like the LED lights and the dual-wave window. GM customers never got that far. Volt didn't stand a chance. Prius Prime has an appeal which will speak for itself. Simply let the curious showroom shopper take a closer look. They understand that plugging in allow the car to go without the engine starting. Nothing needs to be explained. Heck, even the range is so clear, there's not a thing to question. It's like MPG rating of the regular Prius. People simply don't ask any questions about it. They move on to the next level of shopping, which is checking out the vehicle itself. Toyota offers a few compelling draws... enough to entice a test-drive. Achieving that is a major challenge to overcome... which looks quite realistic.

9-24-2016 **Aftermath, why?** Did it really have to come to this? Remember all the posts about a "*lite*" version of Volt? It was to influence GM, to convince them that gen-2 should be configured to draw the interest of mainstream consumers... the same group of buyers who would otherwise purchase a Malibu or Cruze. They didn't. They decided not to offer a plug-in or hybrid model of Equinox either. We got news yesterday the new Equinox would be offered with 2 turbocharged gas engines and 1 diesel engine. Those will be the only choices. No battery-pack of any kind will be offered. What the heck are they thinking? Why must that even be asked? Who is making such terrible decisions? Don't they see how well the RAV4 hybrid is selling? Or are they quietly developing a hybrid after all? It's this big mystery now that Volt has almost completely vanished from online discussions. Heck, the media doesn't say anything about Volt anymore either. Bolt has completely pushed it out of the spotlight. Of course, that somewhat validates the naming choice. Sounding so close, it can be easy to overlook an omission... even on that big. That's the reason my commentary has an "aftermath" title. All the battles are over. The war has been lost. We know look to what can be saved. Volt as a niche is realistic. True, hopes of mainstream sales have vanished entirely. Thoughts of remaining appealing a particular group is enough to keep in production. Small isn't bad. It's just not what enthusiasts had wanted. Of course, they didn't want it to become ubiquitous either. Then it wouldn't be special anymore. It was a paradox none of them ever understood.

- 9-24-2016** **Aftermath, choices.** The importance of understanding audience cannot be stressed enough. It's absolutely vital. Diversity is a what you use to determine what works and what doesn't. There will typically be several that do. For those that don't, they need to be either discontinued or downsized. With the case of Volt, it's most likely not necessary to kill it off. Enough seeking more range and not concerned about rear seating could sustain it economically. Producing too many can be costly. Producing too few may or may not make a difference, it all depends upon what the high-volume choice is. Looking at Bolt to fulfill that role, we can move on to the other automakers. Finally! All that spotlight stealing wasn't constructive. It only served to stall the push for middle-market. Hyundai is seeking them. With 3 choices of Ioniq, that certainly will be interesting. Of course, it too is small. However, price is expected to be much lower. That affordability aspect may work for those buyers. Again, it's a matter of trying to see what works. We're all quite curious how Chrysler will do with they Pacific hybrid. Being a minivan with a plug is unique. That in itself may result in strong sales. After all, Mitsubishi's Outlander is in a similar position. Anywho, both are attempts to test the market. Kudos. I'm looking forward to a personal endorsement of Prius Prime. Having studied both the technology and the audience extensively, I see great potential.
- 9-25-2016** **Aftermath, competition.** Commentary about Prius Prime competing with Volt will be plentiful. The "*leap frog*" with sales never happened and advantage of hard-acceleration has been lost. So regardless of past greenwashing efforts, those quantifiable points cannot be avoided. It's a new game now, especially with the increased battery capacity. I've heard several reviews now downplaying the 13-hour recharge time using level-1 shouldn't be a concern, since the entire EV range will rarely be used for daily driving anyway. Not having any type of night-life is a hard sell. People drive to places other than work. People stay out late in the evening. People want to use all of what they paid for. All that, combined with the taller seating in back makes Prius Prime worthy of comparisons. I suspect the much higher MPG following depletion will be a big draw for those who drive longer distances routinely. There's also the dual-wave window, an obvious standout feature for those not wanting an ordinary look. GM intentionally toned down Volt's visual points to make it blend into the crowd of mainstream vehicles. Was that a good idea... especially now that we're seeing more and more vehicles with distinct LED lighting? There's much to speculate about. My guess is the aggressive pricing for Prius Prime along with the option of luxury goodies, like the huge screen, will result in a number of Volt conquests. Remember, there's only a limited amount of tax-credits available. Toyota has many to offer for Prius Prime. GM has fewer and wants to dedicate as many as possible to Bolt for beating Tesla with Model 3. That will very likely keep sales expectations for Volt quite low.

- 9-25-2016** **Aftermath, drive mode.** No one seems to have asked about this new button yet. All we've heard is just brief mention of its existence, no detail. Supposedly there's a charge option. It could be a killer-app feature, giving Prius Prime an edge that Volt simply doesn't have a way of competing with. The hope is that button will offer the ability to replenish EV capacity while you drive. The penalty of recharging on-the-fly by consuming gas is obvious; it reduces MPG. But we know Prius Prime will be more efficient than Volt once the battery is depleted. The impression given is that it will have a 10 MPG advantage. So, that penalty won't be much of an impact. When you complete driving, you'll have EV available. For me, I routinely take longer drives. Visits to friends & family easily exceed the EV capacity Volt offers. There would be ample opportunity to replenish EV. Heck, I modestly achieve that now by "stacking". But rather than having to push the EV/HV button to designate recharges while braking to be allocated to EV miles, it would be automatic and on-going. Saving electricity generated while you cruise, rather than using immediately for better HV efficiency, allows you to take advantage of EV opportunity later. In other words, we get more than just a hold mode. The resulting overall MPG could be quite impressive. Yeah!
- 9-26-2016** **Aftermath, light-years ahead.** My favorite snippet from the extreme exchange last week is: "*GM is light-years ahead in plug-ins*". He declared that, but absolutely refused to explain how. No detail whatsoever was provided. It was just stated as fact. That's just like the crazy candidate we have running for president. All you get is vague claims. No substance of any kind is given. Do these personalities actually believe people won't want validation of some sort? Blind acceptance is nuts. Then again, so is making such a wild exclamation of position. What purpose does it serve? Being vastly superior accomplishes what? Well, let me tell you. Toyota's hybrid system is able to compete directly with traditional vehicles. It's a huge challenge with gas prices so low; yet, the technology remains viable. That same extremist claims it took Toyota 17 years before earning a profit from Prius. That's just plain not true, even with all costs ever involved amortized in full. It simple doesn't matter. Detail reveals that Toyota is about to start year 20. Prius is profitable. Period. Without any tax-credit help. How is that not ahead? The plug-in model will leverage upon that technology. Only the door panels will be shared for body parts, but the hybrid system underneath will be nearly identical. Different battery-pack. Added charger. Added clutch. I'd say that is ahead, especially when you consider how refined the engine is. Think about how much lithium cell production is already taking place. How much ahead is yet to be determined. That comes from sales. Penetration into the mainstream is our gauge of success. It's the direction needed for progressing actual change. Ahead in another accomplishes what?

9-26-2016 **Aftermath, charging.** As the dust settles, we are learning more. Remember, the point is to find a way of building a relationship. That means looking for things in common, even if they come from troubled starts. For example, Volt started with "Mountain Mode". It provided the ability to retain 15 miles of EV range for later use, rather than using up the entire plug-supplied capacity first. Enthusiasts claimed that was all anyone would ever need. The reason was simple... Prius PHV offered a "Hold Mode". Why would GM ever want to do something that Toyota did first? Ugh. Needless to say, that was a good idea and it later was added to Volt. Enthusiasts were thrilled... and didn't care about how hypocritical their posts had been about the feature's value. Oh well, at least they overcame their pride with that one. You think that will happen with this too? I was able to get a photo from a Prius Prime prototype. It had a "CHG MODE" indicator light illuminated on a screen. We think that is invoked using that "Drive Mode" button, the one next to the "HV/EV" and "EV Auto" buttons on the console. Will this help push Prius Prime into a respectable position? The goal is to finally be taken seriously by those who didn't want an ally. Bragging about being superior & ahead accomplished what? This aftermath commentary highlights how wasteful that effort was. The competition was traditional vehicles and still very much is. We're supposed to learn from each to figure out how to overcome that competing force. They refused to cooperate. Now, they have no choice. They must, because sales haven't grown. It's that simple.

9-27-2016 **Playing To Your Base.** How many times did I ask: "*Who is the market for Volt?*" That question was posted over and over and over again. The reason should have been obvious. GM was listening to enthusiasts, not supporters. They were playing to their base, rather than reaching out to grow. Market expansion is absolutely vital. Yet, none of those persisting in that daily blog would accept that. It's the reason why so many supporters abandoned it over the years. They didn't want to be associated with a group so enthusiastic, they weren't taking the situation seriously. So, even their own base kept getting smaller and smaller. That's why I was so confident about the outcome. That's why I'm talking about the aftermath now. Seeing the big picture was easy. You won't win if you don't understand your base. They didn't know their audience. They assumed others were share their beliefs, it was only a matter of being able to convey the right information. In other words, they kept repeating rhetoric, rather than addressing facts. Dismissing what you don't like is a fundamental mistake. Ironically, it's the very same problem a presidential candidate is facing now. At last night's debate, he played to his base. That worked well for getting the nomination. But that's a terrible strategy for when the goal is to increase your appeal. He said virtually nothing to sway the undecided. It was just more of the same spin & disregard. Many sources are calling him on that to. The next-morning reports are overwhelming confirming those mistakes. Sound familiar? It's just like what we saw with GM... over and over again. They remained focused on refining what already worked, instead of improving trouble areas. For example, 40 miles of EV was enough for Volt. Rather than the increase to 53 miles, battery size should have been reduced. The cost, weight, and space gains from that would have increased appeal. Only enthusiasts were requesting more EV. Ordinary consumers saw a small, expensive vehicle without impressive MPG following depletion. Supporters noticed... and became disenchanted. Mainstream buyers... didn't buy. Sales have remained flat. Growth has not been achieved, despite the generational upgrade. See the problem? What now? For who?

9-27-2016 **Appealing To Wide Audiences.** The word "*compromise*" has been given a stigma. Rather than representing an effort to deliver balance solutions, it became a sign of weakness. When you compromise, people now see that as failing to stand up for what you believe in. That's sad. It's no surprise though. When things go wrong, those who failed to reach goals will attempt to spin results. They make it seem like the outcome for the winner wasn't actually a success. That's what I've been dealing with for years. Toyota stayed true to the mission of offering a product for the masses. That's not exciting. Cars that are affordable & reliable are often labeled as boring. Being green makes that perception even worse. Yet, that's what draws ordinary customers to purchase so many. Those are the business-sustaining vehicles, so common, they get little attention. Prius Prime is an attempt to deliver both, a compromise of exciting EV and extras without exceeding the affordable criteria. That's a tough one. Fortunately, the reliability part is already taken into account. The hybrid system is well established from Prius and the assortment of other HSD vehicles. The lithium battery is well proven from PHV. It's a winning formula, if well balanced... which I see. Hopefully, others will too. It's just a matter of getting one, they sharing stories. No complicated or massive advertising campaign is necessary. The basics will do. That's all the wider audience will understand anyway. Details of operation are only the concern of enthusiasts. Buyer of profitable high-volume vehicles don't seek out that information. They just want what they can glean from showroom shopping and a few online searches. KISS... Keep It Simple, Stupid.

9-27-2016 **Who?** Now that the daily blog for Volt has turned into a venue for discussing Bolt, there's no reason to participate there anymore. After all, the start of that was to find allies and to squash greenwashing efforts. That's over. Everyone has moved on. I followed. The popular posting there doesn't allow voting. That's a huge improvement. So, when there was a thread posted about the Prius Prime sales goal, I jumped in to respond to this: "*They'll need to upgrade at least the battery to make it more competitive in a year or two.*" It will be intriguing to find out what the reaction is to my sound off: That's only if you believe the competition is other plug-in vehicles and the target audience is Prius shoppers. Toyota does not, hence the anticipated growth. The regular Prius is for those who seek outstanding efficiency from their gas fill-ups. The improvement to the handling and system refinement make it a serious contender for those with that goal. Sadly though, gas prices are so low, sales are quite difficult. Nonetheless, Prius is still delivering mainstream numbers. Prius Prime targets a very different audience. It's those who seek a no-compromise EV experience. You get to-the-floor EV acceleration with a range enough to cover most commutes, yet not break the bank. It's affordable enough to survive on its own, without tax-credits... especially with a worldwide sales goal of 1,000,000 for this generation. Following depletion, you still get outstanding efficiency. Prius Prime also offers unique draws, like the dual-wave rear window and the distinct LED lighting. The 3.3 kW charge-rate allows the battery to be replenished quickly too. It may appeal to some considering Prius or another plug-in, but that isn't Toyota's primary goal. They want to phase-out production of traditional vehicles. That means finding ways to entice buyers of Camry & Corolla, not simply attracting those wanting to be greener.

9-28-2016 **When?** Talk of this generation has been a sensitive topic. Volt enthusiasts lash out with resentment when you mention tax-credit expiration happening during this product-cycle. They see the end approaching in less than 3 years, well before the next generation will be available. That emotion comes from seeing how Toyota has prepared for it. Prius Prime may not offer the most elegant battery fit currently, but the purpose of that is clear. It was to ensure the system would be affordable. It is also recognized that the physical size of the pack could shrink mid-cycle. This sets up Toyota nicely to be able to deliver high-volume that's profitable and sustainable, even without subsidies. That's a very, very big deal... one that enthusiasts have been blowing off as unimportant... but have trouble doing so now. They see the desire to phaseout the regular Prius. When? That would be the next generation. With the newest delivering the highest thermal efficiency engine in the industry, as well as the most efficient hybrid system, it only makes sense that low-cost plugging becomes a target. Offering something for the masses has been the ultimate goal all along. That's why I held so much resentment for GM's approach with Volt. It catered to enthusiasts, not mainstream consumers. That's pretty easy to see now too. The gen-2 model confirmed a niche had been targeted. That's why support has shifted over to Bolt instead. Meanwhile, Toyota is preparing for a historical rollout. This very much resembles what we witnessed (and I participated in) back when the Classic Prius was replaced by the Iconic model. Yeah! Next year will be a lot of fun ramping up interest. The early buyers have much to do. There will be a great deal of discovery, then sharing. It's very exciting to anticipate.

9-28-2016 Phasing Out Hybrids. Talk of Toyota's next generation Prius only offering a plug has already begun. As expected, that has stirred a wide variety of posts. I sounded off with this on a generic automotive website discussing the topic:

The immediate reaction to reading this news is for people to compare to Volt. Why? Target audience is completely different. Cost doesn't have the same priority. And sales remain low & flat. What is there in common? What goals do they even share?

What's most troubling is the blatant spreading of incorrect information, since some of it is intentional. There is a bit of encouragement though, because people will recognize the new generation provides improvements. So, they'll question if what was claimed is outdated.

To the topic at hand, name other automakers striving to reach middle-market without tax-credits in their current generation. That's a major undertaking not being discussed seriously. All we get is boasting about more EV range, which hasn't resulted in large sales growth.

Look closely at Prius Prime. The effort to deliver a choice with potential to compete directly against traditional vehicles should be apparent. The benefit is huge. Dealer interest has been a fundamental problem for GM. Toyota is working hard to overcome that.

Cheap gas and the lack of interest in oil dependency present monumental challenges. There's the outright dismissal of carbon & smog-related emission problems too. Enticing customers who aren't the slightest bit concerned to consider a vehicle with a plug is a major undertaking. It takes far more than the overly-simplistic portrayal of delivering more EV range being enough to sway them.

9-28-2016 Greenwash Attempts. How much more will we have to deal with bogus claims like this: "*The Prius switches to the gas engine when it reaches 55 mph for efficiency.*" That is blatant greenwashing. There is no switch. At 62 mph (not 55 mph), the engine will join in to provide some propulsion power. The draw from the battery-pack does not stop, as the statement implies. It is only relevant to Prius PHV too. The next generation Prius Prime bumps that threshold up to 84 mph. It's that kind of intentional misleading we've had to find ways of overcoming for years. Certain individuals just plain don't care. They think nothing of spreading lies. The new venues discussing Prius Prime now bringing back those problems all over again is annoying. That is telling though. Choosing to post dishonestly informs us they have nothing of merit to rebut with. It's confirmation of shortcomings they hope to avoid revealing by keeping the attention on perceived weaknesses of others. They call it spin upon being caught. I see right through the deception. Hopefully, unknowing readers will notice what's going on... because those greenwashing attempts show no sign of ending.

9-28-2016 **Published Early.** Oops! There was an article published 2 days ago that abruptly vanished. It was about Prius Prime. The new photo in the preview caught my attention. I was intrigued. But try as I may, the link wouldn't open. Yesterday, I discovered it was an embargo violation. A media source privileged with the opportunity to access advanced information ended up leaking it by publishing early. We all must wait until next Monday, an entire week later. Oh, the agony! Unfortunately, what happens on the internet doesn't stay on the internet. Now I cannot upload this blog entry until then... because I know how to find out what got published. Doing a search on cached history revealed a copy of the webpage which had been promptly been taken down. The information within confirmed what I've been saying for years. Toyota has placed a very high priority on keeping cost low. The design supports decisions being made in that regard. We only needed price to prove it. There it was. \$2,860 lower than Prius PHV's base, despite the larger capacity battery and much refined system. Prius Prime comes with added safety features too. That's absolutely fantastic news! Even better was the discovery of yet another improvement. This generation will include a battery-warmer. Temperatures below freezing cause electrical resistance within the battery to increase. That means more electricity is consumed to drive in Winter conditions. To improve overall efficiency, the system will now keep the battery warmed to 32°F (0°C). Unnecessary, but beneficial, upgrades like that are what we had been hoping for. It's very exciting to find out new information of that nature. Though, it would have been totally worth waiting for. Oh well. The leak wasn't a terrible thing. Only a small few noticed and we're all keeping quiet about it, especially since we only have to wait 5 more days.

9-29-2016 **That Daily Blog.** Discussion of Volt there has almost entirely vanished. Bolt's dominance is obvious. It has taken over. So, getting back to the topic of plug-in hybrids today was something I had been looking forward to. On the parent website, an article of regular Prius phase-out potential had been published. That meant the possibility of the blog getting it too was realistic. It happened. I jumped in right away with:

The keep-cost-low approach Toyota chose to take has been mocked relentlessly over the years. It's good to see the purpose of that finally getting acknowledged. Leadership is getting the masses to change.

Delivering a vehicle for them requires affordability to be the highest priority. There's simply no way to achieve high-volume profitable sales with tax-credit dependency. Finding a way to offer a plug without necessarily having the most elegant packaging or largest EV range has been key.

We see Prius Prime fulfilling those requirements. You get a full EV driving experience for the average commute. You get outstanding MPG after the plug-supplied electricity is used up. You get a design with production-cost low enough to be able to compete directly with traditional vehicles.

Within this generation, tax-credits will expire. Sales must grow to sustainable levels, despite the subsidy loss. Overcoming that and setting the stage for discontinuing the regular Prius means achieving & sustaining mainstream quantity for Prius Prime within the next few years.

Sales always have been the measure of change. Ordinary showroom floor shoppers are much more difficult to appeal to than car enthusiasts. Watch how mainstream buyers respond to Prius Prime.

9-29-2016 **Maturity.** There were some who didn't show any. We got repeats of the same old rhetoric. It's hard to believe pride gets so much in the way sometimes. Dropping bait is the most common response when there's a topic they don't find appealing. I didn't bite any of that. The antagonism simply doesn't work anymore. Responding only gets you labeled as a troll anyway. Confirmation of the situation simply comes in the form of them trying to lure you. The more attempts, the more you know they're recognizing what went wrong. I waited for something constructive to be posted instead. This was good enough to hopefully stir something constructive in return: "*They've stretched it to it's Hybrid Synergy limits. If this means Prius gets a plug and a bank of lithium ion batteries, HOORAY! It's about time, Toyota!*" The rest wasn't anything new. It was quite predictable. I kept the reply to that particular one short: That stretch is called reaching maturity. With both cost & efficiency improved to the point of being directly competitive against traditional vehicles, adding a plug & battery-capacity is the next natural step... which is exactly what will be happening this year. That's right on time, just as interest for plugging in emerges. Mainstream buyers simply haven't cared up until now.

9-29-2016 **Lead or Follow?** That question sums up the enthusiast view of the market. It's either lead or follow. Simply being part of something isn't possible. You win or you lose; nothing in between. Ugh. That's why getting through to them about the importance of sales is basically pointless. They don't hear you. The idea of being ahead is all that matters. It's that same old trophy mentality. Oh well. Whether they like it or not, sales are how you gauge change. Many means you have an effective solution. It's that easy to interpret. This isn't: *"To me it just strengthens the argument that GM is leading and not following."* That was the response to hearing that Toyota may choose to offer a plug exclusively for the 5th generation. Much can happen in the next 5 to 6 years. A cost-effective next step is needed by all automakers. What will the others do? Toyota's path is much easier to see. Sales will make that determination, not leadership claims, not winning awards, not declaring superiority or obsolescence. I put it this way: Sales are the measure of progress. Generation 1 (the first chapter in plug-in hybrid history) reached enthusiasts well, but ended with market saturation. Generation 2 is the chapter where the attempt to appeal to ordinary showroom shoppers takes place. That's a very different audience. So far, only gen-2 Volt has been rolled out. Sales have been flat, despite no other gen-2 offering being available yet. That's not the type of leadership the industry has been hoping for. Significant growth is needed for plugging in to be taken seriously. That means greatly exceeding levels of the past. Toyota, Hyundai, Chrysler, and Mitsubishi will all be joining within the next year. The goal is to show that plug-in hybrids are having an impact on traditional vehicle sales. Achieving that will come from new interest, convincing new customers to purchase. What difference will leading or following make?

9-29-2016 **Decisions.** Yet another rant came about. Each new thread that addresses an unpleasant topic does that. This is how I summed up what happened today:

The statement of "*Toyota is considering ditching the regular hybrid version*" is why posts have been about Prime and focus on goals. Remarks about visual appeal and more being better clearly aren't constructive. They're just fodder cluttering up the thread.

We know it comes down to low enough production cost to appeal to people outside of the gen-1 market. They aren't looking for the most of any particular aspect. They are just looking for a nice balance for a good buy. They couldn't care less about argument points made here. For that matter, they don't care about the past either.

I do find it telling that resentment for GM decisions is so often vented in the form of Prius disparaging. Those who do that clearly don't understand audience, they still have no idea who the market is. No matter how many times the importance of drawing over GM's customers from their own traditional vehicles to something greener is mentioned, there's still a belief that conquest sales from other automakers are what matter. Ugh.

Losses on the showroom floor really hurt. Pushing to prevent that by making a plug standard is seeking otherwise missed opportunity. Success of winning over Camry & Corolla shoppers with Prime would give good reason to consider the end to Prius without a plug. Those sales would confirm that next step is a wise one to take.

This isn't rocket science; it's business. Prius PHV was rolled out mid-cycle in limited quantity to limited areas. Decisions about what next step to take was made based on observations & feedback from those initial owners. How much power & range to increase was made based on real-world data and cost reductions possible in the available timeframe. That's how Prime came about.

9-30-2016 **Winter Warming.** The crazy online banter is almost over. We can finally look toward real-world data gathering. That collection of driving experiences shared is a powerful weapon. Squashing misconceptions and the fight against greenwashing is far easier when speculation ends and ownership begins. I am especially looking forward to the Winter experience. Living here in Minnesota, that's especially valuable... as well as fun to be part of the discovery process. The new preheat feature is something I had hoped would be available from Prius PHV. Electric heating didn't make sense way back in 2012 though. Far too much EV range was sacrificed for the ability. So, it wasn't offered. This time, the battery is big enough and the heat-pump far more efficient. I'll be able to run it directly while plugged in too. Yeah! In addition to that cabin warming feature, the battery-pack and steering-wheel will have warming features. Hooray! Each generation becomes increasingly more electric, yet price stays in check. That's sweet. Lowering tolerances like that won't be appreciated by many people other than early adopters, those who closely following gen-1 designs. The gen-2 vehicles, most notably Prius Prime, will just work without there ever being any type of electric concern. It will just work. People will use, but not appreciate the technology advancements. That's how you know it has reached maturity. Ordinary consumers have little to no engineering background. Most have no clue how their vehicle actually works. Those promoting the switch from gas to electricity must be keenly aware of that. Otherwise, what's advertised will be meaningless. Functionality of the past won't have any relevance now; so, there's nothing to mention. I'll simply be telling people it works great in the cold.

9-30-2016 **Smug.** For crying out loud: "*Seems that this day the Toyota fanboys out typed the GM fanboys. They had to release their frustrations on Toyota's losses and mistakes. So, for now, GM is still ahead.*" The nonsense of being ahead is baffling. What do they think "ahead" actually means? Posts have become increasingly vague, to the point of uselessness. Nothing is being conveyed at this point. For me, I soldier on. That means keeping locked on the goal and clearly identifying barriers:

Thank goodness the plug-in owners group I'm part of is working hard against such a pointless mindsets. They see the goal of mainstream penetration and take it quite seriously. Delivering the most range or being first simply isn't important. It's all about getting vehicles to potential customers.

In other words, there's a great deal of effort being focused on the dealer experience. The frustration of limited inventory and poorly informed salespeople is a major barrier to overcome. That's why being upfront about design detail is so vital. Misinformation really sets those efforts back. That message clearly isn't getting through to this group.

The nonsense here about not even wanting to address showroom shoppers is truly amazing. So much opportunity is being lost and you simply aren't interested. Instead, there's just a diversion about supposed losses & mistakes. Whether there were any or not has absolutely nothing to do with what's happens next. Gen-1 is not Gen-2. Why is that so hard to understand?

Prime stands a very real shot of reaching ordinary consumers, growing beyond the market for Prius without a plug. So what if Volt still hasn't been able to do that. It's not like GM can't later offer a variant that does. The posts here hint at a confidence concern, where you fear that won't happen, as if too much has already been spent on Volt and budget will just be shifted over to Bolt instead.

Keep doing what you want. Focus on being "*ahead*" for the sake of... ahh... what does that accomplish?

9-30-2016 **That's It!** I reached the end of my rope and let him have it. His efforts were responses out of desperation, anything to make Toyota look bad at this point. He actually gave up trying to attack me. Clearly, I wasn't going to back down. That's because I know what's coming. Intense research and online participation has its rewards. There wasn't any reason to hold back anymore. Calling those posts hypocritical wouldn't accomplish anything anyway. It was time to sight goals and call the play. So, I did: We still await that "*nicely under \$30,000*" plug-in from GM. Remember that promise for late 2010? In other words, I call your double-standard.

10-01-2016 **Due Diligence.** I thoroughly enjoyed reading and responding to this: "*Toyota is behind in this regard due to their lack of belief in the plug-in model. They were still gung-ho about old hybrid technology and didn't perform due-diligence on plug-ins.*" He's been a royal pain in the backside lately. The vague claims and growing double-standard was more than I wanted to deal with at this stage. It's over. Geez! In just 2 days, things will change. But there's always one who has to draw things out to the absolute very end. Oh well. Monday will be here soon enough. In the meantime:

Put it this way... The homework GM turned in was not what the teacher assigned. Yet, since the work itself was top-notch output and it was completed early, the expectation is to receive an "A" grade anyway. Sorry, but that's not how it works.

Ordinary consumers still haven't received that vehicle that was promised. The assignment was to deliver a plug-in hybrid that would greatly improve emissions & efficiency at an affordable price. There were no specifics on how much EV was required. It just needed to take advantage of plug-supplied electricity, then deliver hybrid MPG when that electricity was used up.

That's exactly what Toyota is planning to rollout within the next 2 months. The vehicle meets requirements and is right on time. Not only did they perform due-diligence to ensure the homework turned in was complete, they provided more for extra credit. What may have appeared to be lack of belief was really the effort to earn an "A+" grade by focusing things that may have seemed unrelated... like high-volume production of lithium batteries for gen-4 Prius.

Too bad if you don't like the idea of sharing the spotlight. It's going to happen regardless. GM is already part of the classroom, rather than the standout student that was hoped.

Look at it this way... they are in the class, they are participating in the exciting projects, they are doing good work. We'll just have to wait some more for the assignment to be completed.

- 10-01-2016 Dieselgate Progress.** It's slow, painfully slow. It's totally worth in though. Diesel for passenger cars has become a dead topic now. There is no future for it here. The nonsense around "*clean diesel*" has been revealed to be the biggest scam of all time. The smug owners who dismissed our empirical evidence are long gone. They were suckered into believing emissions were much cleaner and didn't want to address the reality of on-going improvements to hybrid efficiency. And now with plug-in hybrids delivered MPG so far beyond anything a diesel could even remotely achieve, it's a worthless endeavor. Gen-4 Prius was enough to nail that coffin shut anyway. Prius Prime will make that message so clear, there's no reason to even try... which is why VW dealers have wanted compensation for so much lost business. 652 dealers across the United States were depending upon VW sales. Not only were diesels not available, the inventory that could be sold became quite a challenge upon the loss of trust. VW got caught lying to customers. As a result, it looks like an average of \$1.8 million will be paid to each of those dealers. That comes to a total of \$1.21 billion. The scandal is proving to be extraordinarily expensive. It's too bad the problem wasn't exposed sooner. Prius owners were furious with the lack of attention. We kept asking how could so much be achieved by doing so little. Things just didn't add up.
- 10-01-2016 58 MPG.** I drove home from Northern Minnesota without using any plug-supplied electricity today. I wanted to see out what the MPG would be, again. It would be my last opportunity to witness that. With the temperature a pleasant Fall warmth. Why not? After all, efficiency would be outstanding... by gen-3 terms. When I upgrade from the Prius PHV to the Prius Prime in about 2 months, that gen-4 hybrid system will deliver even higher MPG. The drive was what I usually do on long trips like that, toggling the HV/EV button when approaching stops while decelerating from highway speeds. In this case, that generated & saved miles worth of EV capacity... which I did use along the drive. The goal was to make sure the estimated range matched what it did upon filling up with gas that morning, just down the road from where I had stayed the night before. That is indeed what happened too. The drive was 172 miles. The resulting average was a very pleasing 58 MPG. That's right on par with other trips that didn't use plug-supplied electricity, with top cruising speeds of 70 mph. It's great having a hybrid so efficient, it stands out even without plugging in. Anywho, I had to take a photo to document the experience... [photo album 186](#)

10-01-2016 **Final Remarks.** The level of rhetoric has reached a point of amazement. Some people choose to fight to the bitter end. The debate practice they unknowingly provide is quite valuable. So, I persisted. The time has come though to bring that to an end. I posted this:

No amount of downvoting, disparaging, and denying will stop what's about to happen... since that has been the source material for promoting it. The ultimate devil's advocate is someone not yet ready for change.

Toyota will soon reveal pricing for Prime which will confirm their heavy emphasis on cost-reduction. Being affordable and offering 22 miles of EV will draw in a new audience, one well beyond anything Prius was able to reach. That high-volume potential (profitable without subsidy dependence) within this generation is key.

GM's priority of pushing battery range has resulted in Bolt. It's success has already deprived Volt of attention (noticed discussions have almost entirely vanished) and promises to use up a bulk of the remaining tax-credits available. Since Volt is only compact and sales growth wasn't achieved with gen-2, offering that proven technology on some other platform is the obvious next step. A vehicle like Equinox stands a much greater chance of appealing to the masses.

In the meantime, Prime will be helping advance the plug-in market. Its vapor-injected heat-pump is an industry first. Combined with standard heated-seats and the introduction of a battery-warmer will push acceptance of plugging in even further. The unmatched MPG following depletion will solidify the place of plug-in hybrids among the new product-lines for automakers.

The idea of Toyota "*ditching*" the regular Prius evidence of change. Success of Prime will push other automakers. An affordable car that easily delivers over 100 MPG averages is what we've been waiting nearly a decade for. So what if GM's attempt wasn't able to lead those sales. It's not like they lost the war competing against traditional vehicles. Bolt is leading a new battle and the technology in Volt can be used elsewhere.

The effort continues. It's not over. We need people to help with this next chapter in the history of plug-in vehicles. Soon, there won't be any value to spin of what's about to happen, since it will.

Prime sales will begin. Bolt sales will begin. An announcement from Nissan is expected. Change is on the way.

10-01-2016 **Creating Confusion.** Someone read an article about Prius Prime from 3 months ago and wanted to publish comments about the points made on his website. So, he searched the internet for some material and did exactly that. The opening paragraph was a confusing portrayal of Prius PHV so messed up, I had to read the thing several times to figure out what he was attempting to tell. The article got worse from there. Clearly not understanding what the EPA window-sticker information states, he went on to complain about how Toyota could only offer "*6 miles*" for the first generation but was pleased that the second will deliver 22 miles. That type of misrepresentation is harmful. It's how misconceptions emerge. Assumptions are passed along and eventually true fact becomes very difficult to find. I was annoyed, to say the least. It's why I've been so hard on the Volt spin. That's intentional misleading. This was an effort to be sincere. He failed miserably. Readers of his webpage will have no idea that information was wrong. Retractions & Corrections are rare. The likelihood of them being read is even more rare. It's really unfortunate we have to deal with problems like this.

10-02-2016 Being Vague & Double Standards. That's what it ended up coming down to. No surprise. After all, an opponent rarely ever admits defeat. That type of behavior helps with the transition. It gives them a sense of having given the last word, as if they are in agreement. That was the case with: *"It has been for some time. And we are glad Toyota is finally trying to join the movement. They just need to step up their efforts... big time."* Of course, I couldn't let that go... because I don't want to see the cycle repeat again:

Step up? Big time?

Those don't tell us anything either. Posts entirely void of anything quantitative aren't constructive. No direction. No goal. Nothing to measure along the way. More & Faster is meaningless. This is why Volt suffered over the years. When milestones were missed, support became wishy-washy to defend reputation by using vague adjectives.

Toyota has always held true. So what if antagonists painted a misleading picture and those pointing that out were labeled as trolls. Ordinary consumers would never know and the goal would still be reached.

In this case, the effort has been to find a way of replacing traditional vehicles with a cleaner, more efficient choice. The same target price was set as GM too, nicely under \$30,000. We'll find out the results of that tomorrow. Capacity of the battery would be adjusted accordingly for each generation. They started with 4.4 kWh. For the next, the goal was to double that. 8.8 kWh is indeed what was delivered. The speed/power upper-limit was originally set to 100 km/h (62 mph). This time, it was raised to meet all driving circumstances, 135 km/h (84 mph).

Notice how easily measurable all those values are? They even state how many. In the past, it was a certain amount by a specific year... back when HSD was limited to just a few choices. Now, they have stated a quantity for a specific model & generation. In this case, they wish to sell 1 million Prime worldwide.

The concise nature of all that means easy evaluation of progress. Notice how sales were just blown off as not important in prior posts on this thread? It's because Volt fell well short of expectations and they were making an effort to avoid acknowledgement of that. Prime will be held to a higher standard. We know what *"step up"* and *"big time"* actually means... whether you specify it or not... because Volt will be expected to do the same.

- 10-03-2016** **Playing Offense.** That time to tell certain people the way things are with a rather terse approach has returned: The entire discussion has been about Prius Prime and its influence on the market... not your "traditional vehicles don't matter" nonsense. I've been waiting to find out what meritless spin you'd post upon learning Toyota reached the goals GM still hasn't. Your complete disregard for ordinary buyers, those who shop the showroom floor, is a recipe for disaster. They'll see the 25 miles of EV for \$27k. They'll see the step-up interior from the regular Prius. They'll recognize the outstanding hybrid efficiency & reliability. Who do you think you are fooling by trying to belittle what Toyota has delivered. Do you really believe that will somehow help GM, that ignoring their own goals will make it better? Hasn't anything been learned from offerings that failed to result in mainstream sales? Go ahead. Dig your hole even deeper. The rest of us will celebrate this progress. The step forward taken today by Prius Prime into the market of ordinary consumers is a big one.
- 10-03-2016** **Prime Pricing.** The embargo finally ended. After weeks of waiting, the time had come. Minutes later I was posting: Yeah! Price did indeed end up aggressive, as Toyota has been working really hard to deliver and we had hoped for. We've been waiting for that official 25-mile rating for awhile too. Knowing Toyota so well, doing the calculations, and approximating based on other markets made it a strong case of getting more than 22. After all, we often got more from the 11-mile estimate from PHV. Thanks for the info and the updates.
- 10-04-2016** **Spin Already.** I wondered how long it would take to get the perspective of change: "*I think the rear seating in the prime looks classy..and a big improvement.*" It's truly amazing how much people fight for the status quo. The majority like things as is, even if there's nothing to be gained from holding back. That's understandable... to a point. How long can it stay that way? How does a shift to improve gain acceptance? Since when do seats in back have to remain utilitarian? Why not making the sitting experience in back better? I sounded off to that with: We need more comments like that... since the anti-Prime spin has already begun. I have seen a few Volt owners attempting to paint a picture of "cheap" for Prime by using the low MSRP as their reasoning. Toyota may have foreseen that, hoping a few upscale features would offset such efforts. At the same time, it's a good move for greater diversification. They have to grow the market somehow. Why not offer something unusually nice for the price? What starts out as a luxury option tends to eventually become affordable for the masses anyway. Shaking up the industry by doing that unexpectedly soon seems a rather smart move. After all, that is how Prius started out. Think about how ahead of its time that original hybrid was.

10-05-2016 **September Sales.** Having monthly results posted within hours of the pricing for Prius Prime was an interesting twist. It immediately interjected some reality into the situation. I posted this addressing Volt supporters:

The showroom floor experience is a topic of importance that never seems to get any attention online. There are still far too many distractions.

For example, discussions end up focusing on worthless points instead, like 0-60 acceleration speed. Unfortunately, most people don't have proper perspective on, since they don't know what they really require. They simply haven't paid close enough attention. Rarely is there a ever an actual need to request full power in the time quoted. Highway entrance-ramp metering only takes place when traffic isn't moving a full speed, so you don't need it then. And when it's not metered, the vehicle is already in motion; so 0 mph is meaningless. It's a greenwashing trap many people fall into. Sadly, there are salespeople who take advantage of that for an easy commission.

Other worthless points, like the price of gas, end up making the sales effort a major challenge. People move on to traditional choices far too easily. Just ask how they'll plug in at home. That gets so overwhelming so fast, most don't even bother.

Looking specifically at GM's situation, what should happen? We have seen emphasis on Bolt so heavy recently, it's as if Volt doesn't exist anymore. There simply isn't any mention anymore. Limited quantity of tax-credits is a major contributor toward that. The greater the push with Bolt to get into the mainstream, the less there will be available for Volt.

Strategy has always been to push price into mainstream reach. For the 200-mile EV offerings, that's a generation away still. For the plug-in hybrids, it must happen in the very near future. Suggested many times for GM's next step is to rollout a Voltec version of Equinox. After all, GM prefers selling trucks & SUVs anyway. Cars are secondary... hence lack of support from dealers & salespeople.

There's the quiet giant in the room too. Toyota rolled out the new Prius last year with lithium batteries as their primary offering. Ramping up that production without much attention has went very well. We can see a reflection of that success with the low price of Prius Prime revealed yesterday. That's a clear effort to reach ordinary consumers, sharing the same goal GM has had with Volt. So... what does that now mean for Volt?

10-05-2016 **Why? How?** These questions must be asked: 4th generation brings about change. The formula of the past simply won't be as effective. A modified approach was required. The styling of gen-4 Prius was inevitable. People are burnt out on "normal" looking cars at this point. Evidence of that is the LED accent lighting popping up everywhere. That's an easy design modification will obvious results. People are draw to the standout, unique nature of what they provide. There isn't much functional benefit, but that doesn't matter. It's like the raised floor in the back of Prime for the larger battery-pack. There's a counter-intuitive nature of pride it addresses. People want to feel like they are contributing to a better future. The reduced storage space is an on-going reminder of their contribution. That isn't logical. Emotional appeal is what the automotive industry thrives on though. We may find that Toyota retains that approach, taking advantage of it later to offer more EV capacity rather than making the battery smaller. Also, how do you make it clear to the market that the new Prius isn't just another upgrade. That upgraded suspension will make it self known during the test-drives. So, the focus must be on getting customers to take notice enough to give it a try. Why shouldn't a green car be a little bit sporty? Shaking the stereotype of "eco-box" isn't easy. Look no further than Corolla & Camry. How does Toyota sell so many of those?

10-05-2016 **0-60, again.** There are very few who will remember details of the Classic Prius rollout, especially the rhetoric. Those who opposed hybrids looked to exposed design aspects that could be perceived as weaknesses. That's how want verses need entered into the story. The only possible reception problem they could come up with back then was electric-power was slow. It was a misconception they could push. So, they did. Well, the emergence of Prime has started a new chapter. They are looking for exploitation opportunities again. And sure enough, they homed in on the 0 to 60 acceleration speed. Ugh. The same old undermining efforts have returned. My first post (of many, I'm sure) on the topic was: People making the "*too slow*" comment never mention how long it actually takes to accelerate, they just assume not enough. Do they only envision a short ramp where you start from a dead stop, up hill, and have to get up to traffic going 60 within seconds? I certainly don't encounter that situation. I merge onto the highway in EV mode with my 2012 Prius PHV on a regular basis. Faster from Prime will be a nice perk, but clearly not necessary for ordinary run-of-the-mill driving. Of course, if you have much driving to do on the highway, you'll want to turn on the engine anyway. EV range gets gobbled up quick when traveling at 70 mph or faster. That's where the outstanding MPG from HV mode comes in really handy. Most owners will likely just use the "EV Auto" mode. That will favor EV as much as possible, only turning on the engine briefly when maximum power is truly necessary.

- 10-05-2016 0-60, so far.** I'm posting on a venue that serves a wide audience. So far, I'm just one of the crowd. The regulars there will either support or antagonize. It only a matter of time. They don't like change. The first clue is when they call you out wondering what your purpose is, but never say anything about their own. Not stating goals is a dead giveaway of trouble to come. Anywho, I going to walk that fine line initially: The assumption of believing 0-60 is the measure of all power available is what appears to be the issue. You point out passing. That has absolutely nothing to do with accelerating from a dead stop. Power returned is very different when the vehicle is already in motion. With the case of EV driving, you've got an electric motor that more responsive than a gas engine and only need it for a short burst. Put it this way, unless you have actually tried it, what basis of judgment are you using? Just one number does not tell the whole story.
- 10-05-2016 0-06, examples.** The push for detail begins. That will reveal intent. Constructive posts will provide realistic examples. Rhetoric will sight an extreme. I'll punt by taking the initiative in response to this: *"If I have a 20 mile commute to work, and half of it is highway at 70mph; does that mean half of my commute I have to use gasoline because the acceleration can't keep up with traffic?"* That gives the impression of an open mind really wanting to know. We'll see what kind of reply I get to this: Absolutely not. I'll be providing proof in the next few months with mine too, filming my commute to work with my new Prime as I do now with the PHV. The commute from garage to ramp (with charger) is 18.6 miles. There's a chunk that is on a 70 mph highway. I know I'll be able to merge right into traffic and cruise along with it effortlessly in EV. Watching the gauges now, it's pretty easy to see the extra power will cover that entirely drive in EV, no big deal. At work, there are 6 chargers available. The ramp has a massive 85 kWh solar-array too. So, being able to recharge there will allow my entire commute to be EV. The pre-warming feature and the vapor-injected heat-pump, along with the heated steering-wheel and seats, sure will make the electric experience in winter nice too.
- 10-05-2016 0-60, who?** I sensed things quickly falling apart. The participation in that type of posting only lasts for 1 day... but the thread discussion lives on for years. So, you have to be rather to the point when addressing potential problems. I certainly did today: What you think doesn't matter. You're not the one taking a test-drive or making the purchase. Marketing has convinced you that maximum power is required for everyday driving. It's clearly not. The EV power will easily cover a majority of our needs and many of our wants. You want more, buy a more powerful electric drive. This is no different than those insisting a 6-cylinder engine is required, when really a 4-cylinder engine is just fine.

- 10-06-2016 0-60, got ugly.** That didn't take long. One of the very frequent posters sounded off, attempting to dismiss by sighting an extreme. That's a familiar tactic and never a good sign. I was annoyed, but took advantage of the opportunity to point out: That example of an extreme didn't include an actual time. The omission is a red-flag. Most people don't have any clue how long it takes to accelerate onto a highway. That makes distorting expectations very easy. If you know you have an extreme to deal with. You just toggle over to HV mode or leave it in EV-Auto. The other problem is all the other examples omitted. Most everyday driving will easily be accommodated by the EV that's available. You'll be able to do all of your travel in the suburbs, runs along rural highways, and high-speed cruising on interstates. Avoiding detail by not bothering to include any data for us to make decisions on our own with tells the real story. Watch how long it really takes for an ordinary highway merge. It takes far longer than the vague claims imply.
- 10-06-2016 0-60, rushing.** Realistically, they'll never be happy. A great example of why comes from the intersection near my home. People fly around the curve and simply don't care if the light is red. They rush to it anyway. So, they want you to rush too. They don't care about waiting once they get there. They don't care that even if it turned green then, they'd still get through in time. It's that mindset of more being better, of want clouding judgment of need. I watch them do it to me. I watch them do it to others. I can see the frustration. It accomplishes nothing. Insisting that faster acceleration is required, even though they don't need it is similar. They never bother actually checking. They live with assumptions and get assertive when questioned about them. From their perspective, they think you're out of your mind. The fact that they are the aggressor driving too fast never crosses their mind. Whether the more is speed or size or power, there's a point-of-view of "*not enough*". So, no matter what you say, they just dismiss it. Marketing has exploited this weakness, selling countless millions of vehicles we don't need. They've learned how easily we succumb to want. Ugh.
- 10-06-2016 0-60, pointless.** It never ceases to amaze me how people aggressively pass. We all see the weaving through traffic, where they don't look far enough ahead to notice the lane they just got in isn't moving fast either. That's just plain stupid. Yet, it happens routinely anyway. The reason why is obvious: they are in a hurry and think every little bit adds up. It usually doesn't. You tend to keep up with them by simply remaining where you are. The other type of passing is especially frustrating. I can be cruising along on a highway in South Dakota at 80 mph. No one else on the road expect me and the person rapidly approaching from behind. They get into the left lane, pass by, then cut you off. Ack! There's no reason whatsoever to do that. Slowing down after passing, causing the person you cut off to also slow down, seems downright evil. It's annoying and puts them at risk. Why? Needless to say, that's where the dynamic-cruise comes in handy. Having the car deal with that rather than me needing to sure is nice. What's the point of such behavior? I suspect these drivers are the ones saying 0-60 needs to be faster. From their point of view, my guess is they don't think they are doing anything wrong. Ugh.

10-07-2016 **MPGe Rating.** The official estimates are now being revealed. The big one is MPGe. That's the miles-per-gallon equivalent value used for comparing EV efficiency. Prior to the gen-2 offerings, there was little reference of comparison anyone cared about. People would simply refer to the battery-pack capacity. More miles of EV was perceived as cleaner. The attacks I had to endure just by the mere mention of guzzling electricity was amazing. Enthusiasts would flip out. Even before Volt was rolled out, the idea of not using any gas was conveyed as the strongest selling point. Knowing their audience could handle the high sticker-price and would drive as many EV miles as possible, the amount of gas consumed too precedence. They'd totally ignore kWh usage. It was all about using the fewest gallons. That's over now. Reality is crashing down on that greenwashing. No more. The belief was this would come about from a pure EV. That makes sense. When your propulsion system is electric-only, you do everything you possibly can to avoid waste. That isn't as high of a priority for a vehicle with an engine available... or so they thought. Toyota proved them wrong. The rating for Prius Prime revealed today was an amazing 133 MPGe. That's well above Volt's 106 MPGe. So as you could imagine, the downplay of that value started immediately. They really get annoyed with those who study Prius and hold the priorities of Toyota in high regard are proven correct. This confirm of "*vastly superior*" engineering felt great. For far too many years, the idea that a much bigger battery was required to be cleaner was pushed. If you don't drive to capacity, a less efficient EV will waste electricity. It's that simple. We don't want to shift our guzzling problem from one energy source to another. We want to use less.

10-07-2016 **Omitting Facts.** You get a very different story when an important part is left out. In this case, I was especially annoyed from reading this: "*I suggest there was a 3rd blunder not developing a pure EV. Toyota went with hydrogen...*" People posting claims like that are antagonists. They stir the pot for something they disagreed with in the past and never let it go. So no matter how much changes following that, all they see is previous actions. Needless to say, I wasn't about to put up with another round of that nonsense. So, I let him have it:

That's telling a story through omission. They may not have revealed a mass-market body, but that doesn't mean nothing else happened. Not hearing knocking in the past didn't mean they were not preparing for it later. After all, Toyota has always been tight-lipped about mainstream changes in the not-too-distance future.

Toyota switched all but the base model of Prius liftback over to lithium. Of which, that chemistry has been improved. The high-volume production now taking place very much benefits future EV offerings.

Toyota is about to deliver the world's most efficient heat-pump for a vehicle. The real-world experience from that vapor-injected system in Prius Prime will very much benefit future EV offerings.

Toyota is about to deliver CHAdeMO (rapid DC charging) with the rollout of Prius Prime in Japan. There's not a big benefit of having such high-speed abilities with only a 8.8 kWh capacity, but a future EV offering certainly would.

Toyota is also pushing dealers to begin the acceptance of change. Prius Prime will usher in a graceful transition. Rather than having to face the intense support battles other automakers have to deal with, the modest EV capacity will ease them into it.

Toyota continues to refine motor, controller, charger, and software for electric-only operation. How is that not beneficial to future EV offerings?

Want more? Think about how much easier it will be to sell EV offerings to customers later, who owned a Prius Prime prior to that and upgraded their garage by adding 240-volt charger. Having that equipment already makes the next purchase yet another benefit.

In other words, the full story is that Toyota is doing far more for EV advancement than people are giving them credit for.

10-07-2016 **Growth Misleading.** The message from this quote is what I've found quite troubling: *"...Then the number of available plug-in models has grown faster in the past 6 years faster than hybrids did in their first 10."* It's told over and over again, with no regard for omissions... even when called out. It's really an excuse. They just don't see how damaging their effort is. Excusing slowness masks the true problem. The "*faster*" claim doesn't address the "*Who?*" question. On a very regular basis, we are assured all is well. They don't care about tax-credit expiration difficulties. They don't care about the growing level of conflicting choices. They don't care about the aspects of business. All they care about is better numbers than in the past. That's like being happy with a "C" grade, because you got a "D" in the past. Ugh. I posted this in dismay about such nonsense continuing: That's an overly simplistic summary which portrays circumstances as being similar. We can argue difference details until the cows come home, but it won't do any good. A fundamental mistake continues to be made... sadly, by the majority. Most people are overlooking scope. They assume the audience is just a growing number of homogeneous buyers. Who they are isn't being taken into account. Such a flaw in logic must be brought to the attention of all those celebrating the supposed faster progress. Reality is, current buyers are still only early adopters. That low-hanging fruit is running out too. We haven't seen any affordable offerings selling in a market without tax-credits either. If the subsidy money runs out before those vehicles become well established as a mainstream choice, potential buyers will just move on to something else. Why purchase a plug-in when their prices aren't competitive with traditional vehicles running on cheap gas? Audience is absolutely vital. Sighting statistics that only represent early adopters causes us to incorrectly perceive progress.

10-07-2016 **Rough Edges.** It amazes me how even the most devoted supporters of Prius don't know the history. Perhaps they don't have an effective means of learning it. You must immerse yourself to understand that perspective of the past. Simply reading a summary looking back doesn't portray the nuances required to really grasp what was happening back then. You can't appreciate how different things were, especially with so much uncertainty of what the technology will offer. When you don't know what's realistic or even possible, how can you anticipate market reaction. It's far too easy to distort and overcome assumptions long after you already know the outcome. We didn't back then. So, the rollout of Prius was different from how people then to think of it. People tend to forget about the attitude back then too. We were encouraged to guzzle oil and couldn't care less about emissions. It was a wasteful, uncaring situation. There was a lot of pressure to retain the status quo as well. Change was fought against. Looking forward to battery improvements was unheard of. There was no expectation of any sort. It was all about how much bigger and more powerful the next SUV would be. That's why original accounts of Prius are so skewed. Recognize how different things were. Take the time to read these blogs... the (gasp) thousands and thousands of entries accounting for that history as it played out. There's nothing more effective than reading documentation written at the time those events occurred. The one example I can point to is the exclusion of cruise-control on the 2001 model of Prius. People were baffled how such a basic feature would be excluded, especially when it was so simple & inexpensive to provide. It should be obvious why Toyota made that choice. They wanted to attract only those truly committed to the technology change Prius was introducing. A paradigm shift on such a magnitude requires devotion, even if it means a big tradeoff. Sound familiar? The switch to 4 seats resembles that. Of course, there is the benefit this time of introducing luxury seating in back. The feedback from those first buyers, not the critics, will determine the next choice. Leaving it rough around the edges is like not pouring cement for a sidewalk until walkers have worn a path of where they prefer to walk. Toyota could bring back the middle seat. Toyota could stick with 4 and introduce heated seats. Those are mutually exclusive, each offering a benefit. Understanding audience is key. There is no certainty. You have to try. Markets fluctuate too. Just look at what people demanded back when Prius PHV was being developed. That's quite different from what they ask for now with Prius Prime. Study the past. Consider how those rough edges should be smoothed.

10-07-2016 Prime MPG. Basically, Toyota pulled off the impossible. The belief that adding battery-capacity will reduce efficiency due to the increased weight of the vehicle is quite common. Ask yourself why it wouldn't. It's so counter-intuitive seeing numbers to the contrary, there's no precedent for the situation. Yet, here it is. ECO: 56 combined, 58 city, 53 high. REG: 52 combined, 54 city, 50 high. PRIME: 54 combined. 55 city. 53 high. The higher MPG numbers from the ECO model is to be expected, that's the "economy" configuration. No big deal. Your expectations are realistic. But with that difference between the regular model and the plug-in... Whoa! That solid 2 MPG difference really emphasizes the technological step forward... since it stirs questions how. Removal of non-essentials didn't take place, as with the ECO model. The PRIME somehow achieved improvement over the REG without taking anything away... to deliver a gain! How isn't really important either. After all, mainstream consumers don't understand the engineering anyway. They know MPG quite well though. That combined estimate of 54 speaks volumes. Even without plugging in, the resulting efficiency will be well above what a non-hybrid could deliver. It's a major selling point not to be overlooked. It means you'll get outstanding efficiency no matter how you use your Prius Prime. *Yeah!*

10-08-2016 Preconditioning. At least it's a new topic to discuss...

The definition of "*preconditioning*" is already all over the place. First, it was referred to as a battery warming method from using cabin air. Then it was direct for providing full operational temperature. Next, it was to just keep above freezing to allow recharging.

That raises a bunch of red-flags. Misconceptions emerge from the lack of clarity. Greenwashing emerges from no one making an effort to stop the exploitation of assumptions caused by so many vague mentions.

The first that jumps out is that the battery cannot be charged when its temperature is below freezing. That is implied and certainly could be interpreted that way. It's false, of course. The warming is to make the process more efficient. Colder means higher resistance, which means more electricity will be consumed as part of the transfer process (in both directions, charging & drawing).

The next problem would likely be the belief that EV simply isn't available if the temperature of the battery drops below freezing. That most definitely isn't true either. It's not as efficient, but drawing electricity for driving certainly is available. If you push demand, by firing up the heater or pushing speed & power, the lack of warming would require the gas engine to join in at some point. But we know for certain even the Prius PHV from 2012 can deliver EV at 50 mph without any trouble at 20°F just fine. I would do that routinely with mine, and it didn't have any warming feature.

Then there's the confusion of cabin warming. The system will use the heat-pump for that. Even the better informed will pause to consider whether the battery is used for that or if electricity is drawn directly from the plug. Then they'll question what happens with timing and the charge-rate at different capacities and with faster chargers.

Needless to say, topics like this open up a new cans of worms for us to deal with.

- 10-09-2016 Understanding MPGe.** This new measurement system to convey electric efficiency baffles people. Until recently, I even stayed away from it. Why mention something so different without much real-world data to compare to? People won't understand what that MPGe number is trying to tell them. For example: *"Amazing to see how Toyota is always chasing Chevy Volt in fuel economy numbers when so many years ago it was the other way around."* The big battery was all Volt enthusiasts understood for the longest time. They laughed hysterically when I pointed out electric guzzlers. They simply believe guzzling electricity was fine. You could use as much as you wanted, as long as little to no gas was consumed. How do you point out that some systems are more efficient than others when electricity is perceived as clean & abundant. I'm starting the process, now that we have a wealth of new data to work with. In this case, it was a comment to a MPGe article about Prius Prime on an auto-enthusiast website: Prime's lower production cost (and resulting MSRP) makes it a serious contender for the masses, especially since rear-seating height is midsize rather than compact. That MPGe rating indicates how much more efficient of a system it delivers, reflecting some of how the lower production cost is achieved (the other being the new TNGA, Toyota New Global Architecture). It needs less battery-capacity to travel the same 25 miles. For my 19-mile commute, where I can recharge at work, greater battery-capacity wouldn't provide any benefit. For my other driving (frequent long highway trips), the 54 MPG rating for hybrid operation following depletion is a big plus.
- 10-09-2016 Random Summer Commute, video.** This was actually test footage from my new camera. I didn't even bother with the complete glare-prevention setup. It was just an experiment to capture some video samples. Summer's end came far too soon though. I didn't get a chance to film this particular commute route in warm weather again. And since my Prius Prime has now been ordered, I won't ever get the chance with the 2012 Prius PHV. So, I'm sharing this. It actually turned out really well. You can see there's a decent amount of randomness. I start with EV mode, then switch over to HV mode after the first stoplight. Once the engine warms, you can see me switch back to EV. On the big hill, I switch again. On the ramp to the highway, I accelerate faster than the 100 km/h (62 mph) EV maximum. You can then see the system automatically go into EV-BOOST mode. That's a blend of high-draw from the battery-pack along with a low-power assist from the engine. Rather than getting off the highway to drive along the river, like I usually do, I stayed on and drove into the city. From there, I enter the ramp for work from above. Check out the resulting MPG from the ride. The average of that random mix of driving showed an impressive overall average... [Random Summer Commute](#)

- 10-10-2016 Recognizing The Problem.** Voices of reason are starting to increase. I was pleased upon seeing this today: *"still, a difficult thing to pull off in a 27k vehicle."* Problems of the past came about from not taking the cost & price criteria seriously. Enthusiasts just blew off that concern... for an entire generation. Of course, when the next generation rolled out and the same problem remained, things got ugly. That's the market Prius Prime will be entering. Having so much lower of price positions it ahead, despite no sales having even taken place. The potential gauges expectations. Being able to reach a much wider audience, as well as endure the expiration of tax-credit draw, makes it a strong business case. That was never the case for GM with Volt. I got attacked relentlessly for pointing that out too. Now, those antagonists agree. They doubt admit it. But simply having abandoned it in favor of Bolt is recognition enough. As for Toyota's opportunity, I pointed out: That has been the heart of the problem with Volt, ever since the reveal way back in 2007. Doing all that was promised for "nicely under \$30,000" defied logic. Yet, enthusiasts proclaimed it was realistic and attacked those who pointed out anything to the contrary.
- 10-10-2016 Being Fake.** I know remarks to this won't be taken seriously: *"Yes, I agree that Most Prius supporters are 'fake green' supporters."* After all these years, the brainless belief of less gas being cleaner is obvious. Most people fall into that trap. They don't give it a second thought. That's why VW was able to deceive so many. Reducing pollutants was assumed to be *"green"*. In reality, it was really just a "D" grade effort. To earn a higher grade, it would be costly and requires a paradigm shift. Toyota was willing to make that big expense & effort commitment... even if it meant greenwashing fallout along the way. Thankfully, they stayed true. The gen-4 Prius is truly remarkable. The opportunity it ushers in with Prime is amazing. I'm so excited to be part of the rollout. In the meantime, it's making sure everyone really understands the situation, as I put it: *"fake green"* is portraying MPG and using less gas as the only measure of progress. It's too bad so many people totally blow off the emissions. The PZEV and SULEV ratings really make a difference. Look no further than "clean diesel" for a dose of reality about the other aspects of being green.
- 10-10-2016 Great Analogy.** I really got a kick out of reading this: *"Naturally, Toyota is sensitive to comparisons with the Chevrolet Volt, which offers double the EV range in similar packaging. In defense of the Prime's modest capabilities, Toyota offered this analogy: When you go for a run, you don't carry a gallon jug of Gatorade."* That should make you think. A good friend of mine pushed that perspective for a long time. Why have more battery than you actually need? Depleting it 100% each time you commute is proof of money well spent; you're getting every penny possible out of that investment. Unused capacity is what? It's wasteful to have too much. Ironically, troublemakers of the past use to use the *"dead weight"* argument a lot. They have all vanished, since bringing that up exposes them as being hypocritical. I find it intriguing how some people just plain don't understand *"right size"* importance. You'd think that would be obvious. Clearly, it isn't. Perhaps the Gatorade analogy will help get the point across.

10-11-2016 **New Greenwashing.** How would you deal with new greenwashing? In my case, the effort comes from an enthusiast with obvious bias. He continues to push that 0-60 acceleration in 15 seconds is far too slow, to the point of endangering others. The fact that not a shred of evidence has been provided is annoying. He's spreading FUD. If maximum acceleration is needed, you switch modes. It's like shifting down. You have the option if you so desire. If not, you just switch to automatic mode and never ever have to give the matter another thought. Geez! This is how I dealt with it:

Your past experiences with some problem owners explains the stance you've taken. It's a stereotype not representative of most though. Look around, there are lots of other slow drivers with powerful vehicles. I get annoyed waiting behind them.

From my point of view, I see post spreading fear, uncertainty, and doubt in this thread by a variety of people. So, I seek out individuals with influence to help set the record straight... before it contributes to greenwashing.

There are dozens of Prius PHV videos that I've published on YouTube. Do a search for the "*priusguru*" channel. You'll find a collection showing ordinary driving, complete with real-time dashboard information. Some even included OBD-II data.

As for the discussion at hand... 129 MPG was the average for my 41.3 round-trip commute today, which included one stop along the way in the morning and two while returning home. Recharging the 4.4 kWh battery in Prius PHV at work provides a minimal approximation of what the 8.8 kWh battery in Prius Prime will deliver only charged once. Knowing the next-gen system is more efficient, expecting more is quite realistic.

In other words, I fail to see the point of stressing purity. So what if the engine fires up for a minute? Effortless results around 125 MPG are still triple that of what a high-efficiency traditional vehicle would deliver.

People driving shorter distances or recharging at work will get even better MPG.

Watch the videos. It should become clear that Prius Prime will offer the power you say is necessary.

- 10-11-2016** **Divert & Stop Gap.** The discussion immediately fell apart. He couldn't care less about anything other than electric-only range. It become a sad attempt to promote Volt, then turned into a dismissal of plug-in hybrids being anything but a short-term solution to EV takeover. Offering a comfortable ride at an affordable price simply wasn't a concern. Add him to the large list of those who just plain don't understand the automotive business. That particular group is made up of enthusiasts who focus on engineering above all else. Selling large numbers of profitable vehicles that only offer average performance is boring & meaningless to them. It's what I've been dealing with for just about 17 years now. They simply aren't interested in what accountants or economists have to say. It's all about getting consumers excited. Clever marketing is more important than actually delivering upon need. They figure appealing to want will cover the owner's priorities... even if it requires significant sacrifice. Seeking a balance is not acceptable. Ugh. Of course, I knew this was coming. That's why I've been participating online for all these years. The return on that research will really pay off... eventually. I know. Patience.
- 10-12-2016** **Parking Brake.** A recall on the gen-4 Prius was issued. Some articles used words like "*deadly*" and "*dangerous*", others simply mentioned an issue with the parking brake. The problem comes about if you get out of the Prius while the system is still in gear, using the brake to hold the vehicle in place rather than putting it in park. Who would do that? Leaving it in Drive or Reverse isn't something any owner I've ever heard of has done. Someone must have though. Possibly not. We really don't know. All we've been told is that clips will be added to the cable's dust boot as a preventative. No big deal. Sounds like an effort to ensure longevity. But then again, you can't fix bad behavior. Who would leave their car in gear like that when running but stationary? I guess that helps to show the diversity of buyers Prius attracts.

10-12-2016 The Next Chapter. This time last year is when things really got shaken up for plug-in market expectations. The new Prius was revealed. The diesel deception was exposed. And the new Volt was rolled out. Finding out "clean" wasn't actually true made the case for Toyota's fourth generation hybrid a simple argument. Favor clearly swung to it. However, the earthquake damage that happened just as production began at the start of the new year messed up inventory expectations... and have consequently provided greenwashing with numbers to mislead with. Fortunately, the RAV4 rollout then wasn't affected. The wait for gen-2 Volt ended then too. Unfortunately, it was already doomed upon arrival... too expensive, too small. That's why attention rapidly shifted to Bolt. The reveal of Prius Prime added to that new found focus. Now upon the rollout of both, we see this: *"Bolt EV is a step forward, a very nice but small one – a baby step, if you will."* That came from a person who had been a die-hard Volt enthusiast but was now all for Bolt instead. Today's discussion topic made the reason why obvious. The base price will be \$37,495 and the premium \$41,780. You want the "Driver Confidence" option, add \$495. You want the "Infotainment" option, add \$485. You want the DC charging (an expectation for high-capacity electric vehicles), add \$750. You want Blue, Red, or Orange paint, add \$395. A large screen and DRCC (dynamic radar cruise control) aren't even offered. How is this vehicle supposed to compete with Model 3 from Tesla? It's expensive and utilitarian. What the heck? Needless to say, all this nicely sets the stage for Prius Prime. It is a step forward. It is a baby step. But what it offers that others don't is affordability. That's a profound difference... which was sighted many years ago as the criteria for changing what the masses actually purchase. Nice vehicles beyond their reach don't accomplish much.

10-13-2016 Leaf Upgrade. Attention is fading from GM. The first Bolt deliveries aren't expected until the end of the year now and supposedly only 11 states will receive them. What happened this time? With all the bragging about no delays, this explains the sudden quiet. That's nice. It gives others a chance to show off their offerings. Nissan is making a splash with their upgrade to Leaf. The battery-pack will be increased from 24 kWh to a larger capacity of 30 kWh without taking up any more space. That's impressive. It adds 23 miles of range. The official EV estimate climbs to 107 miles. Up from 84, that sounds great. However, the price rise of \$3,350 is a head-scratcher. Keeping Leaf competitive with respect to range at the sacrifice of cost is an unknown the market hasn't faced yet. With that higher sticker, you also get the quick-charge feature. 80% capacity in just 30 minutes is impressive. How many owners will be able to take advantage of that though? If nothing else, it does help ensure resale value will hold up longer. Next year, the expectation for Leaf is a 200-mile range from a 60 kWh battery. That should be interesting.

10-14-2016 **Luxury Approach.** Treating Lexus as if it is just another dealer location for Toyota is a fundamentally flawed approach. Yet, it happens all the time. Some people don't see the difference. That's causing more and more trouble. It's mystifies me how so many just assume quality alone is how they are identified. But then again, we have lots of trouble when comes to discussion of economics. In fact, just conveying the idea of diversity often a challenge. That makes the measure of its importance almost impossible. This is why the diverge of Prime is so hard to understand. The purpose of the dual-wave window, rear seating, and large screen isn't getting any recognition. The overlook & dismiss. It makes constructive discussion quite a struggle. Anywho, you need to have a good understanding of this to appreciate what Lexus is attempting to do. The luxury market is being redefined. BMW was already seeing pressure in Europe. Sales of Tesla there have caused an interesting shake up. You get a remarkably quite, smooth, and powerful vehicle that's incredibly clean. Attempting to sell a V8 with 400HP competitively without facing the consequences of emission concerns is impossible. That audience is willing to spend more on their purchase too. As if that wasn't complicated enough, the fallout from VW's diesel cheat is forcing the acceleration of electrification efforts. Such a massive push into the mainstream puts even more pressure on the luxury market... which brings us back to Lexus here in the United States. Why would they jump into that mess? Why not wait until Tesla overcomes the challenges with Model 3 rollout? It buys time that can be very well spent. The production & sales of Prime will provide incredible insight about how to address luxury market needs, which won't be as forgiving as the mainstream. It makes sense. It's not like Toyota can just offer an upscale model of Prime as a Luxury and expect it to be a hit. After all, there has already been a number of attempts to draw hybrid interest at that level which didn't result in many sales. They are not the same buyers with a larger budget. They are totally different audiences with entirely different competition.

10-14-2016 **Charge Mode.** This new feature is stirring quite a bit of discussion. Toyota was really clever about presenting it too. With the previous generation Prius, we routinely got reports of it offering 3 modes... Eco, Power, and HV/EV. Seeing 3 buttons, it was an easy assumption to make. Almost none of the reporters were thoughtful enough to actually try them out to the point of noticing there was a 4th option available. You press the button, it turns on the mode. You press it again, it turns it off. That's a mode too. We call that state of nothing special as "*Normal*". No mention was a great indication of not researching well. The new "*Charge*" mode is even more subtle. To engage it, you must hold the HV/EV button. That's intentionally not obvious... because the way it works isn't. If you find it, there will likely be some type of knowledge transfer along with it... like reading this. The complication comes about much like stealth mode. When people first experience that non-EV electric-only propulsion, they get the impression using it as much as possible is better. It's not. In fact, using too much can actually result in lower overall efficiency. The same is true in this case too. Additionally, it changes the way the system behaves... hence being a mode you purposefully choose. The comment today from someone test driving a Prime was: "*WAAAAYYY underpowered. It felt like an ECO mode for the ECO ... :(*" He clearly didn't understand when to use it. We need to provide that operational facts, to empower owners to make informed decisions. This interactive process with supporters is what Prius thrives on. Toyota cannot provide it. The benefit is that coming from owners. It's a very effective way of drawing interest to grow the market. No advertising campaign can sway interest like that. I enjoy the opportunities to share like that. Here's a start: The intended user is for while highway cruising, when you have excess power available. It takes very little to maintain constant speed. So, that works out well for overall efficiency. It is nice knowing it works elsewhere too. Though, I don't see a benefit on suburb roads.

10-15-2016 Those Blinders. Fixing entirely on EV range, while ignoring other factors like price and seating, is an indication of trouble to come. Long ago, it was the ignoring of emissions. Focus was completely on MPG. Believing that's the selling point, that nothing else mattered, gave the impression of a different purpose. For Prius, emissions were paramount. Using some gas for the sake of cleaner emissions just plain didn't make any sense... so much so, supporters would argue amongst themselves... hence the trouble. Today's warning sign came in the form of: "*true, but with volt, you get 50 miles ev, which is huge.*" Enthusiasts can get away with perspective like that. But selling to a wider audience consisting primarily of mainstream buyers, no. We have new topics to address too, requiring those blinders of the past to be taken off for a fresh look now:

My driving consists of commute, short jaunts around town, and long trips. More EV isn't enough to justify the tradeoffs. CHG opportunity will be handy for me, since those trip destinations don't offer a plug. Also when I travel (like regular escapes up north), the seats are down to carry all our stuff. That reduction of height in the back really won't make any difference. It's the length & width that has always been the cargo benefit. I suspect many others will see those same advantages.

There's an interesting twist too. Isn't the advantage of having extra capacity not having to plug in? If I had 50 miles of EV available (rated estimate), winter commutes wouldn't have the benefit of pre-conditioning. Would you really pay for or consume a charging spot for only pre-conditioning? Capacity drops roughly 30% due to efficiency-losses and cabin-warming in the cold weather driving. That would make my 19-mile commute a challenge. Being plugged in at work means I stand a chance of making it totally with EV.

It's situations like that people haven't considered yet. We see a lot of dismissals on review article comments, simply suggesting to get a Volt instead without giving the situation any thought. In other words, we've learned that real-world outcome doesn't always match on-paper calculations... especially when it comes to Prius.

So when it comes to the variety of new design aspects, charge-mode, pre-conditioning, and higher-capacity, we really need to step back and think about all that's involved. After all, most people have no idea what that one plug-in uses resistance heating and the other a vapor-injected heat-pump. So, trying to point out efficiency differences will basically be futile.

Real-World data will speak for itself. Watch what those numbers tell us.

- 10-16-2016** **Starting Over.** We're seeing more than just a generational hand-over this time. With the emergence of Prime has come far more than just questions of how the hybrid system has been improved. Operational differences from the introduction of a clutch complicates matters greatly. There's simply no way to realistically anticipate behavior. Heck, even knowledge of the previous plug-in model (Prius PHV) doesn't directly apply. We're trying to figure out a paradigm-shift without having any way to research or even any data available. All we know is that Toyota studied the market intensely and strived to deliver the best balance of price & performance. That's obviously making discussions extremely difficult. We can't just tell people to be patient either. The level of excitement is quite intense. Some are seeing the perfect fit. Some see an epic failure. It's quite bizarre starting over like this. I can't wait to contribute real-world data. That certainly will help discussions take on a constructive tone. Right now, we're all over the place attempting to help those curious to learn more about what the technology has to offer.
- 10-17-2016** **Diesel's Demise.** What a mess. The expectation at this point is for close to 100% buyback. There's simply no way to deliver a fix. Anything you do to cleanse emission will impair performance. It's that simple. Nothing can be done to save diesel. Why bother anyway? It makes no sense pushing a 40 MPG technology when plug-in hybrids that easily deliver twice that are rolling out. The clatter of diesel for supposedly cleaner driving is now a memory of the past. VW is forced to all but entirely abandon efforts. With BMW pushing the plug, the rest of the industry doesn't even matter. That domestic competitor (in Germany) is really ramping up efforts and government incentives to do so are growing. Heck, even the certification process for sales here is much more complicated. Loss standards & testing of the past are long gone. Diesel for passenger cars is basically dead as a result. It's simple not worth it.
- 10-18-2016** **Tax-Credit Timing.** Questions are emerging. Many are random. Those asking don't have idea what to look for. It's an entirely new topic for most. You'll hear different responses for different supporters too... since there's some conflict of interest involved. GM's predicament is the big one. Pushing Bolt means sacrificing Volt. It's a simple reality of only having a limited number available. And once the tax-credits run out, that automaker is sunk. So, the inevitable expiration is a really big deal. That's what contributed to Toyota holding off on Prius PHV and Nissan being ok with reduced sales until gen-2 rolls out. Think about purpose. The subsidy is intended to help the automaker achieve high-volume production quickly, so cost will be reduced to a competitive & profitable level. Sooner is definitely better. Toyota is well aware of that too. They could seriously ramp up production of Prime in a year or two, taking advantage of timing once the quantity limited approaches. Nearing that means speed to market become vital. The trigger switches the money payout from a count to a timer. In other words, once the 200,000 limit is reached, the automaker will have 1 year of reduced tax-credits to take advantage of. Being well positioned to deliver a large quantity at that point rewards both business & consumer. I summarized that in this response: Toyota has around 155,000 credits left, before the phaseout is triggered. Then it's a 50% reduction for 2 quarters. Then again (down to 25%) for another 2. So, sometime within this generation, the credits will be used up. GM, Nissan, and Tesla's will all be gone around then too. In other words, within the next few years the entire market will shift somehow.

10-19-2016 **Way Back.** I got a kick out of reading this: "*Deja vu. Remember this thread? Prius PHV: Optimization strategy with lessons learned from the prototypes.*" He was looking back through his own posts many years ago, when Prius PHV was being rolled out. We were discussing operational approach. People discussed the pro & cons of wanting a charge button. The prototypes were configured for data collection. Toyota wanted a massive amount of real-world experience documented. Turns out, that was so effective, they continued doing that following the initial rollout. Since it was mid-cycle anyway, what was the rush? Why not restrict availability to a limited market for the sake of advancing market research? You learn far more from sticking with a controlled scope than to just open up to a wider new audience. Those better informed niches can reveal what's difficult to gain from the uninformed. In fact, that's why I pushed so hard with the enthusiasts. The knowledge gained from their resistance was priceless. Anywho, this is how I replied: I have no doubt that high priority of best use for the gas engine continued. Prius isn't going to sacrifice overall efficiency simply for the sake of offering more EV... unlike what others have done. The approach is to seek out a balance, despite the wide variety of uses it must fulfill. The expectation is that we'll see outstanding performance from charge-mode in some cases (like highway cruising), where we'll promote the use. In others, we'll discourage. But even when it's not as good of a return, it will still be clearly better than what a traditional vehicle offers. It is interesting reading those old posts. That serves as a great reminder of what market expectations were and how they've changed since.

10-20-2016 **Dumb Questions.** This is a definite sign of progress: "*OK, thought of a (maybe) dumb question. Is there a standard for the plug configuration on the car to enable the use of all public charging stations?*" It's absolutely fantastic getting a new member diving into discussions like that. There's a lot of information to share. It's difficult to know where to start and what level of detail should be provided. I gave it this attempt:

Level-2 is that standard (ordinary 240-volt charging) for public chargers. Leaf has a connector for it, but also offers CHAdeMO (like Prime in Japan). Tesla has an adapter available for it. CCS is the other high-speed type. Since both require higher voltage lines and deliver more amps, they are much less common. Level-2 is quite capable and the backward-compatible plug is an obvious benefit. That's why most of the automakers offer that.

Level-1 is supported by the normal household outlet in your garage. Most people will simply use that 120-volt connection for the slower charging overnight. The size of the battery-pack accommodates it well, a fact overlooked when considering the capacity. You just plug & play.

Prius PHV (Toyota's first plug-in hybrid) offered a great opportunity for real-world study. The limited rollout into select areas spread across just enough owners to figure out what really was needed. That's vital information when attempting to deliver a configuration capable of competing directly with traditional offering. That meant keeping costs low, but not sacrificing ability.

Watch for reports from new owners about how well Toyota targeted Prime. And of course, keep asking questions. There's nothing dumb when it comes to entering an entirely new market. People have to start the discovery process somehow.

10-20-2016 **Blog Changes.** Notice how my blogs continue to evolve? They've become longer and delve into new topics with lots of detail, despite not having real-world data available yet. That comes from the posts online. The comments in reviews and on forums are advancing into the world of electrification well. Topics of discussion nearly impossible with gen-1 offerings are now surprisingly easy with the gen-2 arrivals. Speculation has given way to specifications. That's huge. The improvement is quite significant. Rather than having to deal with rhetoric, we are seeing some thought given to operational detail. True, there's still the mindless "*more is better*" mentality. But that will be easy to squash when Prius Prime owners begin posting their experiences. The MPG results will finally shift the conversations over to KWH and GALLONS instead. That's long overdue. The senseless greenwashing of the past from Volt enthusiasts was so harmful. They'll held back progress just for the sake of pride. Thank goodness the kick in the butt from other automakers brought that to an end. Tesla, Toyota, and BMW sure brought about a big dose of reality. Now we have VW scrambling to overcome their diesel disaster by turning to battery technology. It's about dang time... and I'm quite pleased to be able to document this history as it changes.

10-20-2016 **Extreme Examples.** It annoys me to now end when someone posts an exaggeration as if it was the norm. When it's an attempt to greenwash, calling them on it is pretty easy and without consequence. When it comes from an attempt to be serious, but really being clueless, that's an different situation entirely. You really don't know how they'll respond, but what to clarify the misleading information they just posted. This was such an example: "*However if you mean it is -30°C outside with 10cm of snow and ice on the windshield, it won't clear it.*" Reading actively engaged posts in an discussion about electric heating is exciting. Entirely new topics like that are quite refreshing; however, incorrect portrayal can lead to misconceptions. So, I jumped in:

Ugh. Living in Minnesota since for the past 39 years, I'm well aware of winter driving extremes. The odds of it being both -22°F outside and getting 4" of snow at the same time is pretty much never. Snow flakes don't form when it's that cold. You get a light coating of thin ice crystals, at best.

A far more realistic example... which I will experience firsthand in 3 months... is the Prius sitting outside all day with the high temperature of -1°F. That happens every year. Warm-up takes about 10 minutes with the engine starting up right away. Defrost usually isn't needed, since I vent prior to stopping. It's just get in, make sure the seat-heater is on high, then drive away.

With the Prime, windows will certainly be clear already. In addition to the heated seat, the steering wheel will provide warmth too. Driving away will be comfortable. Heck, even the battery-pack will feel the improvement. Those extreme cold days will take a bizarre twist. What a great feature to draw interest.

As for dealing with 4 inches, no one would ever run there vehicle long enough to attempt to melt off such a thick amount. Even my idiot neighbor who would idle her diesel for 45 minutes before leaving for work would brush the windows off quick with that much snow. Of course, there are those who just sweep a tiny viewing hole and drive away with a drift on the car still. But that's only when the temperature is much warmer. Between 20°F and 32°F is when we get the really heavy dumps.

Long story short, the new vapor-injected heat-pump has much to offer.

10-20-2016 Encouraging Articles. It's nice reading articles with points like this: *"Yes, the Volt has much more electric range, but you'll pay for it. The Volt's entry point is \$33,220, while the Prime starts at \$27,100."* Glossing over detail in the past was a big problem. Of course, some still don't mention that the 5th seat is legless, only for a small child or an adult willing to straddle the middle and share space with the 2 other passengers in back. New highlights are getting attention too: *"And on MPGe, how far an electrified vehicle can go using the same amount of energy in a gallon of gasoline, the Prime bests the \$42,400 all-electric BMW i3, with a 133 MPGe rating vs. the i3's 124 MPGe."* The efficiency of EV was completely disregarded until recently. That's unheard of for gas-engine comparisons. Why was electric-motor consumption just blown off as unimportant? My guess is nothing to compare with. Offerings were so scarce, the assumption was just that a bigger battery was better. The new MPGe rating reveals that's not the case. This makes reading the comments on such encouraging articles very interesting. Those who understand are really making an effort to make sure others do too.

10-21-2016 Public Charger Concerns. The situation is quite complex.. and that's just location! Taking into account how they should be used makes it even more difficult to deal with. This is a big deal. Very little progress has been made so far too. The past few years lacked enough owners to get any type of uniform message formulated. We are very much in the early stages still. Think about how long it has taken for those Volt enthusiasts to come to the realization that the size wanted to actually match need. Heck, some continue to question the conclusion drawn. Anywho, it was this that stirred my response: *"My other concern about charging stations is how many would truly be needed if everyone was driving EVs."* It came from that website which abandoned Volt in favor of Bolt, discussing the problem VW now faces with investment into electrification infrastructure required by the diesel settlement. My reply was:

That's one of the uncertainties about plug-in vehicles holding back acceptance. How many? How much? How soon? Fundamental conflicts of intent are raising concern. What is the purpose?

If you have a 200-mile capacity, what benefit is there plugging in at a grocery store, coffee shop, restaurant, theater, or mall? Those destinations are almost certainly within range, so there's no point to recharging. A plug-in hybrid with just enough range to cover a daily commute is an entirely different matter. The gain from recharging at one of those destinations traveled to after work could be enormous.

Think about the CHAdeMO option available for Prius Prime in Japan. You arrive at a grocery store with the battery close to or already depleted. During your stop to shop, that rapid recharge would be enough to get you back home using that freshly provided electricity. The point of plugging in is obvious.

In other words, that "right size" approach has a draw those long-range EVs don't... especially when you take the lower cost into consideration. Toyota used this analogy to describe the situation: *"When you go for a run, you don't carry a gallon jug of Gatorade."*

Ordinary consumers will see it that way too. Isn't the point of have such a large battery to avoid having to plug in while you're out and about?

10-21-2016 **Wanting More.** This is as far from news as you can get: *"Americans don't like to be limited. We want/need 2-3x what is really required."* We've known about the "more" problem since the day Prius rolled out. The problem is the same. No change. Want still gets mixed up with need. Ugh. I addressed that comment with this perspective:

How many times was the "Who?" question asked? Know your audience.

You are absolutely correct about the perception of being limited. Automakers have taken advantage of that for decades, marketing based on emotional appeal rather than logical choice.

Look at how absurd SUV sales took off. The large & powerful draw hoards of buyers. That market became saturated though and fell apart. People don't buy them anymore. In fact, looking out onto the parking lot now, I don't see any. They are all small now. Purchases have shifted to more of a balance of want & need, rather than catering exclusively to want.

That is the difference between niche & mainstream. Want is limited in some manner. Need will ultimately win the quest for profitable high-volume sales. The priorities of the masses don't allow them to seek out the most desirable choice.

In other words, we'll end up seeing battery-capacity adjustments. The automaker with the best research may get ridiculed initially, but they will be the ones reaping the benefits of a business-sustaining solution rather than flaunting trophies for best engineering. It's a tradeoff. Need is more important than want.

We truly don't know what the winning configurations will be. A majority of buyers will get drawn to something. Notice how 4-cylinder engines emerged that way for middle-market? 6-cylinder engines are available still, but far fewer are produced & sold. Battery-Capacity could easily see similar demand.

The limited choices initially and lack of both commercial & home infrastructure contributes to much uncertainty. What is certain though is time. The tax-credits will be used up. When that happens to an automaker, the resulting competitive response will put a lot of pressure on the other automakers. Waiting is not an option. The clock is ticking for all.

In other words, need will win out over want.

10-22-2016 **Incorrect Information.** A big problem we've had with each new generation rollout of Prius is the poor research. Publications will get someone to write up a story on the new Prius. Many of those writers clearly don't actually test-drive the vehicle... leading to countless assumption problems. That's why Toyota has been doing so much with promotional events, providing firsthand opportunities to drive one. That's also why Toyota didn't rollout beyond the initial markets with Prius PHV. The deterrent to Prius Prime wasn't obvious then, but the wisdom of that choice is becoming easy to see now. The act of researching online isn't always well done. Some don't even realize there was a previous generation. They just find information, they write about it. A good example of that today was a slew of correct detail for Prime followed by a quote of "*11 miles*" for the electric-only range. Ugh. It's really unfortunate from an otherwise really nice article. Sadly, people researching a purchase of one will stumble across that information... thinking it is correct. Far too often, we see the trouble caused by those same people taking what they read at face value, never bothering to confirm it with another source. It's how greenwashing is unintentionally spread. They don't know what they pass along is wrong. Antagonists wanting to undermine take advantage of that. In those articles, they'll post misleading comments to support the greenwash. In forums, their posts will refer to the incorrect information. Grrr.

10-22-2016 **Pushing Lithium, part 1.** That antagonist is at it again, attempting to stir trouble by attacking with new material. This time, it was in response to comments about pushing lithium battery production. He immediately lashed out by listing models from VW (which includes Audi & Porsche). It was a pretty lame attempt to insult Toyota. I took the bait and replied with: "*Pushing means high-volume production. VW clearly is not yet.*" He took my bait by posting numbers. I figured he was that desperate. Posting numbers from VW in contrast to Toyota was a clear act of hopelessness. That detail reveals the true story. It also allows me to dive deeper into the topic. Remember problems of the past? I'd patiently wait for an invitation, then strike back with big picture information. His obvious cherry-picking meant it was only a matter of time before his effort to retaliate would be exposed. I've learned over the years, that's the only way to overcome the barrier they build to prevent constructive discussion. Holding onto lost pride feels redeeming to them, but ultimately falls apart. The rollout of Bolt & Prime combined with the reality of VW having to buyback 100% of the violating diesels along with providing compensation for environmental & financial damages is ushering a new market... one that gen-2 Volt doesn't address. No big deal, I see GM simply adapting. They prefer to sell SUVs anyway. Equinox is the clear solution. They shift focus over to it with their plug-in hybrid tech instead. That's a humbling move against what this antagonist has defended for years... hence his lashing out at me. I find it all quite intriguing to witness. Some people have an extremely difficult time dealing with change. This topic nicely points that out.

10-22-2016 Pushing Lithium, part 2. This was his provoke: "*And how many plug-ins did Toyota sell this year? .. yeah .. OK. Toyota = 52. VW group = 7,673.*" I thoroughly enjoyed responding to it with:

The discussion was about PRODUCTION of lithium batteries. That obvious attempt to mislead by changing the topic was rather desperate. But since you did change it over to SALES of vehicles, let's look at that...

VW sold 7,673 in the first 3 quarters of the year here. That is in no way high-volume. It is very much a niche, meaning it is not in a business-sustaining profitable tech. The goal is to replace traditional vehicles. That won't happen without much higher commitment.

Substantially increasing lithium battery production is a way of reducing cost. Doing that will enable lower prices, allowing the tech to become competitive.

That's exactly what Toyota is doing. They'll sell roughly 300,000 regular Prius this year which use lithium batteries. That effort will contribute to the attractive pricing for Prime. That plug-in model of Prius will benefit directly from the non-plug model. It's a smart move. It's good business. It's happening whether you choose to address it or not.

A similar approach is what made Prius profitable way back in 2002. Toyota took the Prius they had been selling for 4 years and reused it as a traditional vehicle. The body was simplified, the engine detuned, and the hybrid system replaced with an inexpensive transmission. It became the vehicle we knew as Echo. That sharing of components reduced production cost for Prius, making it profitable.

GM could redefine Volt as a competitive plug-in hybrid from the benefit of high-volume lithium battery production for Bolt. Dropping the price significantly prior to the tax-credit expiring is essential. The 16,326 sold in the first 3 quarters of the year here represents no growth. Sales were 16,348 in 2012 and 16,760 in 2013. Flat will not achieve that goal. Sales did drop to 14,540 in 2012, if you're looking to cherry-pick for better results. 2015 was obviously lower, due to the prior clearance of inventory of gen-1 to make way for the limited rollout of gen-2.

Toyota struggled this year from the earthquake interrupting Prius gen-4 rollout. Inventory was a problem for the first 5 months. That was unfortunate, but it didn't prevent the diversification effort of spreading the tech. In this case, they were able to introduce RAV4 and sell 32,989 of them in 9 months. That's another opportunity for lower production cost of lithium batteries even more. A plug-in model is a wise move. Mitsubishi's Outlander has been selling remarkably well over in Europe, the purchase total is over 100,000 so far.

GM's choice to offer Equinox as a diesel rather than a hybrid is a step in the wrong direction, the very market VW is now abandoning in favor of electrification. The settlement requiring a major investment into the infrastructure will contribute to that success too.

So... what the heck was your point?

10-23-2016 How Much? Few bother to ask that question. Even fewer actually take the time to measure. Requirements for acceleration are simply assumed, based upon comparisons of other offerings. In other words, an average is taken without consideration of the driving conditions. It's just on-paper calculations. That type of specification comparing is how vehicles have been sold for decades. More is better, period. Effective marketing convinces us of that. Though effective, it's quite a waste. Driving a Prius, you notice the waste. The screen providing detail while you drive makes that easy. That's why the guzzlers don't offer such a feature. Heck, that's why Volt didn't at first too. Now, it does. Consumption of kWh wasn't regarded as important initially. Now, it is. Yeah. Sadly, that's type of mindset improvement doesn't work with acceleration. You don't get stats on how long it really took to merge onto the highway. You just mindlessly follow the vehicle in front & behind you, keeping a safe distance. There is never any time summary provided. Imagine if there was. People would notice the 0-60 time is almost never required. The need to drop the pedal to the floor and leave it there the entire duration is incredibly rare. Oh well. All you can do is share experiences to point that out, like: I merge onto the highway now with my Prius PHV expecting the engine to start. No big deal, the EV-BOOST performance is nice and the remaining electricity lasts longer. Sometimes, it doesn't start though. Discovering I've used up most of my battery from cruising along at 55 mph in EV can be annoying... but it does confirm not as much power is needed as some try to lead is to believe. And of course, with the bigger pack, there's more EV range available anyway.

10-23-2016 Greenwash Traps. There is much speculation taking place now. Not having Prime in the hands of any owners yet is contributing heavily to assumptions. I'll sure be glad when that changes. In the meantime, this list was rewarding to compile & share:

It has been interesting to watch so many take the greenwashing bait. Having participated in the acceleration arguments for the Classic model Prius 15 years ago, I'm quite familiar with the traps you can fall into.

First is to trick you into believing a specific value is required, an essential you cannot survive without. In this case, the 10-second 0 to 60 speed is portrayed as necessary.

Second is to avoid any detail which could reveal that value stated is a misrepresentation of what actually happens in real-world driving. In this case, maximum acceleration is so rare, you'll be well aware of when you actually need it.

Third is to prevent the situation as if there are no other alternatives available, that it is an absolute which cannot be fulfilled by any other means. In this case, the "EV Auto" mode isn't an option.

Fourth is to misrepresent the alternative when it is eventually presented. In this case, make sure people don't discover that the "EV Auto" mode provides blending, like the EV-BOOST mode did with Prius PHV.

Long story short, the antagonists don't want you to discover the remarkable MPG resulting from the use of the "EV Auto" mode. They want you to ignore that button, hoping everyone believes the only way to achieve such incredible efficiency must be through the use of only EV driving.

10-24-2016 Nissan Hybrid. The refinement from 4 generations of improving design isn't obvious... until competition emerges. Toyota's smooth & seamless operation has been taken for granted. In fact, it is so uneventful, some spin that as boring & gutless. There's not a whole lot to counter such an argument point either... until now. The test-drive of Nissan's upcoming hybrid revealed roughness people had never appreciated not having. Basically, the system is a regular vehicle with an electric motor squeezed in. The shifting between without a power-split device becomes obvious. It wouldn't be so bad with just a mode switch, but that sacrifices efficiency. Taking advantage of both power sources presents challenges... ones that Toyota dealt with ages ago. Without a plug having been available, they had no choice but to dedicate engineering effort to refine. That's rather obvious with Prius PHV, which really only needed a bigger battery. The platform already had that type of operation in mind. A harmony of engine & motor was well established. Prime being able to take advantage of more electricity is a bonus. Even without a plug, the efficiency is truly remarkable. Notice how high the MPG is from some new Prius owners? You don't get that with an add-on to a traditional system. Oh well. Gas is still cheap and focus is on plugging in anyway. Nissan will figure out how to offer a choice for buyers. In this case, they are attempting to deliver a small SUV. Think about what will happen when Mitsubishi does next Summer. That will be a plug-in hybrid. Attention will turn to Toyota to do the same with RAV4, especially if Prime sales are drawing lots of attention.

10-25-2016 Renewables vs. Coal. You ever thing about how long it would be until the overall energy output from renewable sources exceeds that from coal? I hadn't. So, the announcement today on the radio about that point having already been reached was a delight to hear. I wasn't expecting that yet. Achieving that makes sense. Solar & Wind continue to produce electricity. Coal can only release energy as electricity once. That's a major fundamental difference. The growth of cells & turbines has been strong lately too. It's a market with lots of potential. The challenges of starting up have been overcome. We now see the benefits of that emerging. Heck, I tend to forget the ramp where I plug in has a massive solar array. Some of the electricity I use to recharge comes directly from that. On sunny days, there's likely quite a bit to spare with an 80 kWh potential and currently only 2 of us routinely using the 6 chargers available. Someday there will be more of us. In the meantime, use of coal will shrink. Yes, I know, some of that is being supplemented with natural gas. Fortunately, renewable is being considered more as a realistic alternative. Time will make it much easier to invest in too. The chargers at the new grocery store near me have both the cylinder type generators and solar to help draw attention to the electricity use. It take very little wind to make those things spin too. It would be difficult not to notice them. Anywho, we are on the right path. This is undeniable progress. Yeah!

- 10-25-2016 Speaking of Coal.** The publishing of these 2 particular photos is a remarkable coincidence. I had picked them out yesterday to be among the series of stuff to finally publish. So, the news this morning hit me really funny. I just happened to have proof to show that I've seen the non-renewable part of the equation firsthand. We were in Wyoming visiting family. Out for the evening to get some dinner, we took a quick sight-seeing drive along the way. Being in the heart of coal country, it was easy to encounter mind-boggling scenes of earth moving. I find it amazing to be cruising along at 80 mph in the Prius through large areas of prairie, then suddenly see massive deep excavation pits appear on both sides of the highway. The well-being of that area depends upon coal... an industry now feeling the pain of environmental pressure. Ironically, those wide open prairies are idea for wind-turbines... a technology only now they are beginning to consider. Anywho, you have to stop to look. So, we did. The monumental scale of those operations is quite impressive. I sure hope they are able to turn their resources toward renewable efforts. It would be great to see an area like that transformed to being a large supplier of clean electricity and equipment manufacturing for renewable energy technologies. Take a look for yourself at what we saw... [photo album 187](#)
- 10-25-2016 Red Road Photos.** We took a trip to Wyoming over the New Year's holiday. I finally got a chance to look through the photos and publish some. Sharing my experiences visually like that has always been rewarding. Looking back at a vacation like that is especially fun. In this case, we found a long dirt road, made up of red rocks. You pretty much never see a red road like that here in Minnesota. The minerals in are ground are different, making the color different. So, I was really excited about having the opportunity to take photos of it with the Prius. The light dusting of snow made added to the prairie background too. It was a very interest... and quite isolated... location to capture. Check out what I saw with the camera... [photo album 188](#)
- 10-25-2016 \$15 Billion.** The diesel disaster is coming to an end. Approval of the settlement was given. Virtually all the diesel cars in violation of grossly exceeding emission limits will be taken off the road, bought back from owners by VW. There was simply no way to fix them without serious compromise. The expense is a high price to pay. Most will go to consumers. There will be some dealer compensation as well, which wasn't actually part of the judgment against VW. The buyback was. Also included in the court requirement was payment to cover environmental damage and funding to help progress the charging infrastructure for plugging in. Focus is switching from diesel to electricity. It's quite an abrupt & unexpected change for the better. Who knew all that smug would ultimately end in such a victory? The outcome is great. The means to which this came was awful. Imagine if VW had just come to terms with the emission challenges a decade ago? Prius owners were well aware of the tradeoffs required to achieve exceptional levels of cleansing. Of course, that was well in excess of the minimum VW supposedly delivered. "50 state" approval is the dirtiest allowed. The PVEV emission-rating Prius delivered was the opposite end of the scale, the cleanest by a very wide margin. Oh well. It's over now.

- 10-26-2016** **An Incredible View.** When you drive somewhere in the dark, it's difficult to know what to expect the new morning. In this case, it was a destination at the end of a long dirt road out in Wyoming. Late at night, I couldn't see much. When the sun rose, we were treated to an incredible view. I had no idea. It provided a great opportunity too. My Prius was parked next to another. Shadows were still long from the early sun too. The color of the hybrids on the bleached brown prairie with a cloudless light blue sky begged me to run out into the cold with the camera to capture that memory in the making. I did too. See... [photo album 189](#)
- 10-26-2016** **Photos on Dirt.** Before encountering all that red rock, there was another road. That was the type of dirt I'm used to seeing; however, the landscape certainly wasn't. It was elevated, high above parts of the prairie. There was a deep valley too. Overlooking that made for quite the photo opportunity... with the Prius, of course. If you look closely at the detail in the background of some, you'll discover oil pumps. Way off in the distance, you can see them going up & down. That most definitely isn't anything you'd ever see in Minnesota. But there in Wyoming, it's a common sight. I took advantage of the location. That type of time of year made it especially exciting to capture. Light deposits of snow really stand out. I couldn't have picked out a better day for that either. Lucky me. Running around with the camera can be quite fulfilling. I even got to be a bit silly, intentionally leaving a set of footprints to add to the dimension of a photo. I had a good time taking these... [photo album 189](#)
- 10-26-2016** **Order Uncertainty.** It was interesting to hear from Toyota marketing today on the big Prius forum. They were surprised we hadn't received any recent notifications about Prius Prime. Finding out 11 weeks had passed since hearing anything raised a concern. We all wondered if something had went wrong with the mass-email process. I could easily see a software issue going unnoticed. Whatever the case, we have their attention now. I was responded to directly. A few others were too. Our reach out to dealers for information about how to place an order right away are being addressed. My salesperson name and the fact that she has accepted a deposit should mean help is provided with allocation of the vehicle through the region's distribution. They usually don't have to deal with buyers like me seeking out a purchase opportunity before the first shipment even arrives in the country. The variety of packages, colors, and options adds to the effort. It will all work out too. But rumor is the estimated sales for 2016 would like to be around 20,000 worldwide. Getting everything into place to achieve those sales within just 2 months is a monumental task. Is it logistically possible? How do you match supply to demand in such a short amount of time? We'll find out rather soon...

10-27-2016 Confusing Reports. We starting to see quite a few articles & comments posted about Prime that are actually about Prius. To make matters even more confusing, many of the things being reported are about the gen-3 model. Casual readers won't have a clue. Not getting information about the newest generation available is an understandable problem. People are sloppy, failing to point out their comments don't apply to the what's available now. Sometimes, it's a simple oversight. Sometimes, they aren't aware their information is outdated. Sometime, their posts are intended to mislead. Whatever the case, that's all to be expected. It happens with every generational shift. The new problem is referring to plug-in model but sharing data from the regular model. There's quite a bit of interchanging going on. That really confuses mattes. So when it comes to corrections, you're doomed. Worse is the reality that some of the facts are incorrect for either. I have no idea where the numbers originate. Today, it was an article with "Prime" being compared to Volt, but really it was the no-plug version of Prius. Why would you do that? It makes no sense. The photo and all the information was indeed about the regular model. Then a comment was posted about the "20 mile" rating. Where the heck did that come from? What a mess. Clearly, this chapter in plug-in history is the first to reach ordinary consumers. The niche audience of the past certainly didn't have issues like this.

10-27-2016 Not Yet. This blog will likely be lost somewhere in the pre-rollout memories, but it won't be forgotten. The topic was thoughts about gen-5. What could the approach be for it? Would the plug become standard? Would the hybrid-only not be offered anymore? Many questions are being asked. This is what I injected into the discussion: I thought the upcoming flip was easy to see. Apparently, it's not... yet. Think about what happened with the computer industry. Where are all the desktop computers now? That format which once dominated the market has become quite rare. Those high-priced portable devices have very successfully replaced them. They have even been supplemented with smaller version now depend upon for routine communication. Intel announced quite a number of years ago that they would stop producing desktop processors, that 100% of what they'd offer would be a portable design. Have you looked inside a new desktop computer? It's actually a notebook with a large case, lacking a battery and a screen. Mission accomplish. The desktop we all grew up with is now long gone. Hybrids will follow a similar evolutionary path. Offering a plug and some degree of EV operation will be the norm, hopefully by the next generation. Plugging in will become so convenient, there won't be any need to further push HV abilities. Prime offers a rock-solid 50 MPG following depletion. Prime also addresses every need related to EV operation. Lowering cost a little more, while also improving energy-density a little more, is all it should take to make the plug part readily available for everyone realistic.

- 10-27-2016 Mini Countryman.** The topic of battery-capacity is an interesting one. Volt enthusiasts outright dismiss everything else. If it doesn't deliver 53 miles of EV like Volt does, it's not worth bothering. Thankfully, the rest of the industry isn't so close-minded. We're seeing shorter ranges from a wide variety of automakers. All focus on that smaller offering for the same reason... cost & size. Wanting to provide more requires tradeoffs too great for competing; business need falls apart as a result. The latest example of trying to deliver that delicate balance comes from Mini (a division of BMW). The new, much larger SUV, will be available with a plug. It will be a "thru the road" type hybrid. The front wheels will be driven by a traditional propulsion system. The rear wheels will have an electric motor, accompanied by a 7.6 kWh lithium battery. It's a simplistic approach with implementation complexities. What I find most interesting is the "24 mile" estimate. You wouldn't expect that much EV range from a heavier vehicle than Prime. It makes us ask the question of estimates. If BMW's is accurate, it would tend to indicate Toyota is yet again downplaying. I suspect that's the case. Seeing a few more miles than the estimate from my Prime would be great. We'll find out eventually. Who knows when though. Winter lasts a very long time here in Minnesota. Fortunately, the plug-in hybrid Mini won't be available until later in 2017 anyway.
- 10-28-2016 Availability History, background.** Few are asking why we're seeing Prime being rolled out they way it is. They just draw conclusions based upon observation of the present. Oddly, neither the future nor the past are being taken into consideration. Pointing out what's coming is basically futile. It's far too easy to spin that information. So, I usually don't bother. I can provide lots of history though. And in the case of availability, I certainly have a lot of that for Prius to share. This series of posts is how I did that: People without a business background (having taken accounting, economics, and marketing classes, then studied the automotive industry for the past few years), will have a very difficult time understanding Toyota's approach. Look forward to a lot of assumptions and greenwashing efforts as a result.
- 10-28-2016 Availability History, first generation.** Let's start with a look back at Prius history. Rollout began in Japan. Sales began in December 1997 and continued exclusively there until August 2000 with the first major upgrade, which went to the United States exclusively. Despite providing a much improved battery-pack and more engine power, it was labeled as a first generation vehicle. Some of that came from clueless writers. Some of that came from intentional undermining. Toyota was unbothered. Rollout would only be to online orders and the vehicle wouldn't offer cruise-control. Instead, it came with a touch-screen and digital-speedometer. The reason why for such odd choices was far from obvious... until many years later.
- 10-28-2016 Availability History, second generation.** When gen-2 was rolled out (late 2003), greenwashing spin was alive & well. Fortunately, Toyota's decision to limit Prius in such a way revealed itself to be a wise decision. They had target an audience who would become strong supporters of the technology. Rather than just rolling out to an open market, they successfully limited availability and changed expectations. The feedback from those owners really paid off too. The next generation would be configured to appeal to a much wider audience. It would also be profitable right from the very first sale. All that was a major undertaking that many had either misunderstood or went out of their way to cast doubt upon.

- 10-28-2016 Availability History, third generation.** The rollout of gen-3 brought about quite a stir. The outgoing generation had been very successful. Could a more efficient & powerful system not only retain mainstream interest, but also attract new buyers? News of plug-in offerings sometime in the future was common, but the viability of the technology was still unproven. Longevity & Cost issues were very real concerns. The economy had fallen apart. Gas prices were bringing uncertainty. It was a challenging time, especially with the lack of reasonable competition. Prius was often paired up against Jetta TDI in bias and questionable comparisons. And of course, we now know that "clean diesel" was a massive deception.
- 10-28-2016 Availability History, plug-in model.** Prius PHV rollout was to be a mid-cycle update to gen-3. The platform itself was already designed to accommodate the larger battery-pack and faster EV speed. Cost was still very expensive and the market acceptance of plugging in faced with fierce resistance. The struggle with Volt sales made it all too clear that a limited rollout would be a wise move. So as the time approached to expand availability beyond the initial 15 states arrived, Toyota decided not to. Instead, they'd continue study in the established markets to provide valuable information about how to attract buyers with the next generation instead.
- 10-28-2016 Availability History, production end.** In June 2015, the decision was made to end production of Prius PHV. Almost immediately, the greenwashers pounced on the opportunity to deceive about Toyota's intent. They'd raise doubt and draw conclusions based solely on specific observations, absolutely refusing to acknowledge the fallout of having to deal with the very problem Volt now faces with having become known as a niche and being configured accordingly. They did everything in their power to deny the possibility that a much improved plug-in hybrid system was in development and that promoting the old one any further would have negative consequences.
- 10-28-2016 Availability History, very wrong.** Early this year, we discovered just how very wrong those greenwashers were... and how they'd quickly change their claims, focusing attention on perceived shortcomings instead. The exclusion of a middle seat is the obvious new highlight. Toyota's effort to explore & expand is outright dismissed. That 5th could be offered later. But then again, maybe it won't. Product diversification would suggest offering in on second vehicle choice instead. Whatever the case, it has been a distraction from the technology... a clear effort to undermine.
- 10-28-2016 Availability History, approach change.** The raised floor is another obvious issue of dissension. Toyota's choice of function over form is not new. They saw the benefit from that change of approach and went for it. The cargo benefit of a hatchback comes primarily from the ability to carry long & wide objects. The height of objects wasn't even mentioned until 9 years later when the wagon model was introduced. Notice how that touch-screen and digital-speedometer are still standard, despite having been a profound change for a vehicle's dashboard? Who will really take issue with it not being as tall? Look at how well small SUVs sell, even though they offer a lot of height but very little depth behind the seats.

- 10-28-2016 Availability History, drawing conclusions.** What allows you to draw conclusions about approach and believe it cannot change during the generation's availability. So what if Prime may only be initially available to those who are willing to hunt one down, rather than stumble across it on the dealer's showroom floor? That exactly how sales began for the no-plug model all those years ago. Heck, even the battery-pack was upgraded mid-cycle back then. Who's to say that same strategy won't work again?
- 10-28-2016 Availability History, priceless.** Think about all the unanswered questions we have. Even as well-informed online participants seeking out information, we simply don't know yet. Would you really want newbies learning about the system based on anecdotal observation, rather than basing results on a good understanding of the basics? That's a recipe for disaster. Driving conditions vary far too much for generalizations. Letting us identify a solid working knowledge first, then come up with a simple way to share that, is priceless.
- 10-28-2016 Availability History, patience.** I ended the long post describing the history with: "*In other words, patience.*" Upgrades are difficult to understand at times. But each wait and resulting improvement was well worth it. Rarely do you hear about steps backward. Not everyone will be happy though, since change will inevitably disappoint some. That need for being patient makes it harder to deal with. Uncertainty presents challenges. That's why I do my best to point out what may not be obvious. Knowledge of history is especially difficult to acquire. How would you study the past for Prius? There are few sources that are comprehensive and almost none that are easy to follow. There's so much material too. With so many years of history and the distortion associated with looking back, rather than reading about the events in the "as it happened" context, how would you do it? Fortunately, a need with patience is having something to do in the meantime. Why not read a massive collection of blogs that were written as the history played out, from the perspective of day to day observations? Hmm. :)

10-28-2016 **Greenwash, uniqueness.** This comment about our history discussion caught my attention: "*They said people liked the uniqueness of the Prius because it held them out as greener-than-thou.*" How could I not react to that? I couldn't. See:

That's a good example of effective greenwashing. Way back, Prius was the only midsize hatchback available here. So, it was unique anyway. The practical nature of the shape simply made the decision to try the hybrid easier. Attempts to conceal that advantage over competing sedans were spun by giving the greener choice a stigma. In other words, they didn't like the message, so they went after the messengers.

Notice how none of the advanced tech for the driver ever gets mentioned? People didn't buy Prius just for "green" alone. So, no amount of smug claims can conceal the detail of what really happened back then. So, there's no reason to think it will now either.

Prime is a balance of design. The choice to deliver 25 miles of EV was well thought out. Accepting size, cost, and weight tradeoffs wasn't realistic. You don't configure a vehicle for the masses that appeals to enthusiasts. Those are mutually exclusive audiences. Their preferences differ too much. So, don't get purchase advice for ordinary consumers from them.

Ask yourself, do mainstream buyers even care about being green? The market right now shows a strong desire for "good enough" efficiency. That means any appeal to eliminate gas use basically falls on deaf ears. That doesn't mean they won't be willing to spend a little bit on EV driving though. An affordable plug-in hybrid (that's profitable for the automaker without tax-credit subsidies) appears to be the ideal solution.

Toyota is giving it a try with Prime. The initial rollout won't be as fast as traditional vehicles or as widely spread, but the ramp up could following that introduction purchases could be quite impressive.

10-28-2016 **Greenwash, definition.** I got called out: "*I'm not sure your use of greenwash is accurate. Greenwashing is giving the appearance of being environmentally minded, while downplaying the damage done to the environment.*" That made be reflect upon the situation:

Interesting. Back then, there wasn't even such a term. I guess I used it with incorrect context. We called the effort to hold back and mislead about the technology "*undermining*".

All those years ago, the concept of "*green*" itself was different. People focused almost entirely on MPG. It was all about using less gas... regardless of how much you'd try to emphasize the reduction of smog-related emissions. You'd get downplay at best. The topic of carbon-related emissions was outright dismissed.

Now, the idea of "*green*" is just the collective effort to "*be like Prius*". The overwhelming success of the Toyota technology it uses leaves the spotlight on Prius. The other hybrid offerings simply don't get the same recognition. So, we just lump together the advantages of reduced consumption & emissions into a single acknowledgement.

Even more interesting is how "*EV efficiency*" is now coming into play for Prime... with will also be a trait of Prius. Being able to squeeze out so much from that size battery will get the "*greenwash*" treatment too. Look at how a few have already made the claim that 25 miles won't be easy to achieve and try to downplay the advantage of having a vapor-injected heat-pump.

How do we more accurately portray all those benefits? Ordinary consumers simply don't have the background to even know what to look for. It's very easy to deceive an audience like that. Calling "*greenwash*" is the environmental equivalent of raising a red flag.

- 10-29-2016 **Big Change.**** We're witnessing the death of diesel for passenger cars here. It's extending beyond VW vehicles. Mercedes abandoned a new rollout. The market was always small and is rapidly shrinking. Hyundai is targeting buyback owners too. They need to get beyond their MPG depiction. (The lawsuit for their inflated numbers was settled for \$41.2 million.) Attracting new customers could be an effective means of doing that. For plug-in hybrids, Prime is getting ignored. The Volt owners are at it again, doing everything they can to focus on the regular models instead. It blows my mind that they are going out of their way to make sure the no-plug Prius is used as a basis of comparison. I suspect some of that intentional misleading comes from the recent Consumer Reports rating. Prius was recommended. Volt was downgraded. That stings. There's nothing a Prius owner can say to make it better either. The enthusiasts get angry and lash out... at their usual scapegoat. Ugh. Oh well. At least there is progress in the environmental concerns overall. China is seriously considering a shift of incentives over to clean hybrids, away from plug-in vehicles. The reason is simple... a large quantity of PZEV-rated hybrids will emit less pollution than a smaller number of electric-only and plug-in hybrid vehicles. It's far easier to sell more than don't require a plug, no new infrastructure needed. Having the bulk of electricity coming from coal doesn't help either. The big picture puts the choice heavily in favor of Toyota. It's very difficult to deny how impressive gen-4 Prius results are.
- 10-30-2016 **Charge-Mode Thoughts.**** There are many. This new feature has some scratching their heads. I was surprised by that, as I stated: I'm surprised no one has mentioned that we already have a "charge mode", one that replenishes battery-capacity more aggressively than HV mode. It's been a basic part of how Prius PHV operates. It's quiet. It's smooth. And apparently, it's easy to overlook. Toyota has simply allowed it to be used more for Prime. Coupled with a more efficient gas-engine and refined software, why not? To observe the charge-mode currently available, just drop the pedal down hard with a cold engine. Notice what happens over the course of the next few minutes? It's especially interesting if you try this scenario, a situation I attentively observed knowing the circumstances would be quite informative... Turn onto a highway entrance ramp with the gas-engine completely cold (not used for many hours). Drop the pedal to the floor and hold it there. With the EV depleted entirely, I watched the entire HV capacity be consumed in those next few seconds to provide as much electric power as possible to accelerate the Prius to 70 mph. SOC dropped to the 18% minimum, then shortly afterward, began to climb. Within only a few minutes, the entire HV capacity (the 23.5% maximum) had already been restored. That's a recharge-rate clearly faster than while driving in HV mode. It's obviously not as efficient. But if all you're doing is cruising along a highway for a long distance anyway, why not keep charging beyond the HV threshold? Having that EV capacity available later could be a very efficient use of that electricity. Of course, some owners won't understand when to best use that electricity from gas rather than from plugging it. But how is that any different from an owner of a regular Prius attempting to maximize EV use? Used well, there's an efficiency gain. Used poorly, there's an efficiency penalty.

- 10-30-2016 Road Trip Photos.** To start out this year on a fun note, we jumped in the Prius and headed out to Wyoming. With the temperature below freezing and the route a straight highway drive through South Dakota from Minnesota, I was intrigued. The speed limit is 80 mph. The expectation was to do that a majority of the way. But with it being Winter, there would be spots of snow & ice to deal with. Fortunately, it wasn't bad at all. In fact, we even had a chance to go on a side trip. We drove from the plains (where the coal is excavated from pit-mines) to the edge of the Rocky Mountains. You can see some of the snow-caps in the photos I took at a scenic rest. Those are where locals go camping & hiking. It's quite beautiful. I definitely prefer the lush green & blue of home though. Anywho, I captured the moment with a few snapshots at a stop along the way... [photo album 190](#)
- 10-31-2016 Horrifying Discovery.** Propaganda spreading has begun. Intention is difficult to determine, since some people become unknowing participants by passing along greenwash material. Source is not. The second article about Prius Prime, from what started as a seemingly clueless news source, was published today. Sure enough, it was what had been feared. The first was last week, stating it was about "*Prius Prime*" in the title, but was actually about the regular model without a plug. That made no sense whatsoever, since it was a comparison to Volt. How could anyone not read that and end up walking away misinformed? It was greenwashing. I know that intention quite well now, since this one had lots of incorrect information. It had the following: "*Toyota has not release any testing results yet but is aiming to get a combined rating of 120 MPGe in EV mode, or hybrid fuel economy mode. A maximum electric range of up to 22 miles, and 84mph top speed.*" That's quite outdated. You'd think it was a mistake, that the writer simply did research well. However, the "yet" implies they recently checked. Clearly, that wasn't the case. The update came weeks ago. To make matters worse, you get the impression the writer actually test drove the vehicle. How would you interpret: "*You need to have a very steady foot to reach 22 miles on batteries.*" That sure looks like a claim from experience to me. It contradicts what testers has been saying too. Reviewers state after driving that you can drop the pedal all the way to the floor and most drives have delivered more than 25 miles. What really got me though was: "*Least that a driver wants is to be stuck in the middle of nowhere without a charge.*" I had to reread the paragraph containing that several times to determine the "*before lettings this EV's out on the streets*" the "*still too limited*" conclusion that the writer was absolutely clueless. I found a reference to Volt buried in the middle of the article. It was highlighted as giving "*better reliability*" due to it offering "*53 miles on batteries*". I find that horrifying. He actually had no idea how a plug-in hybrid works. He thought it was just a short-range EV. Wow! It makes you wonder how much of that greenwashing will be spread. Searching online, I found a secondary publish of that same article on a totally different website.

- 10-31-2016 VW eGolf.** Did you know this troubled diesel automaker actually offers a small, low-volume electric-only vehicle? There is indeed an EV from VW. It's the Golf with a plug. Sales are barely enough to even qualify as a niche. But hey, that's better than nothing. They need to gain experience somehow. Anywho, I actually saw one today. That was quite a surprise. Traditional vehicles with a motor & battery instead of an engine & tank don't exactly stand out. I may have seen it some other time around town. There's no way to know though. This time was easy. It was plugged in. That's a dead giveaway. It would have been nice to see the owner and say "*Hi!*" That didn't work out. Oh well. At least I got to see it. What will VW's first serious offering be? For that matter, how long will it take? Even when an automaker is supposedly committed, that's no guarantee of mainstream success. With cost high and production limited, good intentions only go so far.
- 10-31-2016 Retraction Requested.** I ended up sharing my frustration on the big Prius forum. That much misleading isn't good. Someone actually sent them an email requesting the article be retracted for containing so much incorrect & confusing content. It's too late, of course. That turns into propaganda material very quickly. We ended up discovering that the writer was part of a firm from outside of the country who writes & sells for publications. So naturally, they divert responsibility to those who purchase & print it. No accountability. Ugh. That means all we can do is raise awareness. Definitely don't trust without verifying. There's a lot of garbage out there. Here's my frustration express in print... This is the second article from this source to write something misleading about Prius Prime: "*Toyota Prius Prime: How EV Both Impresses And Disappoints At The Same Time*". Last week, it was a comparison to Volt. Only thing is, the title mentioned Prius Prime. The article itself was about the regular model. Mix-ups can happen for a variety of reasons. But with today's article, there's no excuse. It started with outdated claims of 122 MPGe and 22 miles. That seemed innocent enough, until I encountered about claim with: "*stuck in the middle of nowhere without a charge*". The writer was clueless and had spread FUD (fear, uncertainty, doubt) in response. To make matters worse, another publication has already picked up the article. I was left scratching my head, wondering what the heck the writer was thinking. Even with mention of having an engine, the concept of a plug-in hybrid is not understood... as the result is the spread of misleading information. Read what's written carefully and share your impressions. Notice no mention of the MPG rating? The conclusion of "*Best scenario is to only drive it around small cities and not think of driving it around back roads or on expressways.*" will leave you feeling troubled.

- 11-01-2016** **No Lithium Support.** Getting disgusted by so much greenwashing is easy. After reading a large collection of comments from the past 2 days on a discussion topic about Toyota finally endorsing lithium batteries, I sounded off. On that blog website, which attracts a wide variety of participants, it was time well spent. I doubt those with such a false impression of what has actually taken place will be swayed. You never know until you try. So, I did: It never ceases to amaze me how blinded some people have been to Toyota's advancements. Because an EV hasn't been offered, they assume nothing was being done. In reality, Toyota rolled out their first plug-in hybrid (Prius PHV) and their first hybrid (Prius 7+) using lithium batteries. They then switched over the regular Prius (all gen-4 models, except the base) to use lithium. That's obvious commitment to advancing the battery tech. Those improvements to the chemistry, the reduction of cost, and the increase in production volume all contribute to progress forward... none of which Toyota gets any credit for. Instead, people just distract by concentrating entirely on hydrogen. It's really sad that some don't understand how FCV (fuel cell vehicles) share quite a bit of EV (electric-only vehicle) components. Think about the low cost Prius Prime is rolling out with. That motor & controller knowledge gained from other Toyota research & development will benefit it directly. Think about the industry-leading electric heater Prius Prime will use. That vapor-injected heat-pump is a clear effort to improve efficiency of EV travel. Prius Prime will also offer a CHAdeMO charging option in Japan, a feature clearly beneficial to future EV offerings. In other words, saying Toyota hasn't been doing anything until now is a big disservice to the plug-in community. They've been there all along, working hard at things that go unnoticed... cost-reduction, high-volume production, and electric-efficiency.
- 11-02-2016** **Half Million.** The official total through September for sales of plug-in vehicles here in the United States was 512,137. That count from the Department of Energy is a nice milestone now getting a lot of attention. It's quite a bit less than the One Million hoped for. But then again, no one imagined gas dropping to such low prices. Of course, you-know-who getting into office would destroy hope of progress. Having so much power wanting to turn back the clock and fund dirty/wasteful energy is unbelievable. It is understandable though. People have anger for other reasons and they've found means of venting. Feeling overwhelmed and let down is very difficult to overcome. Just look at the mess we've seen as a result of "*over promise, under deliver*". Finding out you've endorsed something unable to live up to expectations really hurts. Just think of how the EV supporters felt when plug-in prospects 15 years ago turned into giant gas-guzzlers. Finally seeing recovery from that, despite being slower than desired, is an advancement forward nonetheless. Then you've got people like me endorsing smaller batteries for mass penetration. Making a vehicle lower enough cost to actually compete directly with traditional offerings means not getting a configuration that stands out. It's hard to stir excitement for anything intended to become ubiquitous. Each automaker will get 200,000 tax-credits before phaseout begins. Roughly a total of 300,000 per would work out to somewhere around 3 million vehicles. Knowing that over 14 million are purchased every year, it's easy to see how much more is needed. Oh well. At least we can celebrate this achievement. There's no denying this progress.

11-02-2016 In-Person Training. What an unexpected outcome! We saw someone pull into the plug-in spot. They parked with a strange sense of uncertainty. We had immediately assumed it was a driver who simply didn't care that they were blocking the plug from being used for recharging. Nonetheless, I decided to park across from them and potential confront the driver. Always being polite, that sometimes works fine. Turns out, they were actually confused about what to do. They also had a plug-in vehicle. In this case, it was a Fusion Energi. I introduced myself and provided a quite demo of the plugging process. You could see the desire to find out more. I got out my card and handed it to them and suggested taking a photo of the back with her phone. The information on the charger stated a credit-card would be needed. They didn't understand why, since the charger was supposedly free. I pointed out the charger-card would allow them to unlock the handle without the need for a credit-card. I used my card again to unlock the handle for them. It was a great opportunity to educate and share a brief moment of common good. That simple minute of in-person training likely had a big impact. You could see the intimidation melt away, replaced by excitement. That sure was fun. My wife got to witness it all too. I appreciate her support, but never have had the opportunity to include in an encounter like that though. What a great visit to the grocery store!

11-03-2016 Prius Gathering. We're in the early stages of establishing a group which meets monthly. There's plenty of us around looking for an opportunity to share stories and help promote. The catch is finding a location that works well. It's hard enough just scheduling. The unpredictable nature of weather & seating makes it even harder. We'll work something out. The ones I organized in the past had good participation. Owning a Prius Prime, possibly before the next meeting will obviously, stir interest. This evening's had modest participation. It basically comes down to having a clear purpose. The problems GM supporters are now struggling with due to not understanding the market and having set contradictory precedent seems to have been avoiding with us. Toyota has remained true to the mission of keeping cost low and striving for balance. That leaves you with a vehicle enthusiasts like to modify and ordinary consumers find rewarding. No matter what Prius you purchase, it's always clean & efficient. Rarely do you hear of disappointment. That often comes from knowing what you buy. Small groups around the country are what take the knowledge learned online and carry it forward into their own neighborhoods, in person. Reaching further is our goal. How can we convey the value to those without any mechanical background, those simply looking for affordable transportation that's very reliable. Selling the idea of less gas and few emissions is nearly impossible. The gain from electricity isn't though, even without a plug. We'd benefit from some type of material to share. It's nice having ideas from the past to leverage upon. As always though, the catch is audience. This absurd upcoming presidential election has everyone quite distracted. Oh well. That provides us with some time to plan.

- 11-04-2016** **60,000 Sold.** BMW's i3 hit that milestone recently. It took twice as long as the mainstream expectation. But this is a luxury offering, so that many isn't a level to strive for anyway. Achieving it sure is nice though. The goal was to prove the technology using an entirely new approach & platform. The tiny range-extending engine, along with quite a bit of carbon-fiber structure, obviously worked. We suspect the next generation will come in the form of an i5 sedan. It's an approach being proven by real-world driving. Gotta like that. It's refreshing to know what possibilities are available. You never really know what will catch on, especially in the luxury market. Though, mainstream buyers present challenges too. However, that volume & variety is more flexible. Fewer customers means a lot of experimenting is required. Fortunately, the nature of that market does allow for model changes sooner. In other words, it's a mix of trail & error. Better research yields better results. In this case, it seems to have worked out well for a gen-1 offering. The next should be quite interesting.
- 11-05-2016** **Plug Squatting.** To find a plug-in spot occupied by a plug-in vehicle not plugged in is frustrating. To see that situation with a plug-in owner driving by with disappointment on their face seeing that has no words... yet. That term hasn't really been coined. Today, I called it squatting. Fortunately, I was able to direct the disappointed owner down to the other end of the parking lot where another charger was available. Hopefully, that won't happen much. Sadly, it has been discussed at the plug-in owners meeting. I'm not alone with such encounters. Others have also seen chargers go unused by chargeable vehicles. Wasting a plug like that is wrong. Adding to the trouble was the fact that there were empty spots nearby. The owner was clearly lazy & uncaring. That's when you know a technology is gaining popularity. There are no HOV privileges here. There are no monetary state incentives. The only way to benefit from the plug is plugging in. That person didn't. We were both disappointed to see that. Oh well. Not much can actually be done about such behavior.
- 11-05-2016** **Green Herring.** Read this without wanting to post a reply immediately: *"I don't like that PHEVs are put in the same group as BEVs. Technically, PHEVs are closer to HEVs than to BEVs, because they both have ICEs. PHEV needs Gasoline, how much is irrelevant, because still has to be refueled unlike BEV."* I could not, as this expressed: Get used to it. Hybrids suffered from the same problem. Heck, this very article did that. The difference between ASSIST and FULL hybrids was profound, just they are still getting dumped into the same category. As for what is closer to what, that is a green-herring. The point doesn't tell us anything and only serves to distract. It's like arguing EV range. Results vary so dramatically based upon driving distance & conditions, the type of system is only a minor factor. Other aspects of the design become far more important instead, like the size & price of the vehicle. In other words, we aren't discussing what has actually influenced sales numbers. But if you do want to look at the graph, make note of what the lack of detail distorts. It doesn't tell you that Prius sales didn't begin until the last third of that first year. It also doesn't tell you that sales of Prius were only available via internet orders until May 2002. They weren't available on dealer lots anywhere prior to that. It doesn't tell you how long the deliver wait was due to inventory limitations either.

11-05-2016 **What's The Point?** It sure is good to not have to deal with this routinely anymore: "*I and others had stated 'back in the day' that the PiP could have outdid the Volt in sales if Toyota had committed to going nationwide with it. They choose to play it safe instead, and now their national plug in debut is against the gen2 Volt and new Bolt.*" Fortunately, that take on history is quickly fading. I asked: There were indeed a number of supporters who believed that. The catch is, they also believed audience was the same. Toyota wasn't targeting enthusiasts as GM though. That fundamental difference is why another approach was taken. Toyota already knew back then what the next-generation would offer. Saving tax-credits for that instead makes a lot of sense. It was a wise business choice, especially since it saves any need for a re-education effort. The first plug-in hybrid most consumers will encounter will be a much improved design. It's really unfortunate some people didn't recognize history playing out for a second time. That approach is similar to what happened with the Classic model Prius. Most people had no idea what improvements the hybrid system delivered in that next-generation. Their first exposure ended up being the Iconic model... which proved to be a wise business choice. Back in the day, some attempted to point out the situation. It often resulted in spin or dismissal. That's easy to understand. I'm not sure how "safe" applies. Though, being patient could be considered risk avoidance. But then again, goals would have to be the same. Clearly, gen-2 Volt is not targeting the same buyers as Prius Prime anyway. So... what's the point?

11-06-2016 **In The Now.** The best response is "*ugh*". I suspect we'll see an increase in greenwashing throughout next year. Interest in plugging will stir a few to mislead by posting outdated & extreme information as if that's what everyone should expect. I find that quite frustrating. Sadly, it doesn't just come from those against electrification either. Reading my blogs, you'll be well aware there's a superiority complex to deal with. Some fight affordable offerings, doing all they can to keep their niche vehicles special by undermining the progress of those with mainstream potential. Again, ugh. Today's example was attacking the plug-in vehicles that didn't offer liquid-cooling for their battery-packs. I was annoyed, especially with the short-sighted approach, so the response was shorter than an all-out rebuttal: Later chemistry advancements have basically proven a wide variety of configurations will work just fine. That isn't a problem anyway. It's the lack of clear goals and the uncertainty of audience. That makes marketing extremely difficult and dealers reluctant.

11-07-2016 Spin. A major reason for having stuck with what had once been a daily blog for Volt was to observe the spin. Volt has almost entirely vanished. There's only a brief mention here & there now. It's amazing to watch something like that disappear into the background. But then again, it's not much different from Two-Mode. Remember, that's what Volt replaced. It was another technology doomed to fail... not due to the engineering, it was due to the cost choices. GM felt performance was more important than being affordable. Enthusiasts were too blind to see the pattern repeating. They made excuses every time an expectation fell short... taking their disappointment out in the form of hate for Toyota. The biggest lashing out was FCV (fuel-cell vehicle) focus. They'd call attention to hydrogen as a distraction. The reason why became much more difficult to deny too. Toyota finally made an announcement about support for EV offerings. The true supporters always knew that would happen. What's the point though of promoting something years in advance, if it is detrimental in the meantime? That's why Toyota got as much hydrogen work done as possible prior to this. Since it is a mutually exclusive technology (different audience) with shared components, why not? Now that Mirai is in a good position, focus on Prius Prime can take place without harm. Both have the same goal of becoming affordable choices. Both have years to go before advancements will drop cost enough for large-scale acceptance. But in the meantime, both can establish the all to vital need of reliability reputation. That doesn't happen overnight. Unfortunately, that time does provide plenty of opportunity for spin... which happened today: *"Looks like now that Toyota has admitted they were wrong about li-ion batteries and their fuel cell efforts are not going so well, and they have already made their watered down version of a Volt knockoff, they are now going to attempt a knockoff of the Bolt EV."* That's so annoying. Toyota has been ramping up production of lithium. It started back in 2012 with Prius PHV. It grew dramatically with gen-4 Prius. Now, it will get even bigger with Prius Prime. I won't bother pointing that out though. It's not worth it. Those particular Volt enthusiasts on that blog just plain don't care.

11-07-2016 Hypocrites. Another thing those particular Volt enthusiasts on that blog just plain don't care about is being honest. At times, they just outright lie. It can be quite frustrating. Today's example was actually quite vindicating to read though: *"When developing the gen 1 Volt, GM said they relied heavily on what they learned from the EV1 and many of the team that worked on that program were also working on the Volt."* Over and over and over again, the person claiming that absolutely insisted Volt was entirely new. Since all the technology in Volt had been created from scratch, with no experience from EV1, Two-Mode, or BAS/eAssist, that was good reason for being patient. We had to wait. The *"no prior history"* message kept getting repeated, despite pointing out how GM was building upon what had been gained from those previous endeavors. Now, there's claims of the opposite. They just rewrite history anyway that fits. It's so hypocritical, responding would just be a waste of time. They don't care. They'll say whatever they want to support their beliefs. Remember how dead-set they were against EV offerings? Volt was the ultimate solution to *"range anxiety"*. There was no purpose for an electric-only vehicle. Now, they contradict themselves, abandoning that message for Bolt instead. If you want to call someone deplorable, here's a worthy situation. Ugh.

11-08-2016 **Let It Go!** Some just plain cannot: *"People are still pissed about the old lexus ads. The new ones just smack of desperation."* Reading that was annoying, but it did provide a chance to say my piece: It's hard to believe how blown out of proportion and complete disregard for the business a select few people will take a situation. First, what Lexus does has nothing to do with Toyota. They are separate divisions. Second, each automaker is a primary purpose of making profit, not being a green savior. Third, you have to be rather clueless to believe an ordinary consumer could care less. Fourth, anything can be taken out of context, especially with a quickly changing industry. Need I say more? Pretty much everything happening now will go almost entirely unnoticed. The mainstream isn't ready, so they aren't paying attention. Think about how absurd other claims were by automakers now supporting EV sales. We don't actually see any volume, yet they are praised for delivering very little. Put it this way, Toyota is the hidden giant. They have been producing lithium batteries in high volume for gen-4 Prius. No one has really noticed that ramp up though. But it's exactly what's needed to ensure a strong rollout of Prius Prime. We get an affordable electric-only platform. Who cares if some of the tech came from hydrogen research. For that matter, who cares how small battery-packs start out at. All if it contributes to a competitive EV offering in a few years.

11-08-2016 **Road Trip Photos.** 4 years ago, just 1 month into PHV ownership, I went on my first road trip. It was up north, to the usual destination. But being Minnesota in the Spring, weather is quite unpredictable. We ended up getting quite a bit of snow. I hadn't packed an ice-scraper either... since the first day was absolutely beautiful. In fact, I had brought the bikes along. The hope had been to take a trip on the trails. That time of year is beautiful. There's a mix of open water and ice still on the lakes then. The breeze has a bit of warmth. Sunshine is refreshing. It's a nice opportunity to shrug off Winter, despite driving north rather than south. Take a look at what I captured with the camera. That brand new Prius PHV looked great next to the budding trees at the boat-landing. It's the same location I took photos at many, many years ago with my Classic Prius. Check it out... [photo album 190](#)

11-09-2016 **That's Reality.** This quote from a recent article about Toyota's intent for 2020 sure stirred discussion: *"Toyota aims to develop an EV that can run more than 300km on a single charge. The platform for models such as the Prius hybrid or Corolla sedan is being considered for use in building an electric sport utility vehicle."* Naturally, there was the usual hydrogen rhetoric. But if you can get past that, there is some constructive discussion taking place. Unfortunately, that can easily get derailed with nonsense like this: *"This reads as half-assed effort, even they probably don't know what will come out of it."* Lack of substance to the claim makes you wonder if it is even worth responding. But then again, not saying anything is to enable. So, I didn't keep quiet and asked: Knowing your audience translates to half-assed effort? No, it's called market awareness. Notice what happened with the election yesterday? You can suggest a dedicated EV platform all you want, knowing it is the better choice, but that doesn't mean people will buy it. We are a market obsessed with consumption and making bad choices. Look at how poorly Volt has sold and how popular the plug-in Outlander is. That struggle for sales GM has had is far from what Mitsubishi is experiencing. They are both plug-in hybrids. The dedicated platform Volt offers simply doesn't appeal to the masses like a compact SUV with a plug does. Like it or not, that's reality. We have to find a way of playing the game. Notice how popular the hybrid RAV4 is. Why not offer a model with plug augmentation?

11-09-2016 **Measure, How?** Here's food for thought: *"The manual states not to leave the battery full for long periods of time. Unfortunately, they don't get any more specific, so it's up to each owner to decide what is best. I leave mine between empty and half full, depending on the situation, but sometimes i get caught with my pants down and no charge. Even trying to do this, i have seen about 15% degradation since new."* I'm getting really annoyed by his lack of effort to share detail. From the snippets of information he has shared, his EV range dropped that much... but is still more than I have ever experienced. If I remember correctly, he was averaging 17 miles. So, you can see why I have difficulty accepting the edge he lost over the years as a problem. Nonetheless, I still try to remain constructive:

Long periods of time would be weeks, like when you go on vacation. Shorter, it's just fine. Simply leaving it partially depleted is an easy way to avoid that. You still have a 15% buffer regardless, since "full" is really just 85%. Exceeding it would only come from routinely drive downhill for many miles at a time, those who live in areas with mountains or deep valleys.

More likely is not allowing the battery to rest before recharging. That's called a "cold soak". The timer feature helps make that easier. Chemicals inside benefit from the opportunity to settle and cool down. If you plug in right away after driving EV or expose the car to extreme heat, it will shorten battery-life.

As for your 15% degradation, that doesn't tell us much. Some owners never see levels other owners do anyway. With mine, I haven't noticed any real loss after 4.5 years. It's still delivering 13 miles of consecutive EV on good days. That's more than the 11-mile rating. How should measurements be made years later? We don't have a method available.

11-10-2016 Clickbait. That term gets heavily used now. It came about from all those enticing links publishers put at the bottom of articles, headlines & photos intriguing enough to compel you to click them. Many people do too. Most of it's a waste of time. But that's what gets you to stay. So, that's what they do to keep you. Today, it was discussion of how "hydrogen" gets those interested in plug-in vehicles to take a closer look. Virtually all of it is propaganda. Pointing that out is quite a challenge though. Far too many fall for the bait. And of course, if you read the same spin often enough, you begin to believe it. I kept my response to that short: Spin of electric-only killing off fuel-cell is indeed clickbait. They are not mutually exclusive. As much as some people will try to convince you co-existing isn't possible, the expectation of a one-size-fits-all solution simply isn't realistic. Think about how much of the electrical system they actually share.

11-10-2016 Knowing. Ugh. How do you respond when a well known troll posts this: "*Same as the Volt?*" He thrives on contradictions, so dropping that bait would be fruitful. Productive information exchanges can result. It's not always a bad thing. Perhaps this will steer the discussion in a constructive direction:

Know your audience.

GM had a major upset with Two-Mode. They targeted those yearning for a better giant SUV. Unfortunately, the result wasn't that efficient, didn't offer comparable power, and was very expensive. So, GM moved on, targeting those yearning for a better compact car for that next attempt. It didn't lack in power, but wasn't as efficient as hoped and was very expensive.

All along, I kept asking the same question over and over and over again... Who is the market for Volt? The reason was simple. I wanted clarification about what audience GM would seek for gen-2 Volt. Unfortunately, the lower price and improved efficiency didn't do any good. Turns out, they targeted those same buyers, resulting in flat sales. No growth.

Toyota isn't making that same mistake. Seeking out a niche group doesn't make any sense with a goal of wanting to sell the vehicle in high volume. They targeted the masses instead. It starts with drawing in enthusiasts, but offering compelling mainstream features instead. Power & Range is traded for a much lower price and much higher efficiency.

To grow the market, you must do more than retain the strongest traits of Prius though. This is how the seat variation in back and the large screen come into play. We will quickly see the initial interest from enthusiasts be replaced by ordinary traditional buyers. How that's accomplished is the magic part. This seemingly strange rollout availability is simply a build up for demand. Salespeople get used to the paradigm shift. Once that happens and enough early owners share their experiences, supply is ramped up. Showroom floor discoveries begin. Growth is achieved.

- 11-11-2016** **Excellent Summary.** The bigger discussion took an interesting turn: *"All I have to say about seating is if you need more seats you need a bigger vehicle. A bigger vehicle won't be as efficient which is what this prius is designed to be. Prius V or rav4 hybrids are more family oriented."* More people are growing tired of the pushback without substance. I added some perspective to the sentiment: I see the situation with Prius Prime very similar to Prius of the past. A lot of people complained that it wasn't as big enough to fit a large driver. We continually had to point out that if you wanted a full-size vehicle, you had to buy a full-size vehicle. Prius was a midsize, for midsize people. Now, we have to point out that Prius is a midsize, for midsize families. You can still fit 2 car-seats in back. You can fit 2 teenagers in back too. So, saying that *"Toyota didn't want people with families to buy the Prime"* is quite misleading. If you have a full-size family, you should buy a full-size vehicle.
- 11-11-2016** **Boost Interest.** Here's the hope: *"...will no doubt be more likely to be exposed to a Prime if they visit a Toyota dealer."* I added to that with: That snippet identifies a fundamental struggle GM has experienced with Volt. They were able to attract enthusiasts, but the scope of buyers never reached the showroom floor. With a base price of just \$27,100 and the next model up offering a 11.6 inch display, SofTex seats, wireless phone charging, and charging cable lock for \$1,700 more, it's enough to entice the casual shopper. Catching interest of someone just exploring what the dealer has to offer is a major benefit GM has not been able to achieve with Volt. Toyota certainly is giving that a shot with Prius Prime. People have always argued the standout design of Prius is what drew purchases. We're seeing market shift over to LED lighting to stir appeal. It's working too. The fact that Prime takes advantage of that should put it among the top picks for new interest. It's hard to imagine people wanting the old-school look for too much longer. There's that dual-wave glass in back as well. That adds a bit of style no other vehicle can compete with, yet. It's far too early still. But the potential advantage over offerings of the past is clear. Market growth is absolutely essential. The challenges of selling of plug-in vehicles with gas so cheap now (just \$1.99 per gallon here) and the recent election outcome threatening to harm environmental progress are really big. The approach Toyota is taking could really help boost interest.

- 11-12-2016 Shame.** A few have become disenchanted: "*If Prius sales are cannibalized, that would mean Toyota would have to do an even better job in the future. Wouldn't that be a shame.*" Much of that comes from not understanding all that's at play and considering what comes next. This is my attempt to convey that: I recognize your stance, but don't care for the mixed message it sends. The point of Prius Prime is to lead a way to the future. You can't just abruptly end production of the predecessor when it still hasn't been accepted as that yet. In other words, Toyota is taking the very risk our antagonistic posters have claimed they would not. Had Camry & Corolla seen falling popularity in favor of hybrid replacements, transition to a plug would have been the obvious next step. Instead, we have Prius struggling in conditions with gas at \$1.95 per gallon and leaders of the world having to address emission problems without constituency support. That means risking cannibalization for the sake of reaching a wider group of buyers. Imagine if Toyota had made Prime exactly like the regular Prius... no raised floor and a 5th seat in back. It would have been a logistics nightmare. Know your audience. Unfortunately, most people don't understand the complexities of all the elements at play. So, a seemingly simple message like yours could easily be misconstrued. Think about what the market will be like 3 years from now, when we are at mid-cycle with Prime and the regular Prius is on it's 4th year.
- 11-12-2016 Low Hanging Fruit.** We're back on that again: "*For plug-ins, many potential buyers are willing to part with their preferred brand.*" Hopefully, this makes the problem with that view clear: That perspective only works for the low-hanging fruit... those early buyers with little selection available. We're not in gen-1 anymore though. The audience isn't plug-in shoppers either. How many Prius owners have you talked to over the years, random ones you've unintentionally encountered? Notice how many of them weren't even in the market for a hybrid? You'd be shocked to discover the large number of them simply discovered it at the dealership while just casually browsing. The simple act of a salesperson offering a test-drive does a great deal toward appealing to that audience's desire. Those buyers are very, very different from you and I. Our purchase priorities have little in common. Saying they are "*not the same*" is quite an understatement. This is why that "*Who?*" question was asked so many times about gen-2 expectations. Market growth requires an entirely different approach.

11-12-2016 **Brand Loyalty.** I was enthralled to address this: *"From my point of view there just aren't enough reasonably priced plug-ins to allow any sort of brand loyalty. It's too limiting."* And I did:

Until this week, there was no market. None were reasonably priced. Remember the *"nicely under \$30,000"* target for MSRP? The reason GM set that goal was to be able to sell the vehicle to the masses. Dependency on tax-credits to achieve that affordability meant being trapped as a niche.

Prius Prime is the very first offering to deliver on that goal. \$27,100 for a base price is amazing. Toyota chose to focus on cost-reduction, keeping that the highest priority of their design. The tradeoffs that required meant a very real struggle in the market of the time. So, the gen-1 wasn't offered beyond initial markets. That taught them a great deal about how to configure gen-2.

Volt choices made by GM were to instead refine the system, beefing up aspects of operation rather than favoring a cost-reduction goal. Power, efficiency, and range all improved as a result of that decision not to make MSRP the highest priority. The consequence is limited audience and continued dependency on tax-credits.

How will market growth be achieved? Just 2 years ago, we were looking at \$275 per kWh for lithium battery cost. Now, it looks like \$145 per kWh is actually achievable in the not-too-distant future. With the price then around \$600 per kWh, a gen-2 battery-pack cost expectation (for the cells) would have come to about \$11,000. Subsidizing that with \$7,500 totally made sense. Obviously, that isn't how much it ended up costing. We're somewhere below the \$400 level now, putting cost at roughly \$7,500... perfect for tax-credit offsetting. Upon reaching that future cost, a drop of \$4,700 would indeed reach the goal. Base MSRP could end up around \$28,500.

That sounds like a reasonable plan... unless you look at the *"too little, too late"* claims. Toyota will already be entrenched into the market and the lower lithium battery cost would have become higher profit for both dealer & automaker... an absolute necessary for sales growth. At that point, the EV choices would have become competitive. Who will be the market for Volt then?

In other words, the bar for *"reasonably priced plug-ins"* will have changed. Just 3 short years from now, the expectation will be for those plug-ins to be able to compete directly with traditional choices, not having any tax-credits available. Toyota is striving to achieve that. This topic of selling well doesn't focus on that upcoming change... which these offerings must address.

11-13-2016 Comparisons. I wasn't happy to read this: "*The good thing is, non prius owners will never know what they lost. They'll be comparing to other plug ins with even smaller hatches.*" That's a careless disregard for the situation and a focus on the wrong thing, as I attempted to point out: Most won't have any clue what they gained either. People want one specific model of Prius to be everything for everyone. The idea of balance is lost on our market, one so confused the concept of want is thought of as need. That's how we get into our SUV mess. So many people were told by so many people that they were necessary for safety, that belief took hold. The want became thought of as a need. The same thing happened with the ability to tow. We were told over and over and over that what people had wasn't enough, that more is necessary. In other words, the longer those mindsets persist, the easier it is to lose track of want. You look at anything less as a compromise to great to make. There's no effort to identify need anymore. There's an unwillingness to change. That's why the mindless stating of EV range ends so many constructive discussion attempts. Someone will blast out numbers without thought, then not bother to consider anything else. This is why overcoming status quo is such a major challenge. Toyota gave the gen-4 Prius a radical look to make it stand out, to get people to notice it is different now. Being able to convey the message that handling has been greatly improved certainly won't be obvious to those making comparisons. Never noticing improvements without obvious numeric differences is far too easy. They won't know what was gained. They focus on what was lost, then dwell on it.

11-13-2016 Sales Spin. I'm really getting tired of this nonsense: "*Volts are indeed selling well up 63% compared to last year (ytd).*" I expressed my feeling too: That 63% is a very, very misleading statistic, to the point of greenwashing. You can't just cherry pick or omit detail like that. Sales were down last year due to the inventory of gen-1 being drawn down and gen-2 only being rolled out to limited areas. There's the "wait for the new one" effect too. Step back to consider the big picture. The goal even before gen-1 rollout began was to achieve mainstream volume by the end of year 2, a minimum of 60,000 sales annually in this market. That's an average of 5,000 per month. Sales of gen-2 haven't been even remotely close to that. The average has only been 2,000 per month recently. That's just a minor improvement upon the 1,700 per month gen-1 was averaging. To say Volt is selling well is to disregard what's happening with the rest of the market. Stating a percentage doesn't actually tell us much either. 2,191 may seem like a lot, but pales in comparison to: 16,151 sales of Malibu; 17,126 sales of Cruze; 19,664 sales of Equinox. That's why market growth is so essential. Hiding behind a limited amount of tax-credits and spinning the resulting sales to appear impressive isn't helping anyone. Toyota gets a lot of heck for pushing Prime in a seeming unpopular direction, but it clearly confirms they are willing to take a risk to achieve growth... quite unlike GM's choice for Volt.

11-13-2016 **Taking Risk.** The unexpected outcome of such a political mess is finding allies among those who you had formally butted heads with. It's surprisingly easy too, simply because they are so well informed. Falling for the rhetoric is far too easy. Sadly, many do. For us here, whether we like to admit it or not, we have become all too aware of the goals and barriers preventing them. In my case, I pushed Volt enthusiasts hard to get acknowledgement of how much of a challenge achieving cost-reduction really would be. That kind of "*compromise*" simply wasn't acceptable... until now. Hope of lithium battery improvements was enough to overcome the problem cheap gas posed. But when you have someone taking office who doesn't show any interest in reducing emissions or oil consumption, it's time to give up on pride. That can be restored later anyway. Toyota has taken a risk GM was unwilling to accept. Prius Prime will deliver a much smaller EV range than what people supposedly want for a tradeoff of a MSRP low enough to sustain profitable high-volume sales even without tax-credit help. That's a very big deal, something that will hit gen-2 Volt really hard in the few years... because it is quite unrealistic to expect renewal of federal aid at that point. What does that mean for the plug-in market as a whole? We want both plug-in hybrids and electric-only choices to thrive. Affordable for consumers and financially rewarding for salesperson & dealer is absolutely essential. We can't allow those still pushing extremes to impede mainstream acceptance anymore. There's a happy balance we need to find, quickly.

11-14-2016 **EV Efficiency.** This topic is finally getting some traction. Pushback on it was intense in the past. That's because the use of electricity has been promoted as great under all circumstances. The idea of it being wasted was clearly a topic of turmoil to come. Today appeared to be the start of that. Volt enthusiasts could only antagonize for so long. Eventually, enough real-world data would emerge to reveal what they've been trying to conceal. This is why I've always expressed a bit of upset. Dismissal of facts you don't like is unacceptable. But until recently, they had found ways of suppression. EPA numbers provided a means of overcoming the barrier they built. I posted this, which takes me back to my "*not the same*" roots...

Being more efficient is very important. Here's a few electric-efficiency rating examples (fewer kWh is better):

31 kWh/100 mi = 106 MPGe = 2017 Chevy Volt
30 kWh/100 mi = 114 MPGe = 2016 Nissan Leaf
30 kWh/100 mi = 116 MPGe = 2016 VW e-Golf
29 kWh/100 mi = 111 MPGe = 2017 BMW i3 PHEV
28 kWh/100 mi = 119 MPGe = 2017 Chevy Bolt
27 kWh/100 mi = 124 MPGe = 2017 BMW i3 EV
26 kWh/100 mi = 133 MPGe = 2017 Toyota Prius Prime

Notice that Prime is the most efficient of the bunch. Its official rating is specifically 25.9 kWh/100 mi. Looking at those numbers, it's pretty clear to see that efficiency of electric propulsion varies.

- 11-15-2016 *Pacifica Hybrid.*** The big auto show in LA has begun. So, of course, we're learning more about upcoming new plug-in vehicles. The first is more detail revealed from Chrysler. But at \$43,090 for a base price, how is that going to attract a lot of buyers? Even with a \$7,500 tax-credit, that's still a high price. Though, it may be a good deal. The point of selling in high-volume for a profit is definitely questionable. Are people really looking for that practical of a plug-in vehicle. As a minivan, there is potential. It's really how to predict though. Minivans are the rage. Making one really expensive puts in in a challenging position. Remember the "hybrid premium" problem for Prius? How will this offering overcome that? Volt certainly didn't, despite a lot more EV range than this with 30 miles. We can hope for the best. 6 passengers and 260 horsepower sounds nice. But there's simply nothing to really give us a sense of demand. It's a complete mystery.
- 11-16-2016 *CT6 Plug-In.*** Quite unlike Chrysler's new plug-in offering, this one looks DOA. With a \$76,090 base price, how could it look anything other than dead on arrival? That's absurd. Wasn't anything learned from the first Cadillac with a plug? The price for ELR was simply too much. Even with cuts, the price wasn't competitive. Supporters were horrified when it started at \$74,995. The price drop to \$9,000 lower made little difference. With the CT6 also being an import from China, rather than coming from Detroit, the odds of more than just a few being sold in the United States are low. We get the feeling so few purchases will take place, it won't even do much for benefitting compliance requirements. How can a 30-mile EV range compare to Tesla? People expect more form luxury. What was GM hoping to achieve?

11-17-2016 Who's Laughing? I asked that after reading this comment posted about being cost-competitive: "*How about a Chrysler Pacifica Hybrid, LOL*" The thought that \$43,090 for a base price will draw in lots of interest isn't taking the situation seriously. That's requires heavy dependence upon the \$7,500 tax-credit. In other words, this problem emerging for Chrysler is the very same thing we saw for GM. Ugh. I proceeded with this, hoping for the best

When I came here looking for allies, that certainly wasn't what I got. For years, it was "vastly superior" cries. That eventually became "too little, too late". Since then, it has faded to nothing. Volt has been pretty much abandoned in favor of Bolt. That spells opportunity for a fresh start. So, I'll wonder again... friend or foe? How you respond to this equation is key: RAV4 hybrid + one-way clutch + 8.8 kWh

If you see that as inspiration for GM to pursue a compact plug-in hybrid SUV, we share something in common. If you see that in any way as not in favor of promoting electrification with a target of mainstream buyers, you're going to be pretty lonely. I'm not wasting time on rhetoric anymore.

Breaking out beyond the niche is what Toyota is positioning for. That potential should be obvious. You should be pushing GM hard at this point, raising attention that effort as well as what we see here with Chrysler Pacifica and with the upcoming next-gen Mitsubishi Outlander. Larger, more powerful vehicles with a plug are realistic. Finding a way to make them affordable QUICKLY is the challenge.

With gas just \$1.89 per gallon now and a new administration about to take office which doesn't believe that emissions are a problem or there's any reason to cut back on fossil-fuel use, it's time to reassess priorities. In other words, I'm reaching out now. We can all be in this together. It's not a laughing matter.

11-18-2016 Winter Photos, lakeside. I had only been driving my Prius PHV a little more than a month. The trip up north was well timing, though nothing like it was planned. I had carried bikes on back with the expectation of enjoying the trails. Early Spring weather makes that quite appealing. And with the temperatures having been so nice, I was really looking forward to the opportunity. Instead, we got a bunch of snow. Though quite unexpected (I hadn't even packed an ice-scraper), I took full advantage of the chance to capture the moment with my camera. Lots of photos were taken too. Unfortunately, they remained untouched on my computer for all this time. Now, over 4.5 years later, I'm finally sharing what I experienced back then... [photo album 191](#)

11-18-2016 Reality Crash. The flurry of excuses from just last year with the gen-2 Volt rollout was amazing. So even if you don't remember gen-1 Volt or Two-Mode rollout problems, that's a good recent example. Only thing is, with Bolt it's even easier to recognize. We have more than just fitting the pattern this time. I decided to point that out by responding to this: *"Not in CA or OR? No Bolt for you till Spring 2017."* That set me up for pointing out what should be obvious... and I did, expecting it to be taken as a reality crash:

The huge advantage GM had over Tesla is melting away. Taking an additional 6 months for delivery isn't what was expected or promoted. Meanwhile, 2 quotes in the recent Forbes article from president of GM's North American operations and head of global Chevrolet should raise an eyebrow: *"It's not about how many we sell."* and *"We need to sell them for the ZEV credits so we can sell the rest of our portfolio"*.

Each little detail like this reveals the reason why no talk of a plug-in SUV happens anymore. Those prototypes we saw years ago have just become trivia notes in automotive history. The potential popularity of an Equinox using Voltec would absolutely devastate the GM business model.

The writing is on the wall. Shooting the messenger doesn't do any good either. We've been through this before. It should be easier to recognize at this point. Brilliant engineering can be a victim of poor management choices. GM continues to repeat that mistake. Two-Mode, Volt, and now Bolt all follow that same pattern of being far too costly to sell in high-volume.

In other words, profit-margin of plug-in hybrids and electric-only vehicles is razor thin. That's why the quantity of tax-credits that remain is becoming a hindrance rather than helpful. Think about how much Bolt and Volt that would be purchased without the \$7,500 being available. There simply isn't any incentive for a business to undermine its own inventory... except for Toyota.

Prius Prime delivers higher depleted MPG than the regular Prius, mainly from having a better battery. Prius Prime handles better than the regular Prius, due to the heavier weight it carries. Prius Prime is priced competitively with the regular Prius, as a result of the "smallish" battery delivering such a huge return. Put another way, when the tax-credits run out mid-cycle, there's the potential for Prius Prime to become the "regular" Prius and the no-plug model transforming into a desirable niche.

Cost is what makes that opportunity possible. GM's unwillingness to shift away from the high-profit guzzling Pickups & SUVs is holding them back. Remember the hope that Bolt would take the market by storm? Look at this topic and other recent articles. With so many plug-in choices, what will make Bolt stand out? Remember, the supposed stand out traits for Volt didn't result in lots of sales. Also, keep in mind how the game has changed too. No one expected \$1.89 for gas or rescinding of emission & consumption goals.

11-19-2016 Winter Photos, back roads. My photo seeking took me through some picturesque back roads. I kept snapping the camera. Lots of nice scenery was available, with all that fresh fluffy snow and the wet pavement & dirt. The Prius PHV was still covered with a pile of white too. It all looked quite nice. I had no idea it would take so darn long to finally share them. But in the years that followed, I learned how to take really good quality videos to share too. Looking back to that simple beginning after all this time, I now have some nice memories of those first few days of ownership. In this case, it was a melty mess with all that fresh snow. I got really lucky having those back roads available to take advantage of with the camera, which I did, see... [photo album 192](#)

11-19-2016 Explosive Reaction. We've been through this nonsense before. The pattern matches. Only this time, it was more intense. The response to me was this: "*YOU WERE TALKING ABOUT THE TIMING ADVANTAGE !!!*" Then there was a post from that member-id created exclusively to attack me, followed by a mass voting onslaught. Seeing so much happen, so quickly, to such an extreme, was quite telling. The reason for that desperation was easy to see too. New plug-in reveals at the LA auto show showed us an industry with growth in the SUV market. The absence of GM from that stirred some raw emotion. So naturally, I was used as a scapegoat... again. They should know better than to draw attention to me... because I'll use that opportunity. And I did, with this:

Clearly, you didn't read beyond the first 2 sentences. And since that is now hidden, I'll have to post it again: The huge advantage GM had over Tesla is melting away. Taking an additional 6 months for delivery isn't what was expected or promoted. Meanwhile, 2 quotes in the recent Forbes article from president of GM's North American operations and head of global Chevrolet should raise an eyebrow: "*It's not about how many we sell.*" and "*We need to sell them for the ZEV credits so we can sell the rest of our portfolio.*"

The rest of my post provided observations and concluded by pointing out the problem: GM's unwillingness to shift away from the high-profit guzzling Pickups & SUVs is holding them back.

Explosive response to that was blatant confirmation of having nailed it. Enthusiasts had so hoped a compelling car (Volt) would shift away interest. It didn't work. So, GM moved on. Unfortunately, we already see the pattern repeating for Bolt. It obviously doesn't compete with Tesla based on visual appeal nor does it compete with GM's own offerings in terms of rugged appeal. It doesn't offer appeal to GM customers, which those quotes address.

Were you expecting a plug-in Equinox reveal from GM at the LA auto show and are now upset about that not having happened?

11-19-2016 **Once Upon A Time, photos.** It was a bizarre experience. We needed to stop while on our trip up north. It was along the way, a longer route I had taken many years ago. Unknowingly, it just happened to be across the rural highway from where I had stopped 2 other times over the years... to take photos with the Prius. I was an absolutely beautiful location next to a spectacular lake. Being right off the road like that, I had the golden opportunity to capture that scenic view by parking along side it. The fact that there was a business nearby hidden within the trees was a surprise to me... and the owner. He was shocked to learn I had taken photos there in 2001 and again in 2010. He had me connect to his Wi-Fi to show what the area looked like prior to him being there. It was a surreal experience, rewarding too... since I now have a third set of photos from that area with a third Prius. It was a remarkable happenstance. Needless to say, I'm very happy to share the photos of what I was able to capture on that beautiful and quite unexpected opportunity... [photo album 193](#)

11-19-2016 **Waiting.** This lesson not learned continues to be a problem: "*In the meantime, we will all have to be patient and wait.*" My hunch about how the unqualified trust comes about is from lack of information. The person making the comment simply doesn't have enough background to recognize what's happening. As always, I keep trying to post reasons why such a stance is a bad one:

Being reactive, rather than proactive, is how we got into this mess.

The push for GM to finally deliver something their own loyal shoppers will actually buy is necessary, now. I was amazed how complacent supporters were of gen-2 intentions for Volt. Things didn't add up. But rather than pushing, they said it was best to just wait. Ugh. We see how poorly that worked out. Bolt doesn't look promising either. There is good technology trapped in a vehicle most GM buyers simply won't be interested in.

Look at what the LA auto show revealed. The draw for plug-in crossovers is a market other automakers hope to capitalize on. It is absolutely nuts that a vehicle selling at a rate of 20K per month isn't being considered for electrification. What's happening to the hope people were expressing for Equinox being offered with a plug?

As for waiting until battery costs to drop, how does that help? The current subsidy of \$7,500 is to offset the current higher cost. It provides a means of lowering prices immediately. That allows automakers to establish reputation in the meantime. Affordable without any reliability history will hold back purchases.

What benefit comes from waiting? We are already at a cost far lower than what had been anticipated at this point. It's time to push for something actually able to compete on the showroom floor. There's simply no way Bolt is going to appeal to someone interested in purchasing an Equinox, especially with gas so cheap.

- 11-20-2016** **Charger Use.** On one of the plug-in blogs, I ran across this: "*These PP's will be clogging up chargers everywhere, just to get a little juice.*" It was a comment posted about Prius Prime earning the "Best Buy" award from Kelly Blue Book. In the past, there had been worry about EV owners getting stuck without a plug available due to plug-in hybrids using them up. In practice though, we aren't actually seeing that problem. Local travel doesn't absolutely necessitate that. The plugs being used are more of a "*thank you for your patronage*" type offering. You get the opportunity to drive a few miles more with electricity. They aren't intended for full recharges. People are starting to see that too. I'm quite curious if anyone will end up reply to my response to that. It's been an entire day now. No one has. Oh well, at least those thoughts of the moment are documented here: My local grocery store has chargers. The usual shopping stop there will provide roughly 6 to 8 miles of electricity. A rate of 3.3kW for 20 to 25 minutes is plenty. We have a retail store here with chargers too. How much juice do you need? At a coffeeshop or restaurant, being plugged in for a typical visit of 90 minutes would provide a substantial electricity replenish. The same would be the case for visits to a large shopping mall as well. What situation would cause a clog? In other words, what situation is there that could be a problem? The gut reaction is to say more is better. But in actual practice, we'll likely find that isn't really the case.
- 11-20-2016** **Distractions.** There have been enough of them lately to keep me preoccupied. Good thing too; the anticipation of Prius Prime delivery is growing intense. It reminds me a lot of my first Prius, back in 2001. Living in Minnesota, deliveries on the coast started before those here. That's what happens when you have to wait from those boat arrivals need to be loaded onto a train for transport to the center of the country. Posts sharing new owner experiences, especially when accompanied by photos, is helpful to steady the excitement. We have something to focus on while enduring out wait. I'll be contributing to it soon. 15 years ago, that worked out great too. That December just happened to be both the second snowiest and second coldest on record. Being able to share photos and my experiences with the Prius in that situation was priceless. I expect the same to happen again with Prime. That vapor-injected heat-pump will get lots of exposure to extreme low temperatures right away. We'll have lots of new material to discuss. I'll be able to share video this time too. There's so much to look forward to. Only a little more patience is needed. Soon.

11-20-2016 **Who Is The Market?** The routine "go away" response happened again. It's really odd to be treated as an outsider but not fit into the category of troll. Being constructive, while presenting yourself in a polite manner, goes a long way. There's no reason to ban someone who stimulates discussion that results in agreement. Several regulars there share my sentiment. This guy certainly doesn't though. Even though he owns a Volt and posts daily on that daily blog (now for Bolt), his unwillingness to accept the progress other automakers have achieved puts him in the position of being an obstacle. Interesting, eh? This is how I responded to the go away demand:

Here with our local plug-in owners group, there's a pro-battery outlook. Each owner shares information about pros & cons of their particular plug-in vehicle. We are working hard to get more chargers installed and to support salespeople truly interested in selling plug-in vehicles. Spreading of those details has clearly had a positive effect. We aren't afraid to address issues head on as a result.

Interesting thing is, I see how that approach has influenced you... despite claimed resistance. That transformation from anti-Prius to anti-Toyota did not go unnoticed. You recognize the huge potential available for RAV4 hybrid. Adding a one-way clutch and swapping in a larger battery with a plug would make it a viable competitor against its traditional counterpart. That's easy to see now, especially with sales of the hybrid model so strong.

I'm not going away, especially with the delivery of my Prius Prime coming so soon. It will deliver a full EV driving experience, even when the pedal is dropped to the floor and with the heater running. That's something you claimed would never be possible, that it was a dead-end technology rather than a contributor to plug-in acceptance.

Notice how the all the effort to market "EREV" has been abandoned in favor of "PHEV" promotion instead. That's a great indicator of progress. There's clear confirmation of who the competition really is. It's not other plug-in vehicles, as what had been so widely claimed & accepted. Its traditional vehicles. With gas now down to just \$1.89 per gallon, seeing that should be easy.

The goal has been and continues to be the selling of electrified technology to the masses. Continuing to lose sales opportunities on the showroom floor is unacceptable. Know your audience. Who is the market?

- 11-20-2016** **Setting Expectations.** It can be difficult to set expectations that are realistic, especially for a car, since everyone's driving is so different. Fortunately, I have quite an extensive collection of real-world data available to base those upon. This is how I expressed that today: I've been routinely recharging 2 times per day, since work offers chargers (powered by solar). That has been a great source of real-world data for consideration of how the next plug-in Prius could perform. My results of a simulated 8.8 kWh battery-pack (from having charged the 4.4 kWh twice) have come to 72.2 MPG. That's true lifetime for 84,549 miles, measured at the gas pump. It includes quite a number of trips up north with bikes on back and no opportunity to plug in. I also took 2 trips from Minnesota to Wyoming and back during the winter. That high-speed travel (much of it at 80 mph) really knocked the MPG average down. I suspect Prius Prime will do quite a bit better for me than Prius PHV, simply because the distance to work is within EV range. It's 19 miles. I'll be taking advantage of pre-conditioning with electric-heat directly from the grid. That will be absolutely wonderful in just a few weeks. Daily low temperatures are below freezing now. It won't be too long before the highs really drop. I have always seen the depleted efficiency as a major strength for a plug-in Prius. You get outstanding MPG even after the plug-supplied electricity is used up, as your 100 miles per day results clearly confirm. What other affordable plug-in hybrid could deliver such results?
- 11-20-2016** **Adequate, Typical.** I'm not sure how my response to this will be interpreted: "...you'll find this more than adequate acceleration for typical daily driving." It was from a troublemaker Volt owner who ended up abandoning GM after his lease expired, turning to Ford for his next plug-in hybrid. Those experiences with his Energi system resulted in a better understanding of Toyota's intent. He's one of those allies I've always sought out, but had to wait a very long time for the recognize of shared goals. Oh well... better late, than never... if this is taken as hoped: That's all people really need to know. It works fine. Adequate isn't exciting, but then again, you'd have to pay more for higher performance. Prius strives for balance. The 0-60 value is a marketing tool anyway. In actual driving, it is incredibly rare to drop the pedal to the floor from a dead stop and hold it there until reaching 60 mph. Most of the time, you're already moving when the acceleration onto a highway begins and you don't require maximum power. The only circumstance I can think of is turning onto a rural highway from a stop sign. But those are only 55 mph and you'd have total control of when your acceleration would begin, what mode you'd be accelerating in, and how much space you'd allow. So, it most definitely is a predication situation. Put it this way, I accelerate onto the highway in my PHV with no concern of whether or not the engine starts. To my delight, most of the time it doesn't. That means the Prime will easily fulfill the EV acceleration for the typical owner.

- 11-21-2016 Winter Purchases.** It was interesting to read the comments of a Bolt supporter trying to justify the rollout delay with: "*But IMHO, the REAL reason is to avoid chilly winter deliveries that create lower range numbers.*" I didn't accept that for a moment and fired off this in return: Real-World results is what convinces ordinary people the technology is worth consideration. That means showing the vehicle in snowy conditions, dealing with the extremes of winter. No award can compete with the endorsement an owner can provide from sharing stories of their experiences. Avoiding winter rollout delays that benefit. It also leaves people wondering how well the heater works and how effective preconditioning can be. We don't want to give a false impression of expectations either. Also, let's not forget how much grief Toyota has been given for not taking risks. Yet, they are rolling out Prime nationwide right away. Deliveries in New York and Colorado have begun. Neither of those states are warm. Allocation information for the Midwest will available next week. The expectation is extreme cold locations (like Minnesota, which isn't a CARB state) will be getting some. In other words, there's good reason to push GM and not just accept what happens. Getting a few deliveries to those other locations for the owner endorsement benefit is a gain for everyone. Think about how each plug-in offering contributes to squashing misconceptions and preventing greenwash attempts from spreading. I see no reason not to push. That real-world data is needed to help promote. Spring is 5 months from now. Gas will continue to be cheap. The political environment won't be favorable to plugging in. What will you do in the meantime?
- 11-22-2016 Order Status.** It's still unknown. The dealer will be looking into the upcoming inventory for the region, hoping that allocation will allow them to find me a Prime with my choice of colors & package. That should happen in about a week. Knowing only a handle have been delivered in the center of the country, I'm not too impatient. I understand that it takes awhile to satisfy the initial demand on both coasts and for transport to the interior to take place. If my configuration isn't the most popular, I could wait even longer. Obviously, I'd like to take ownership prior to the year ending. Otherwise, claiming the tax-credit won't be possible until 2018. That's not a big deal, unless you suddenly find your household is in need of a second plug-in vehicle that same year. The bigger deal is not missing out on cold-weather data and photo opportunities. Here in Minnesota, the extreme lows are only a few weeks away. Combine that with snow & ice, you've got great educational material available. I'm really looking forward to gathering & sharing that... but need to take delivery first. Hopefully, that won't take too long. Wish me luck.
- 11-23-2016 Short & Sweet.** I particularly liked this question: "*Begs the question though, is this a serious contender for sure?*" In the spirit of being to the point and not being negative, I replied with this for an answer: That depends upon what contender means. With respect to industry choices, it looks more and more to be the "*too little*" compared to Prime as compared to Volt being "*too much*". Toyota strived for a balance, going for a "*just right*".

- 11-23-2016** **Volt Smug.** I wonder how much this will continue: "*I now get 1,000+ mpg on my Volt, and that's driving close to 9,000 miles since August.*" The superiority attitude is very difficult to deal with. Fortunately, that isn't a stereotype. Most Volt owners are decent. It's only a few who spoil things for the rest. Unfortunately, those are the ones who make their presence well known in online discussions. They drown out posts of others... who end up becoming enablers by not speaking out against such behavior. I approached the discussion by asking a question: How many KWH and GALLONS is that? 26 kWh/100 mi, 133 MPGe, 54 MPG = Prime; 31 kWh/100 mi, 106 MPGe, 42 MPG = Volt. Prime beats Volt in each of the standard efficiency measures. Real-World results obviously differ. In my case, the 19-mile commute will easily be covered by the 25-mile capacity. So, looking at KWH and GALLONS actually consumed is required for better comparison.
- 11-24-2016** **Vague Claims.** As anticipated, we're seeing quite a bit of misleading grow. It's all in the form of relative-compare and statistical-compare. That first is when you compare a choice to another choice without the consideration of actual need. The well informed consumer is aware that marketing to want will convince you to purchase more than what you really require. That's quite wasteful, but extremely effective for emotional appeal. A sucker is born every minute... That's an unfortunate note from history. Centuries later, the gullible nature of people is still getting exploited. So naturally, when you confront someone on it, remind yourself the encounter may become a futile endeavor. Relative compares will always be that way. It's how they've been so successful. The other type is statistical. Rather than quote the actual quantitative measure for specific comparing, the value is stated in a percentage difference. That obscures the numbers by giving the impression of greater change or lesser impact. It's an effective deception method which exploits the principal of diminishing returns. In other words, you can portray something as better by sighting a higher percentage due to it's improvement or gain, rather than stating the a value measured. This type of intentional misleading is quite frustrating to have to continuously deal with; however, providing detail easily debunks their vague attempts.

11-25-2016 To Actually Compete. There's quite a bit of disconnect at play now. Many posting about plug-in offerings aren't taking the big picture into consideration. They only look at what's being compared. For the past few days, it has been comments about an article comparing Volt to Prime. That isolated perspective contributes heavily to posting battles... which is exactly what those publications seek. They want topics that stir participation. Today, I responded to such a comment in a long series of posts with:

Calling Prius PHV anything like "*pathetic*" shows a disconnect for what the market was actually like back then. It's like comparing a cell-phone of the time to what's available now. Consumer wants were very different and the technology has advanced quite a bit.

Large numbers of people were insisting upon an augmented Prius being delivered. That meant increasing the battery-pack size and adding a plug... which is exactly what Toyota provided in 2010 with their prototype rollouts.

I had the opportunity to drive one for a few days back then. It worked as hoped, the system substantially boosted MPG. Plug-Provided electricity enhanced abilities. The goal of achieving much increased efficiency without requiring a massive cost sacrifice was fulfilled.

There was no requirement to deliver an all EV driving experience. That expectation came years afterward, when it was clear that Volt sales growth beyond niche buyers was in serious jeopardy.

Think about what plugging in was like back then. Think about how few consumers there are that are even interested in purchasing a plug-in vehicle now. With gas at just \$2 per gallon and the popularity of small SUVs, the priority of Toyota to keep cost down is a really big deal.

Watch what happens to the plug-in market when tax-credits begin to expire. The pressure to have a MSRP low enough to entice traditional vehicle buyers will be a very, very big deal. Being affordable is key, not having a large battery-pack. You'll get EV driving that's able to actually compete.

- 11-25-2016 Crossover Point, part 1.** A favorite argument detail when comparing Volt to Prius PHV has always been the crossover point. That's the point at which gas-consumption is equal for the 2 vehicles to travel the same distance. Naturally, the greenwashing technique used was to completely disregard electricity use. Sadly, there are many who simply don't care about switching from one fuel to another without making an effort to consume less. They see electricity as clean & abundant and don't give it a second thought. That's a difficult attitude to overcome. They come off as incredibly smug too, dismissing your efforts to reduce consumption as anti-EV. It's a very real problem. Gas is bad, period. So, the effort to overcome their resistance to be constructive is an on-going challenge. This caught my attention: *"That 149 miles only works if you disregard total efficiency and focus only on gas consumption... which is an absolutely terrible way to promote green choices."* They never provide any detail. It's always nothing but a distance. That makes the effort even more difficult. Nonetheless, I tried: Those extra 28 miles of EV from Volt must be accounted for. That's extra consumption of 8.7 kWh of electricity more than Prime would use. That difference cannot just be ignored. We don't want to promote carefree consumption of electricity... especially if the source is dirty and/or not renewable.
- 11-25-2016 Crossover Point, part 2.** Needless to say, he got annoyed by my response: *"28 miles means 8.7 kWh? I don't know where you get this math from. Either you are completely making it up or you have NO idea how much the battery Volt uses to get 53 miles from."* That made me wonder more than ever where he got that 149-mile distance from. Not sharing any detail whatsoever, no other numbers of any sort, provides nothing to work with. So, I attempted to provide them all with my reply: Prime delivers 25 miles of EV. Volt delivers 53 miles of EV. The difference is 28 miles. You can't just omit that electricity consumed for those 28 miles from the efficiency equation. That must be accounted for. 31 kWh/100 mi is the rating for Volt. It means 0.31 kWh is consumed per mile of EV travel. Multiplying that by 28 gives you a consumption value of 8.7 kWh. In other words, the gas quantity for the 149 miles is the same but the electricity clearly is not. Volt will consume an extra 8.7 kWh of it to reach that same destination. It simply isn't as efficient of a plug-in vehicle, as the EPA ratings tell us. Put yet another way, it will cost you roughly \$1 more to travel the 149 miles in a Volt than in a Prime. That's at a rate of 12 cents per kWh of electricity.

11-25-2016 **No Truths.** This certainly got my attention: "*While the Toyota Prius Prime comes out ahead with a price tag that is cheaper, it offers the same output as the Chevrolet Volt and is more efficient in regards to MPGe and mileage, it seems that the Volt is the more popular vehicle. So let's take a look at the specs and find out why the Volt comes out ahead despite the figures suggesting otherwise.*" That was the opening paragraph to an article with this title: "*Figures Tell No Truths*". I was quite intrigued to see what it had to say... so much so, I wrote this lead up prior reading. That way, you get a clear representation of my initial impression. Now, I will read it.

Sadly, the article literally said nothing. It only posted numbers without anything to put them in context. That's seems like a good approach, giving you the information you need without any bias. Unfortunately, that's exactly how greenwashing works. A value provided without an explanation of what it represents is misleading. In other words, it contributes to assumptions. Making people assume is how the deception works.

Anywho, I looked to the closely statement to figure out what the writer's intent was: "*Despite the numbers being in the favour of the Toyota Prius Prime 56% of people chose to go with the Chevrolet Volt.*" That made it obvious. No source for that percentage was provided. Where did that number come from? Was it a survey? How many participated? When was it conducted?

All I can know for certain is that 56% most definitely wasn't based upon sales... the only quantity that truly matters. Prime isn't available on dealer's lots yet. Heck, even those of us attempting to place early orders are still waiting for delivery. There is simply no constructive way to draw such a conclusion. A consumers can say anything they want when no money is involved. Stating your opinion with your wallet is an entirely different matter. That opportunity is still not available

11-25-2016 **Bolt Rollout.** Being limited to just California & Oregon until sometime in the Spring is bringing back bad memories from last year. Not only is Bolt late, it isn't nationwide. Sound familiar? Whatever the impression, it grows worse when getting news of Prime rollout. Claims of it only being a compliance vehicle are quickly falling apart, simply by stating what states new owners are reporting purchases from. So far, I have read about experiences shared (many with photos) from owners in California, New York, Colorado, New Jersey, Arizona, Iowa, Missouri, Maryland, Washington (state), and Illinois. I know that irritates Volt enthusiasts to no end. With gen-1 having struggled, then gen-2 suffering in a similar fashion, and now Bolt, what is there to say? I know if I post anything, it will be perceived as an attack. So, pointing out articles which highlight the economy nature of Bolt's interior, rather than focusing entirely on range & power, will infuriate. Needless to say, I should just keep quiet. That long-await shared purpose of promoting green affordable choices will happen, eventually. I only need be patient. Sales challenges with this rollout will help us find that common cause.

- 11-25-2016** **Missing The Point.** It happens far too frequently. People get hung up on things that make little or no difference. It's a common problem online. Keeping the attention of some is nearly impossible sometimes, especially if you want to share detail. Some simply don't care. They say their piece have no interest in anything else. That's the nature of encounters in comment sections of articles for many. That makes any type of effort to be constructive a major challenge. It's still worth trying though. For every troublemaker, there are likely countless scores of lurkers. In today's case, I kept the reply concise and without measure, to make sure the bigger objective would stand out. Hopefully, it did: Toyota has delivered a more efficient system with a lower production cost. That's what will fulfill the goal of high-volume profitable sales without dependency on tax-credits. Those who disregard that, insisting that greater performance or range is needed, are missing the point.
- 11-25-2016** **Objective Thinking.** Phew! It's nice to get some of this now: "*Toyota has done that at the cost of a lower electric range. For people who drive less than the US average daily distance the PHEV Prius will be a good choice.*" Hopefully, my additions to that will be readily accepted: For people who drive more it will be a good choice too. 72 MPG is my lifetime average after 85,000 miles driving in a 2012 Prius PHV, charged twice on most days. Double the 4.4 kWh battery-pack is the 8.8 kWh now offered. So, even without a recharge opportunity as I have at work, they'll get that efficiency with a Prime. My driving is in Minnesota, so that real-world data includes some pretty harsh conditions. I've taken a number of road-trips too, without the opportunity to recharge. In other words, Prime will be able to reach into the mainstream with a price that's actually able to compete directly with the true competition... traditional vehicles. Think about how much of a challenge it is to entice shoppers on the showroom floor.
- 11-26-2016** **Red Herrings.** They distract from true purpose. Some are intentional Some are oversights. All pose barriers. I added this to the on-going debate: Toyota recognizes the "*almost never*" crowd and has taken a risk... the very thing antagonists claim they don't do. So, they are offering more comfortable seating in back rather than squeezing in a narrow middle spot for brief use. Think about how many times you've had 5 people squeezed into a midsize car with "*seating for 5*" in it. Toyota is being practical by altering the paradigm. You want more seating in the future, you'll end up buying a larger vehicle. It's like chasing the acceleration red-herring. Why waste resources on something that would rarely ever be used and isn't actually necessary?

- 11-26-2016** **Like Volt.** What can you say when parallels are drawn that are just plain wrong? The perception that Prime is supposedly competing directly with Volt is to be expected. It's as weak as when Prius was compared to Insight though. 15 years ago, that's all there was. So, that's all people knew. Now, people really only know Volt. That means the same type of misunderstood assumptions of purpose will occur. I suspect many parallels to that situation long ago will surface over the next few months. Remember all that "*not the same*" nonsense? We'll see. In the meantime, this is how I put the situation of who, why, and expected reach: They are not the target market for Prime. Target is striving to grow the market, to reach beyond niche buyers. Achieving sales from mainstream customers is far more difficult than appealing to early adopters. Also, there's the reality that a large quantity of small battery-packs will have more of an environmental benefit than a small number of large battery-packs. It's no different than the way renewable combustion fuel is consumed. E10 usage in every regular gas vehicle has had a profound impact compared to the tiny amount of flex vehicles actually using E85.
- 11-26-2016** **Enough Horsepower?** It's great getting doubt in the form of wanting to find out more, rather than drawing a conclusion with little to no data. Those absolutes of the past were extremely difficult to address. They wanted no part of a discussion. It was a complete disregard for objectivity. Today, one of those nice posts was: "*I appreciate Toyota's desire to keep the car in EV mode as much as possible, but I just don't think the car has enough HP to do that well.*" I was happy to reply to that: Prius PHV already delivers enough for ordinary highway merging. I've surprised myself a number of times noticing that the engine never fired up. The increase in EV power for Prime will make that even less of a need. In other words, I think people will be pleasantly surprised that in EV AUTO it will stay electric-only on most drives.

11-27-2016 Toyota's Approach. There was a new article posted on a green-vehicle website which attracts a wide variety of posters. Almost immediately, an antagonist post appeared. It was the first comment too. By the time I posted a reply though, it had already been removed. I wasn't sure why either. It wasn't that bad. Anywho, my reply was lost upon refreshing later. So, it only appeared briefly. Fortunately, I saved it here. The comment was about how Toyota is finally coming around to EV offerings, despite having supposedly be so opposed to it in the past. I posted:

The perception of "*trash talk*" was never understood. People believe and repeat what they want. So, looking back at history distorts the current reality. I remember a presentation back in 2007, where Toyota clearly sighted the reason for not offering a plug-in was cost. The reaction online was spin about lithium batteries being unsafe... despite that never having been stated.

The other 2 deterrents of plug-in offerings were a big deal too. The one was obvious: size & weight. To offer something even remotely competitive with traditional vehicles in terms of distance, you had no choice but to keep the vehicle small. Heck, even Tesla confirmed that with their first offering. The second was often overlooked: recharge speed. Look no further than Volt for perspective. Full recharge time using level-1 takes around 13 hours. Getting people to add a 240-volt connection in their garage presents a very large challenge for high-volume sales.

Think about how Prius Prime paves the way. It's a full electric platform, complete with a vapor-injected heat-pump and CHAdeMO recharging. Everything is in place for accommodating larger battery-packs. In fact, a capacity increase mid-cycle appears quite realistic. It's an affordable platform with a great deal of potential. Heck, even a plug-in hybrid version of RAV4 looks realistic.

In other words, there is no back-pedaling. The approach was well thought out, but really frustrated some who felt a different path should have been taken to get to the same point.

11-27-2016 New Hate. You gotta love posts that end with: "*You are just an ignorant ignorant Toyota fan boy.*" The ironic nature of nature of that comment compels me to reply again. Since the intent of the design variation of Prime with Prius is a clear effort to attract different Toyota buyers, of course anything said in favor of it would be considered a "*fan boy*" comment. What else could it be? The goal is to achieve market growth. How would that be possible without offering another choice? Talking about ignorant of how the economics of business works. To draw interest from those shopping the showroom, that diversity is essential. As for the decision to go with comfortable seating for 2 in back, rather than squeezing in 3 and trading off extra storage, look no further than GM. After about the first 2 years of Volt availability, arguments in favor of offering that middle position faded away. And when gen-2 finally rolled out, it still didn't. There is nothing but a legless hump with a seatbelt. Quite a number of luxury vehicles don't bother with the seat in the middle either. If you have a larger family, you're not going to be driving a midsize car anyway. That's what the full-size vehicles are for. Too bad if you don't like a shift away from the status quo. Toyota's effort to try something else should be congratulated. Just think if buckets in back catch on. Someday, they could offer them as heated seats. After all, heated seats in front are now standard.

11-27-2016 Acceleration Considerations. It's nice having constructive discussion. I added this to a comment about a test-drive post with Prime: 16 years ago, when I got my first Prius, there were many antagonists hoping to undermine hybrids success by emphasizing the slower acceleration. They had an extremely difficult time proving the 12.5 seconds for 0-60 was dangerous, as they had relentlessly claimed. The maximum-power from a dead-stop scenario was too rare and the acceleration was adequate. Being "adequate" is obviously a hard sell though. But when the next generation came out and was discovered to be faster, all those troublemakers vanished. If you carefully observe ordinary highway merging, you'll notice it takes quite a bit more than 10 seconds anyway. The flow of traffic simply isn't moving that fast. Dropping the pedal to the floor isn't necessary. EV AUTO mode provides that "*if I need it*" confidence. The default EV mode provides what some have been begging for years for, an option that keeps the engine off under all circumstances. The choice is yours. I'll be sharing my firsthand experiences with Prime soon enough. Hopefully, I'll find out on Wednesday where my order is in early December inventory.

11-27-2016 Looking Forward. Getting beyond the basics is difficult. Many have been blinded by something in the past. This is an effort to open the minds of those who hadn't given much thought to the bigger picture:

The belief of hydrogen not being able to co-exist with EVs and hybrids not being a path to full electric-only drive is successful greenwashing. People have been taking advantage of those assumptions and exploiting the opportunity to mislead about Toyota.

As for the claim of easily adding level-2 charging, you are sadly misinformed. We have many neighborhoods without the infrastructure readily available, requiring new wiring at significant expense. We have apartments & condominiums that simply won't provide support at all.

This is why starting at level-1 will have far greater of a reach. 5.5 hours with an ordinary 120-volt circuit they already have available is realistic for a much, much larger audience. You can take advantage of level-2, but not being required for a full-recharge during off-peak hours isn't necessary. The outlet & time is likely there already for a wide variety of potential customers.

We'll see expansion to larger capacities increase as support ramps up. Currently, there is a great deal of discussion taking place with electricity providers. They are struggling with approach still. My local plug-in owners group has detailed discussions on a regular of their progress. Once those providers throw their support into the mainstream to stir customer interest, battery technology advancements (like that of this article) would have been proven out.

Think about what Prius Prime will do with respect to provoking owners to upgrade from level-1 to level-2. That's a far easier endeavor than convincing someone considering the transition directly from traditional vehicle to electric-only.

Also, don't forget about the desire for more amps. How much will that level-2 charger be setup for? Will the base draw of 16-amps really be enough? What about 30 or 40? What will owners be willing to invest in? Have many will their current supply be able to provide?

11-27-2016 That Attitude. It's back! I wonder how much and how often we'll see this: "*Volt is superior to Prius.*" It's return was a bit of a surprise. With so many of the antagonists having shifted support from Volt to Bolt, that really wasn't expected. But then again, the rollout of Bolt as revealed the interior is a bit more "economy vehicle" than had been anticipated. Having it turn out to be less of a Tesla competitor as hoped means attempting to revive Volt. What a mess. Oh well. At least I am well prepared to deal with it. This time around, they have far less greenwashing material to work with. This is how I decided to reply: I remember that complacent attitude from back in 2012. Reality came crashing down afterward, when the struggle to grow monthly sales beyond 1,700 became undeniable. The next-generation of Volt was to overcome obstacles, allowing it to achieve the mainstream minimum (for sustaining profitable business) of 5,000 sales per month. That hasn't worked out either. Prime exhibits potential to reach a much larger market, so the superiority cry is no surprise. Rather than work toward something for the masses, there's an effort is to brag about speed & power. Ugh.

- 11-27-2016 Leadership.** For many people means breaking new ground. They take the definition literally and never give it any other thought. So, stumbling across this was expected: "*[Toyota is] a leader in the hybrid market and a follower in the electric vehicle market.*" It makes sense from their perspective. Prius clearly delivers the highest MPG and there is no EV offered. The idea that about technology being more than just the concept of "*bigger is better*" isn't ever considered... to the point of bewilderment. Being ahead in the race is only a matter of being further away. That concept of affordability isn't part of their mindset. It comes from having been raised in an obsessive & competitive environment. Things like being practical is for the weak. Ugh, again. Anywho, I'm curious if this new audience on a new green website will be any more receptive to there being more than one way of being a leader. Curious, I posted: Leadership is getting ordinary people to change. We still very much see EV owners as niche buyers. They don't represent people from the mainstream. Those ordinary people have yet to be enticed by plug-in options. Reaching the masses is far more difficult than appealing to early adopters. Taking a look at the market, you'll see that much of the low-hanging fruit has been picked. Leaders will be determined by whomever is able to attract new interest and grow sales.
- 11-28-2016 Hybrid Trucks.** I knew responding to this would stir trouble: "*Toyota would save more fuel by hybridizing large vehicles instead of building more Nissan leaf type cars. Pickup trucks, minivans, etc.*" There's a blindness in certain groups. There's a mix of poorly informed with those who choose to see only certain things. That makes big-picture type discussions nearly impossible. So, when you point out something counter to their belief or stance, they often lash out with anger... which is clear confirmation of the message having been received... which is why I post stuff like this: Toyota has continued to advance their large vehicle efforts, rather than abandon them as GM and Ford. Highlander hybrid offers 5,000-pound towing capacity with 4WD, delivering a 28 MPG combined rating. That's a large vehicle. It's available today. Their smaller hybrid, RAV4, been selling remarkably well since it's debut early this year. Think about how easy it would be to add a plug option, following the design approach used for Prius Prime. Note that the AC plug option from Toyota has been available in Japan for a few years. It can deliver 1,500 watts.

- 11-28-2016 Shareholders.** What do you think upon reading this: *"It took this long for Toyota to see the light, I wonder what the shareholders in the future will think of the CEO's performance during these last few years."* Since sales of Toyota vehicles have been quite strong, it seemed absurd to express such a stance. That success has allowed for investment in hybrids, plug-in hybrids, fuel-cells, and now electric-only vehicles. Where's the problem? What's the concern? I knew what he was getting at, since the context of the discussion was about leadership. That belief is the most EV range how you identify the leader. Such a gross-oversimplification is a very real problem. Volt enthusiasts still suffer from such short-sightedness. Oh well. All you can do is point out the other factors of importance, as I attempted: Shareholders invested in the company's long-term well-being don't fall for the "*leader*" trophy distraction. They want strong business returns, which don't focus on racing to be first. Toyota understands the wisdom of targeting the masses by offering a well-balanced choice, rather than stretching for a maximum. The future is about competing with traditional vehicles directly. So, none of the petty plug-in bickering will matter anyway. Shareholders are well aware of what sells profitably in high-volume without tax-credits. They understand the true competition.
- 11-28-2016 Rant on Owners.** Whoa! One of the long-time residents, those intense daily posters who think they own that particular forum, jumped on me screaming stereotype today. I wondered how long that would take on the new website. He was pretty angry too. Ironically, he was a cookie-cutter absolutist. All electricity is good. All gasoline is bad. That type of purist attitude is quite familiar. In this case, it was an example provided by the exclusion of EV miles. As far as he was concerned, they don't matter. All that matter is how much gas you use... which is what we've heard for years from Volt enthusiasts. They just omit KWH usage, only stating GALLONS. I wasn't willing to watch that nonsense continue: Because it's electricity, it doesn't matter how much is consumed. Wow! That is an absolutely terrible attitude. Wasting a renewable resource is still waste, especially when it is far from abundant. We need to strive for the most efficient use of electricity. Some EV systems are less efficient than others. Intentionally excluding that data is just plain wrong.
- 11-28-2016 Wild Spin.** I have no idea how to deal with someone who thinks I'm in fighting against efficiency technologies. It's quite bizarre to encounter someone so close-minded or paranoid of change. Shakeup to the status quo is becoming apparent, but I certainly didn't expect anything like this: *"No, intentionally spinning the story to favor a mostly gasoline burner is just tactic that often a fossil fuel supporter would do."* That is so twisted, wild spin isn't enough to describe it. My thought is to begin with a question, followed by pointing out how to view the situation: What is a "mostly gas burner"? Vague labels with arbitrary levels don't help anyone. That's why there are rating systems and quantitative measures. You get a grade, not a pass/fail.

- 11-28-2016** **Blatant Attempts.** The response to my wild spin reply was an outright lie, a blatant attempt to greenwash: "*Prius Prime is mostly gasoline burner when more than half of its miles are powered by gasoline rather than electricity.*" I couldn't believe it. He had posted statistics from other plug-in vehicles, claiming they applied to Prime. We're back to that "not the same" problem. That happens when you attempt to fit everything into a single category. It's how his obvious stereotyping came about. He's been fighting for so long, he's lost perspective. Dealing with the change Prime brings is something he clearly isn't prepared for. I wonder how well I am. This is how I responded: Such blatant attempts to mislead. Without any real-world data at all, you just declare "half" and label THE results. Stop wasting our time. Readers of this aren't that gullible. They'll see how shorter drives will easily be 100% electric and that longer ones will still be over 50% which is both arbitrary and vague. The keen observer will also notice the effort to avoid actual quantities, choosing to use relative measure knowing it can distort impressions and contribute to assumptions.
- 11-29-2016** **Rain.** This was refreshing to see: "*Are there any issues with plugging in when it is raining?*" I was happy to reply to that too: Yes... you get very wet. :) Unlocking the public charger really does prevent a quick & dry experience. It's no big deal though. I've done it countless times over the years. What's more of an issue is unplugging after getting a few inches of snow. The act of brushing off the snow prior to removal gets a bit messy. I've found myself a number of times blowing, to avoid too much staying behind the door. What's interesting is how well design the actual socket it. The specs were very clearly thought out. Plugging in rain & snow works just fine.
- 11-30-2016** **No Plug.** Eeek! No electricity available. Oh, the horrors. It's not really that bad. The topic does come up on a regular basis though. Being able to contribute with very recent real-world data is great. This evening, I had an opportunity to share such an experience: I'm quite curious how Prime will do here without plugging in. Hopefully, I won't have to wait too much longer to find out. This evening, it was a run out to go Christmas tree shopping... shortly after getting home and not having any electricity available. 42 miles of driving, mostly highway, with the temperature only 36°F out resulted in a pleasing 49 MPG average. Back when it was warmer (2 months ago), my 172-mile drive home from up north came to 58 MPG. That was especially impressive for no plug results. So, there's definitely much to look forward to. Here where the heater is absolutely essential, efficiency from the engine even when you have plugged it will be nice. It will be very exciting to witness my Prius PHV performance records being easily shattered by Prime. We take a number of very long drives over the holidays to visit family.

- 11-30-2016** **\$9,000 Loss.** An opinion article was published today, claiming that GM will see a \$9,000 loss from each Bolt sold. Whether that is true or not, it does raise the concern of profitability. If there is enough evidence to support such a large amount belief, odds are quite good the best-case scenario is only a razor-thin profit... which means a very serious challenge when the tax-credits expire. This is how I jumped into the discussion on the big Prius forum about the article: The point is that GM continues to follow the same approach... deliver something unprofitable with the hope of cost dropping fast enough to catapult the technology from niche to mainstream in only a few years. With Volt, that failed on a colossal scale. So, we should ask what makes Bolt different. How will it avoid the same pitfalls? The approach Toyota has taken is pretty much the opposite extreme... offer a vehicle with specs that won't compromise profitability. That naturally leaves enthusiasts wanting more and provides antagonists lots material to undermine with, but it doesn't sacrifice the opportunity for high-volume sales. In other words, how will GM proceed with so few tax-credits available for Volt & Bolt, knowing how important it is to reach mainstream consumers?
- 12-01-2016** **Suddenly.** As expected, that opinion article claiming a massive loss for each Bolt sold stirred quite the uproar. That nonsensical daily blog had it's spin on the situation: "*Why is Toyota suddenly jumping in with both feet? So they can lose \$9k on every sale? Doubtful.*" That was such a lame attempt to take the spotlight off GM, I had to really think about how to respond... since you typically only get a single chance, then the spin overwhelms your original message. My choice was: Toyota is waiting until the next product cycle. That's not suddenly. Ford, Nissan, Honda, and Hyundai are all waiting too. Heck, even Tesla is 2 years out still. Cost is very much an issue still. That's why GM is proceeding cautiously with Bolt volume and holding back on Volt. Once the tax-credits expire, it becomes an even bigger issue. This is also why Prime will offer full EV abilities but keeps capacity to realistic minimum. More can be provided later, like with a mid-cycle update. The key is focusing on everything else in the meantime. In other words, offering a plug-in hybrid while waiting for the EV with a large capacity to become cost-competitive... which is why an article like this came about for Bolt. Compared to the profitable vehicles, losing even a small amount of money from each EV sale means a lot being available simply isn't going to happen... yet.
- 12-01-2016** **Silence.** It was wonderful to see something constructive emerge: "*GM's silence speaks volumes.*" Of course, there was little chance of it leading to much useful discussion. Online comments tend to fall apart quickly. We'll see if this results in anything: 21,600 Equinox were sold last month. Not hearing anything whatsoever from GM about offering a more efficient choice makes you wonder, especially with GM's history of favoring tech for the larger vehicles. Remember Two-Mode? Not only was that developed for making their SUVs more efficient, it resulted in prototypes of plug-in models. How come we haven't heard a peep since? What happened? Why was that effort halted?

- 12-01-2016** **Deflection.** You try to have a constructive discussion. As soon as something is stated that resembles the success formula Toyota has had, they switch the subject over to either Prius or fuel-cells. They attempt to deflect a valid point by changing the subject. It's so juvenile; yet, it happens all the time. Heck, we even saw that with the presidential debates. When has good even come from attempt to avoid dealing with a problem? I don't even bother anymore. I just state a relevant fact to end the claim and restate the original post. In this case, it was that Toyota is doing nothing to improve efficiency of their larger vehicles... which was an obvious deflection of the "*silence*" response. I posted: Deflection doesn't work anymore. Toyota offers a 4WD hybrid with a 5,000-pound towing-capacity (Highlander), an AWD compact SUV hybrid (RAV4), and a plug-in hybrid with full EV driving (Prime). RAV4 hybrid has been selling well and the potential for it to offer a plug using the same approach as Prime is very real. Again, why is GM not saying anything about any type of efficiency offering for Equinox?
- 12-01-2016** **More Deflection.** Wow! Talking about desperate: "*I don't think Camry Hybrid and Highlander Hybrid are big sellers.*" That had absolutely nothing to do with why GM was pushing Bolt, rather than focusing on offering Equinox as a high-efficiency vehicle. Of course, if they actually studied GM plans, they'd discover Equinox will be getting a diesel option... clear confirmation of lack of intent with battery tech. I didn't bother. The obvious avoidance of RAV4 made it clear they understood customers were being left without any purchase option, the very thing they accused Toyota of in the past. So, I commented this way: More deflection. What does that have to do with anything? 3,757 RAV4 hybrid were purchased last month. Substitute the current battery with a 8.8 kWh capacity pack, then add a plug and one-way clutch like Prime. Combine that with a \$4,500 tax-credit. What do you think will happen? In other words, Toyota is far closer to offering a plug-in compact SUV than GM. Yet, we are constantly having to deal with the claim that they are not doing anything and demonstrate no leadership. Equinox is a very popular GM vehicle. Why in the world are GM supporters not pushing to have it offered with a plug?

12-02-2016 **Zealots.** Seeing an attempt to label someone a troll requires consideration of source. The niche disaster with Volt made this statement today a major point of contention: *"By and large, current Volt owners are EV Zealots."* Extreme frustration has come about from seeing that sales still haven't achieved mainstream levels, despite the gen-2 upgrade. So, identification of a bulk of the owners being enthusiasts stirs deep emotion. It's confirmation of a goal not being reached. The result is lashing out, trying to belittle & insult the messenger. With GM tax-credits now divided between to fundamentally different vehicles, concerned is raised for expectations. What should they be? I climbed up onto the soapbox to express my concerns, with respect to the quote above:

There's been a fierce resistance to audience. That's why *"Who?"* continues to be asked. They just plain don't understand GM's own loyal customers. That's why when sales get brought up the discussion inevitably gets turned to Prius. It's because Toyota found a way to draw interest from their own showroom shoppers.

This topic of Bolt being a money loser serves to stir bad memories, when Volt sales came in the form of unsustainably low leases, followed by a massive price-slash. The upgrade to gen-2 did very little to change the sales struggle too. As was stated today: *"Total year to date sales of 21,048 units put it in range of narrowly topping peak sales years of 2012 (23,461 units), and 2013 (23,094 units)."* That says it all.

Growth to the mainstream minimum of 5,000 per month continues to be a problem, Bolt only makes that situation worse. The tax-credit is to help establish sustainable sales from the automakers own customers. Conquests don't achieve the necessary replacement of traditional vehicles with cleaner technology.

The purist mentality contributes heavily to the problem. Notice how the *"gallons saved"* promoting completely fell apart? It was fundamentally flawed; forcing people to look backward rather than forward. There was nothing to contribute to growth. Stirring interest wasn't possible... which sales overwhelming confirmed.

It's really unfortunate how they intentionally choose to promote niche thinking, rather than reach out to understand what those ordinary traditional vehicle buyers actually wanted. Too bad if they don't like the engine starting up from time to time. Too bad if owners don't upgrade to level-2 charging. Too bad if power doesn't throw you back in your seat. The goal of getting people to embrace the idea of plugging in for their primary travel is still achieved.

Looking back through this thread, it's quite clear that there isn't recognition of the problem and it will persist as a result. There are claims of intent, but there is no supportive action. All talk is what you get from zealots, attempts to win daily debates rather than taking on actual change.

Again, those tax-credits will only last so long and the number of full-value ones is limited. Squandering them away without setting very clear accountable goals is such a waste.

12-02-2016 Plug Placement. On a random blog site, I found a comment about Prime's plug placement interesting. He's an expected owner, impatiently awaiting delivery like me. The opinion expressed was that the position on Prime that Toyota decided upon was a mistake. That brought me back to the discussions we had about PHV prior to its rollout. My thoughts were shared. No common theme emerged. Different people have different ideas, all without actual plugging experience. Following rollout, we didn't hear a peep. The impression was the choice was a wise one. This is an opportunity to find out more, from a new audience. Only this time, there are some (like me) who have years of experience to share. So, I did: You'll discover that plug placement not a mistake, it's an advantage for at home. The location in the rear on the passenger-side allows those with tight garage parking to conveniently plug in. Park with the passenger-side up against a wall, leaving the driver-side open so the door has room. You'll quickly notice the benefit. You can easily reach the socket and there's no cord to have to walk around. It can be close to the location of the charger too, being near the corner of the car rather than near the middle. I know this quite well. I've owned a Prius PHV for 4.5 years. At the house I lived when I first got it, I backed in with the passenger-side against the wall. (btw, that is a breeze to do with EV mode. The power and slow RPM available from the electric-motor really simplifies the process.) That allowed my wife to just pull in with her car and both our driver's door to have ample room to open. (If she also would have had a plug-in Prius, she'd be able to plug in too.) At the house we moved to, the door for entering the house is directly in back of the garage, rather than off to a side. The benefit of that should be easy to recognize. The plug handle & cord would be sticking out in the walkway between the cars. That would be quite annoying to have to routinely deal with. I'm pleased Toyota decided to retain that same placement for Prius Prime.

12-02-2016 Prime vs. Volt. A comparison video is making the rounds online. It's quite constructive too, very well thought out and without bias. So, I was quite curious when it got posted on a GM supporter website. This was the first comment that resulted: "*The Chevy Volt will beat the Toyota Prius Prime in all details except cost and long distance driving MPG.*" That claims was a gross over-simplification, if not considered misleading. We know for a fact Prime is more efficient. If you drive only EV miles, there is no contest. Volt is the guzzler in comparison. But it's not worth addressing that aspect until an ample amount of real-world data is available... since the enthusiasts only care about EPA ratings when it is to their advantage. Anywho, the person who posted it is an antagonist who seeks out the opportunity to belittle and does all he can to avoid detail. That meant being creative with the reply post: Cost is far from trivial, most definitely something GM cannot just brush off as you did. Prius Prime is well configured to be able to compete with the true competition (traditional vehicles) when tax-credits expire... which is key to reaching high-volume profitable sales. Ordinary consumers want something well-balanced and affordable. Paying for more EV they may not necessarily even use isn't a priority. And if they do use it routinely, they'll need to invest in a level-2 charger and a 240-volt line for their garage, since 13 hours recharge time for Volt on level-1 isn't realistic. For plug-in choices to be adopted by the masses, it is necessary to step away from the niche perspective. Remember, most people have no issue whatsoever with using gas. So, pushing the perspective of EV purity falls on deaf ears. They simply aren't interested in gas elimination. They do express a desire to greatly reduce gas consumption though.

12-02-2016 **Trouble Coming.** There's a very real hate growing for Prius supporters among Volt enthusiasts. Reaction to sales results today makes that quite clear. Growth of gen-2 Volt simply hasn't materialized yet... *"too little, too slowly"* really hurts now. The outlook is for 2016 sales is for them to match that of 2012 and 2013. That look really, really bad. With Toyota, Hyundai, Chrysler, and Mitsubishi all rolling out plug-in hybrids within the next 9 months, that's even more pressure on the struggling Volt... which soon faces competition from within. Bolt is about to steal its thunder (pun intended). That growing conflict from within GM itself is hard to deal with. That frustration cannot be taken out on loyalist; so naturally, they lash at the most obvious target: Prius. I find that quite annoying. But what's more telling is the posts in response: *"Plug-ins have well surpassed 5k/month. We're averaging around 12k/month..."* That was astonishing to read. I couldn't believe it, hence this: That's an interesting new & desperate way to spin the profitability requirement. You know very well that GM set the 5,000 per-month level for one vehicle model (Volt), not the entire market of plug-ins. The reason is obvious. Overcoming losses requires a least that level of sales. The fact that you aren't even trying anymore is a clear indication of trouble to come.

12-02-2016 **The Trap.** This quote came from a well-known troublemaker working aggressively to misrepresent: *"Sorry.. not going down the rabbit hole this time."* It has been interesting to see the extremes he exerts to conceal the past. Ironically, he calls what I do as revisionist history. In reality, he is projecting... accusing someone else of his own doings. It's an odd situation to deal with, especially when the personality you're fighting believes in absolutes. Anywho, it's quite clear that sales trouble is on the way. The *"good enough"* attitude is a dead-giveaway. That's the trap many fall into. As he would say, they *"rest on their laurels"*... which is exactly what he's doing. Ugh. Oh well. All you can do is try to point out the mistakes being repeated: Yet, you are anyway by absolutely refusing to acknowledge the sales struggle. Remember when we pointed out the traps Two-Mode supporters fell into? The response was that the same thing wouldn't happen to Volt. It did anyway. Now, we see Bolt following that same path. It boggles the mind that the choice continues to be to not address the problem of audience with the hope of significant cost-reduction in a very short amount of time. High-Volume sales are absolutely essential. For the third time, who is GM attempting to attract as buyers?

- 12-02-2016** **Desperation.** A sign of this is an abrupt change of stance. Monthly sales of Volt were always a point of contention. Everything conceivable was done to avoid addressing the bigger picture... annual sales. He finally did, but switched to only stating those of the entire market: *"Today, we are at 535,000 plug-ins sold in the US."* The evasion of particular detail tells the true story. He hated reading this summary the moderator provided: *"Total year to date sales of 21,048 units put it in range of narrowly topping peak sales years of 2012 (23,461 units), and 2013 (23,094 units)."* It highlighted the lack-of-growth issue for Volt. In other words, it's time to move onto something else. GM's move to emphasize Bolt will make that effort easier. Inevitably, a plug-in hybrid choice that actually is competitive will be introduced. The problem right now is the trap led them to focus on offering the "best" performance, rather than a configuration able to replace traditional vehicles. It's unfortunate, but understandable. I saw the obvious side-step, refusing to acknowledge Volt by looking at overall plug-in sales instead: 14 million cars purchased in the United States each year. That comes to roughly 75 million for the past six years, subtracting out some to account for weaker economy in the past. That still means less than 1% of the market has a plug. That low-hanging fruit came with generous tax-credits too. So, why are you doing everything you can to make excuses for such small market penetration? Traditional vehicles are absolutely dominating still. Refusing to accept the economics of competing with them directly is a recipe for disaster.
- 12-03-2016** **It Fell Apart.** We've seen denial many times in the past. Rather than address observations, the choice was to suppress them. That's easy to do when you label to poster as a troll. Protecting an antagonist, rather than actually dealing with the issue of discussion, is pretty much par for the course in forum posting. That's why the effort to clean up on the big GM forum was so appreciated. They saw the reputation problem those antagonists were causing. It simply wasn't worth allowing those long-term members to direct discussions to their favor. The moderators wanted threads of integrity. That's why I don't get banned. I try my best to be polite and back my claims with solid facts. It become quite a challenge when you encounter this though: *"I suggest you buy a plug-in w/a decent EV range, and then come back & comment."* He tries to avoid red-flags of the past. But even that really stands out. It's quite as blatant as the cries of *"vastly superior"*, but the message is clear nonetheless. I posted this short reply: That level of rhetoric is the smug countless scores of people have always stereotyped owners as... and you actually just dropped down to it.

- 12-03-2016** **Keyboard Warriors.** Coming across this opening-line in a review article posted very shortly after my online encounter was extraordinarily well timed: "*The keyboard warriors have brushed the Prius Prime aside as not having enough pure electric driving range. But Toyota is still the best at making efficient cars that people can afford.*" I hadn't ever heard that term. I figured something would eventually be coined to better identify antagonists. After all, the term "*troll*" came about and stuck. It was extremely effective at pointing out those who came from outside with nothing but the intent to stir trouble. Sadly though, it's use helped conceal the behavior of those working hard to defend the status quo. Those individuals who worked extensively over the years to carve out a nice place for them to routinely post with the voice of authority. Someone like me, coming in with the purpose of advancing discussion, is seen as a troublemaker... resulting in relentless attacks to shut me up. Simply asking the purpose of a thread or forum is seen as an invitation to fight... which aggravates them to no one when victory isn't harsh & swift. This is why the audience question is so effective. It forces readers & participants to consider purpose. What the heck is the point of those posts? Needless to say, I'm thrilled about having learned of this term. Defense of the status quo is quite challenging. To have another arrow in the quiver is quite nice.
- 12-03-2016** **It Got Worse!** Posting a comment in third-person, with consequence of insult to the person who originally said it, is dirty play: "*My wife is not an EV zealot, but even she understands that 25 miles of all-electric range is not worth the trouble of plugging in.*" How can possibly reply without that coming off as disrespectful of his wife's opinion. It's the type of bait you rarely see anyone use, since the outcome is rarely ever good. It tried regardless of consequence: We have seen quite a number of excuses over the past few days attempting to justify the lack of sales growth. Some were weak. Some were misleading. Some were desperate. None tried to dismiss the advantages of plugging in though. So, seeing that claim is truly astonishing. It is so extreme, I'm left without a way to respond. Even if a person has a 40-mile commute, they'll see an average returned of 100 MPG. There is simply no possible way to say that such a result isn't worth it. And for those whose daily driving is less than 25 miles, they'll see absolutely incredible MPG. The low-hanging fruit is almost all picked already (early-adopter purchases) and the help to establish the market is running out (tax-credit expiration). So, how could anyone be so determined to undermine the advancement of plug-in technology that they would make such a blanket statement against the use of electricity?

12-03-2016 **Letting Them Have It.** Knowing we're at a tipping-point, summaries are helpful... especially when the plan looking forward is so unclear. This is what I added to that very heated thread:

Enthusiasts of Volt claimed much would change when the rollout of gen-2 took place. Clearly, they were correct. Quite a bit has indeed changed.

The biggest is GM shifted interest over to Bolt and supporters followed. So much attention has been lost by Volt, it has become all but forgotten. We barely hear anything about it anymore and there is a very real concern production-volume will be kept low so sales don't use up too many of the tax-credits remaining.

The next significant change is the reality of low gas prices and the fear of a new administration heavily favoring traditional vehicles. There simply is no interest in consuming less petroleum from the masses. The ever-increasing efficiency from the status quo is good enough for them, especially now that diesel is basically dead for non-commercial use.

Then there's the problem with the supposed competition: other plug-in hybrids. With Toyota, Hyundai, Chrysler, and Mitsubishi all rolling out plug-in hybrids within the next 9 months, how will Volt stir new interest? The opportunity for conquest sales is rapidly vanishing and GM showroom shoppers have been choosing Equinox, Malibu, and Cruze in large numbers.

We have the push from antagonists attempting to build resentment for the one plug-in hybrid that is now demonstrating a great deal of potential: Prius Prime. This is the first offering to achieve the "*nicely under \$30,000*" goal for MSRP. It also delivers outstanding efficiency following battery depletion: over 50 MPG. With a solid reliability reputation already well established, we can see the struggle for gen-2 Volt to come.

In other words, because so much has indeed changed, we have to return back to that original question: "*Who is the market for Volt?*"

12-03-2016 **Lack of Clarity.** Uncertainty of what comes next is the root of the problem. There's a lot of anxiety now. Bolt is late and the selling-point of range isn't dominating attention, as had been hoped. It's the same type of mistake enthusiasts made with Volt. They assumed performance was the only selling-point that would be necessary to sustain strong sales. Recognition of that false belief led to a lot of damage-control... keeping those keyboard warriors very busy. Milestones being missed and definitions changing were the signs to look for. The same is true now. Watch for that. Casual readers won't notice what's going on and certainly won't be aware of the pattern. Fortunately, I'm happy to point out what's going on: The smug amplifies greatly whenever monthly sales are posted, and I get used as a scapegoat for numbers falling well short of the goal stated a decade ago for sales to be a minimum of 5,000 per month. Remember how much I pushed for an affordable model of Volt, one with a smaller battery-pack to compliment the standard model? Hysteria from Prius caused many to lash out in fear of that diluting what Volt was. Remember how much they proclaimed EREV was the only solution possible? Now we see Ford, Honda, BMW, Hyundai, and Toyota all taking different approaches to achieve the same goal. Those antagonists were clearly wrong. Now, you are doing what? Not speaking out about the excuses and not doing anything to stop the misleading is being an enabler. Shoot the messenger all you want to feel better, but it won't change what's happening. It's ok to celebrate a good sales month, but don't lose sight of the big picture. That goal to make Volt a popular choice among GM shoppers is absolutely essential. Substantial growth is required, soon. No amount of spin or diversion will change that.

12-03-2016 **Anything Else? part 1.** Rapid fade away of GM problems allows us to put focus back on the technology. Dealing with actual questions of owners, rather than rhetoric, is fantastic. I certainly hope the newcomers, like Ionic or Pacifica owners, are receptive to cooperative efforts of plug-in endorsement. It blows my mind how a few key Volt enthusiasts become the spokespeople for all of Volt online, giving it a terrible reputation of smug. Unfortunately, we see that happening in Prime reviews. Comments of Volt superiority are easy to find. I sure how partnerships can be built elsewhere. We've been able to collaborate with BMW i3 owners. But with so few and with a vehicle little is known about, that only takes you so far. Leaf owners are quite receptive, but the relation of EV owners with plug-in hybrid owners hasn't even been a problem. It's only with Volt. Ugh. Oh well. At least we have new Prime owners helping stir up new topics to discuss.

12-03-2016 **Anything Else? part 2.** The question asked of Prius Prime from a new owner was if there was advantage of battery-charging with the gas-engine beyond the hill-climbing and warm-up cycle. I see this as a growing source of contention. It reminds me a lot of how the hybrid-system was originally perceived. Some people readily picked up on that opportunities and others totally misunderstood. Simply reverting to a "*never use*" stance will yield the best results overall all owners. But there are some who will be able to identify advantageous situations. Why not provide that knowledge to educate? Why treat everyone as novice drivers only? Why shouldn't we strive for well-informed owners right away? Collecting enough real-world data to confirm operational results shouldn't take that long. Perhaps the current membership simply doesn't have the tools necessary for that collection. I'm not sure... and won't let that stop me: Yes. As I state each time Charge-Mode is mentioned, there is a clear advantage to using it on long trips. Far less horsepower is used to maintain a cruise on a highway than what the engine has to offer, which means the introduction of a minor load won't result in as much of a penalty as one would think. It's counter-intuitive, much like how the hybrid system works without a plug. Extra load can actually result in a gain. That's how higher MPG is achieved. So with the plug-in, once you get off the highway, having a recharged battery pretty efficiency opportunities which would otherwise be lost.

12-04-2016 **Charge-Mode.** This innocent comment today got a rather stern response from me: "*As far as force charge, it's mostly a gimmick and bad for mpg's and thusly pollution.*" Since it came from a frequent and well-informed Prius PHV owner, my pounce should be well understood. He'll know it's with best of intentions:

You're asking for quite a bit of conflict making generalizations like that. I'll be bumping heads with you on a regular basis, pointing out that USED WISELY there can be circumstances in which you will see an efficiency gain (and subsequent emission reduction) from using Charge-Mode.

This will be a education effort for newbies, very much like what we did back when Prius was new to most people. The assumption was made that more electric-only driving was better. We know that's not the case. The engine can indeed encounter situations of lower efficiency though, where a benefit can be realized by adding load.

Your use of "*mostly*" should be changed to "**except on long trips without plugging opportunity**". After 4.5 years of driving a Prius PHV, it's easy to see how those distant drives on the highway are always followed by running around with the Prius upon reaching your destination. In that particular circumstance, I know for a fact there will be an overall improvement from taking advantage of Charge-Mode.

In basically all other driving situations, I don't envision recommendation opportunities. So, I'm with you in that respect. But with a vague "*mostly*", expect routine replies provided clarification. We're at the early stages when assumptions & misunderstandings happen. So, extra care will really be a boost to our desire to help. Best of intentions...

12-04-2016 Diesel Plans. Major cities in Europe have announced the intent to ban diesel vehicles by 2025. This death was inevitable. There was no possible way an engine-only diesel passenger vehicle could possibly compete with second-generation plug-in hybrids. That alone was enough to see the writing on the tombstone. Recent embracing of EV choices has pushed that shift into the fast-lane. Much of the acceleration came about as a result of the VW disaster. Nissan & Tesla's push was a great start. BMW joining in was a great endorsement. Now with GM about to stir halo efforts, we can see momentum growing. What will catch on in the plugging world is still unknown, but the potential of Prius Prime reaching mainstream consumers faster than anyone had imagine is a big boost. So, even without the news coming from California, there's reason for a very positive outlook. \$800 Million of the \$14.7 Billion settlement with VW will go to the sunny state. They will be installing a lot of charging-stations with it, as well as introduce sharing & hailing services for zero-emission vehicles. The 10-year plan will be divided into four 30-month spending cycles. I really like that accountability with clear & quantifiable milestones. The horribly ambiguous and ever-changing plans GM stated over the years was a good example of what not to do. After all, California wants to enforce clean mandates. Investing heavily into infrastructure with this money will really help build momentum for that progress.

12-04-2016 Just Drive It. Having both a plug and a charge-mode is moving us to the next level. This stage in hybrid evolution requires a rethink. It happened right away: "*The only non-trivial or extreme corner case reason this notion of EV in the destination city after a long trip has merit that I can think of is to reduce engine warm-up routines.*" Coming from a new Prius Prime owner, I am quite intrigued what the reaction will be to my post of this in response:

That is far from trivial or extreme. In fact, that is so profoundly significant, you just very effectively talked through the process to disprove the original hypothesis. Doing that at work (I'm a software developer) is an extremely helpful tool for understanding & confirming design. We stress the importance of taking the time to do that. Great job!

Whenever I go on a trip, there is always some running around that would greatly benefit from avoiding engine warm-up. The runs for food, shopping, entertainment, and recreation are MPG killers. Often only a few miles, it should be very easy to see how driving those short distances using only electricity would be hugely advantageous.

After owning a plug-in hybrid for awhile, you'll see that those opportunities aren't actually trivial or extreme if you travel. Not having a plug available, but having the ability to substitute some wisely consumed gas for recharging, can be an effective use of the system. We're moving beyond that "*Just Drive It*" advice of the past.

12-04-2016 **Damage Control.** It's easy to get really annoyed when you are accused of revising history, yet clearly, you can see they aren't remembering events correctly. My personal log entries (blogs) are a written record of what happened, when it happened, and what the impression of it was at the time. It's super easy to look back on them. Google makes those searches a powerful tool at my disposal. I can quickly confirm the actual history. There's no need to try to remember. It was documented at the time those events were occurring. That leaves you with a sense of confidence to face the spin head-on. I have been too, to the point of being annoying back. This moment in time will soon vanish. Rather than awaiting Prius Prime deliveries and discovering what Bolt really can do, we'll know those details. The shift from speculation to confirmation is a big one. That's why I'm doing all I can to document these moments as they're happening. Someone, I will search back for them too. Here is today's dealing with that trophy-mentality problem: I will continue to point out the misleading that takes place here. For example, the recent claim of halo. It was intentionally vague. Yes, GM did indeed make the statement about Volt being a halo vehicle. That didn't come until the end of gen-1 production drew near though. There was nothing stated about gen-2 being the same way. In fact, it was quite the opposite. An expectation was set for gen-2 Volt to very much be a mainstream vehicle selling at mainstream volume. The misleading posts are damage-control efforts. Ask yourself why gen-2 would only be a halo. It doesn't make sense without any mainstream offering available.

12-04-2016 **Learn & Educate.** Those discussing Prius Prime are facing the expected generational split. It's very easy to make assumptions and not want to shake up the existing unity. Upgrades don't always play well with that though. So far, that's the case we're seeing: *"...like the thousands of people who believe trying to keep the lift back in EV is more efficient than using gas."* The discussions about Charge-Mode are building up to debates. Some just want to pretend it doesn't exist, to keep things simple. I'm not simple. I feel people can be educated, especially if it has the potential to become a draw to learn more. I sounded off about that with: It is more efficient in EV. Toyota knows that all too well. For everyone else to know why, they must ask the reason for putting an EV button on the liftback model. Understanding that is vital. It's the same reason the Charge-Mode feature is engaged by holding a shared button, rather than having one of it's own. The key to that understanding is to realize the topic is a WHEN situation, rather than an IF. In other words, you're asking the wrong question. So, the answer will never been correct. We can easily see the feature will be misused. It should also be easier to see that recommending "never" won't work. Many will inevitably stumble across it by some means. Then what? Not even trying to learn & educate about it would be to dismiss the reason why Toyota provided the mode. Put it this way. How hard would it be to get an owner to change the way they use it after discovering there can be a MPG penalty when used at inefficient times? That sounds pretty darn simple to me. After all, we do it on a regular basis with "B" mode.

12-05-2016 **Loss of Purpose.** That's what it ended up to be after the dust settled. The "*too little, too slowly*" concern became an outcome. They knew it was going to happen too. The obvious sign of acknowledgement was the subtle shift over to a good enough attitude. They'd declare monthly sales as "*doing well*", then simply move on to something else. You could predict that. What was uncertain though, which could be an indicator of the pattern breaking, was no longer attacking Prius. Remember how I got involved with the Volt enthusiasts in the first place? It was to correct the steady stream of misinformation being posted, clear attempts to greenwash. That revealed itself to be an opportunity for finding an ally... which unfortunately, fell apart quickly. The introduction of Prime and the rollout of Bolt presented a new opportunity. Knowing that enthusiasts were facing an identity crisis, having a complete loss of purpose with the "*range extender*" philosophy having fallen apart, I took the chance. Seeing change meant the possibly of a new audience. No such luck. What a mess. There is no clarity, no sense of what to promote. Rather than a unified sense of plug-in support, the original trophy-mentality problem is tearing them apart... consequently preventing anyone else from joining. Ugh.

12-05-2016 **Tree, Not Forest.** It's hard to believe just how deep the denial got: "*Actually I'd say plug-in sales growth is doing quite well.*" That sums up the situation quite well. He absolutely refused to ever state goals. No consideration of the overall market (forest), instead only seeing plug-in sales (tree). It was always a wait-and-see approach. That meant he come just make up whatever he wanted to declare victory. There was no accountability or scale. It was all about being looked upon as "best". What happened for ordinary buyers meant nothing. Only the image of GM was important. That selfish & uncaring attitude was terrible. Evidence of that is emerging too. There still isn't anything other than Volt. All that bragging how GM would deliver more & faster and Toyota with Prius was a load of crap. It's why saying anything with respect to that status appears to the Volt enthusiasts as praise for Prius. Even if no mention is every made, that inability to successfully "*leap frog*" really hurts... because they didn't want an ally, they wanted superiority. The very idea of forming a plug-in partnership repulsed them... which sickened me. Those I know here who own a Volt (in the local plug-in owners group) are very nice people, open-minded and very inviting. I thoroughly enjoy working them... quite unlike these keyboard warriors. Oh well. I had a short & bittersweet response to share: That's called settling. Remember the "*too little, too slowly*" concern? It was about exactly this, considering the progress made to be good enough, rather than actually meeting the goals set.

12-05-2016 **Too Little, Too Slowly.** Those overseeing the bankruptcy recovery for GM certainly did well. Their concern for not delivering enough and taking far too long was right on the money. 7.5 years later, the promise of the technology invested into Volt becoming a core offering failed miserably... so bad, there's no denying it. Bolt is the antithesis of Volt, the very approach to plugging in GM was fiercely against. It should have been complimentary. But taking that stance means at least partial acknowledgement about having made a fundamental mistake with Volt... not designing it to be affordable. The very real problem of limited tax-credits makes it even worse. GM squandered them, focusing on building image rather than using them to rapidly establish a market. It's such a waste. True, there was much learned from the technology itself. But was the customer sacrifice worth it? I certainly don't see the end-state we are at as constructive. Bolt won't achieve high-volume prior to Tesla Model 3 and Nissan Leaf gen-2 rollouts and Volt will be left struggling to find an audience. Ugh. Just think if focus had been on drawing in their own loyal customers instead. I put intent of the recent online sparring this way: Pointing out sales of other GM vehicles, those sharing the same showroom floor, provides context. Do you really want Volt to stay just a halo vehicle? The concern for what happens when the \$7,500 tax-credit expires is very real. Those traditional GM vehicles currently sell far better, without any subsidy help. Avoiding what happens at the dealer is not wise, something my local plug-in owners group is working very hard to overcome. Why is there so much resistance here?

12-05-2016 **Convincing Yourself.** What do you think upon reading this: *"Then there's the problem with the supposed competition: other plug-in hybrids. With Toyota, Hyundai, Chrysler, and Mitsubishi all rolling out plug-in hybrids within the next 9 months."* That's what I posted 2 days ago, with the purpose of pointing out the rapidly growing competition. After all, this particular antagonist absolutely refuses to acknowledge the market as a whole, recognizing traditional vehicles as the actual competition. Instead, he insists it is only other plug-in vehicles. That puts his reply into perspective: *"This is a GOOD thing. It's called validation."* He has worked so hard to present Volt as the ultimate purchase, it's easy for him to just outright dismiss other choices as unworthy. It's the blindness that comes from the trophy-mentality. He simply doesn't see the problem. That's why the "Who?" question never made any sense. He thinks the requirements of an enthusiast apply to everyone. He doesn't understand diversity. Wanting to pay less for less simply makes no sense. He's convinced himself one-size-fits-all. It's why I'm about to move on. The confrontations certainly have been educational for me. Learning about why he made such fundamental mistakes was very informative.

12-06-2016 Game Changer. What a wonderful way to walk away from the online battles with: "*Can you say "game changer" ?*" Reading that was remarkable. It was the same old nonsense of the past, the very thing the enthusiasts vowed not to repeat. What game? Change how? It's so incredibly vague, there's almost no point in responding. No one did either. The thread ended prematurely as a result. They knew that was a pain wound that just got reopened. It had been the battle cry for years. Volt would be a game-changer, finally dethroning Prius as the green & efficiency sales leader. GM fell well short of that, embarrassingly so. It's why constructive discussion is so difficult now. Anything negative is feared as an attack. Even with the insanely low lease offers, the enormous price drop, and the generous tax-credits, sales were major struggle. The quantity was low and GM customers simply weren't interested. Hope fell upon conquest (stealing sales from other automakers) instead. That's a terrible plan and the consequences are becoming apparent. So, we have to ask what game and what change to expect now. If Bolt is to be the Volt successor, what will be the criteria for success? Wasn't this all about replacing dirty & wasteful with green & efficient? The technology obviously works. Implementation has been a disaster though. Great engineering spoiled by horrid management decisions. I declared victory of my own, by asking a fundamental question I know to be the true game changer: Competing directly with traditional vehicles?

12-07-2016 Prime Test-Drive. I had great things to say about this: "*Saw my first prime today.*" It was on a new discussion thread titled: "*Prime in the wild*". My excitement of having something to share made that opportunity too good to resist. Absolutely delighted, I posted:

That wasn't me... though, I was driving a Prime wildly today. :)

I got a chance to meet with my salesperson and we took the dealer's fleet model out for a spin.

It was a lot of fun. I took advantage of the full battery-pack. With the heater on, I hit the nearby highway. Whoa! The increase in EV power and the quieter interior sure was nice. Prime's upgrade over the PHV model will certainly win over a lot of fence-sitters. Those not interested in Prius sure are in for a surprise from the one with a plug. The effortless electric-only driving makes the sale simple.

For those who take a deeper dive into the test-drive experience, find yourself a small roundabout. The one near my dealer was really fun. I hit it hard too, thrilled about how much of an improvement the gen-4 design brought about. The reduced body-roll, combined with a lower center-of-gravity from the battery-pack, sure made that a key experience. It will win over the naysayers. We ended up going back for a second round. Once simply wasn't enough.

What I especially liked was the wide-array of small improvements, like adding cupholders in the rear doors and the folding-seat redesign. The view out of the dual-wave rear window was astonishing... no distortion and increased visibility. What new customers will like is Toyota's approach to simplifying the interface. The intentional de-emphasis to details enthusiasts normally get hung up on are presented in terms easy to understand & follow.

I hope mine gets delivered soon. If not, I'll manage. The wait is totally worth it.

12-07-2016 Pacifica Details. The official EV rating was released. It will be more than anticipated: 33 miles. That's enough of an EV range to really mess up arguments. With so many arbitrary "*it needs at least 30*" claims to undermine Prius, this now appears as an endorsement. However, that's the only strong selling point. Delivering 32 MPG following depletion is indeed impressive for a minivan, but the \$41,995 base price kills that. It's quite a bump up from the \$28,595 base for the traditional model. Minivans are a difficult market. Ford & GM abandon it years ago. All the other automakers, except Chrysler, have only a small showing. So, this is a great opportunity. It's still a tough sell. The interior space is great. Promoting it as a hybrid is rather odd though. Rumor is that there will be an unveiling of an EV version in a few weeks though. That helps to clarify the naming choice. It boils down to knowing audience. Who will they be trying to sell Pacifica to? How many do they hope to sell? What else will they sell?

- 12-08-2016** **Climate-Change Deniers.** That's who our president-elect has been seeking for certain key roles in the new administration. Ugh. That's not good. Could you imagine the head of the EPA being someone who has a history of fighting carbon-reduction efforts? That's exactly what appears to be happening. We'll end up seeing investments in dirty industry with non-renewable resources. How is that a good idea? You don't create jobs for the future by spending lots of money on technology of the past. My travel to Europe last year revealed how much more we could be doing with solar & wind. Not being leaders in that regard is disappointing. Finding out their likely won't be any effort to improve that situation is really a let down. Thank goodness Toyota is offering a solution that won't rely on heavy infrastructure improvements... because it certainly looks like those in key power positions here won't be providing any support.
- 12-09-2016** **Diesel News.** There was quite a stir this week, when 4 major cities (outside the United States) announced a ban on diesel vehicles. They want to prohibit their use in those cities by 2025. With so many hybrid and plug-in choices entering the market, it makes no sense to depend upon diesel anyway. It's expensive, barely meets minimum clean requirements, and isn't anywhere near as efficient. Why bother is a reasonable question to ask... which leads us to GM. They will be going forward with the rollout of a diesel Cruze. Why? With a \$24,670 base price for the manual transmission and an additional \$2,000 for the automatic, what's the point? How will potential buyers be enticed? A hybrid version would offer better efficiency. A traditional version would cost quite a bit less. Meanwhile, there's growing interest in Prime coming from VW buyback people. The uncertain timing & complexity of selling back their TDI to get the a plug-in hybrid is stirring new discussion. The thought of going back to gas isn't appealing and many were quite against regular hybrids in the past. We are most definitely in a new chapter of automotive history now.
- 12-10-2016** **Bolt Surprises.** Finding out the advertised 90-mile recharge in 30 minutes only applies to 80 kW connections sure caused a stir today. The high-power DC rechargers currently top out at 50 kW. That resulting speed limitation primarily comes from pricing. To deliver faster, the customer must be willing to pay for the next higher tier for that electricity. It's expensive too, a major deterrent. To complicate matters, the home setup for fast charging requires as 32-amp capacity. Those with level-2 chargers in their garage at home already are likely using something with less power, which means longer recharge times. Originally, there were a number of 16-amp choices. Those would be much slower. Needless to say, there's much to cause confusion, misunderstandings, and assumptions. To make this even worse, there are a number of references in older articles about the recharging expectation for Chevy Bolt to be "*90 percent*" rather than "*90 miles*" in 30 minutes. It's too bad the Volt enthusiasts squandered their time away worried about superiority. They didn't bother taking the advice to educate. What a waste. Of course, the knowledge was dangerous. It would have informed people of shortcomings... as some are discovering now.

- 12-12-2016 Heater Improvements.** Some people just plain don't know what has been done and what could be done. That uncertainty of audience in a public forum makes it difficult to know how to respond to posts too. Fortunately, there are a few who ask questions, like: "*What sort of things would Toyota have done to conserve the heat?*" It's nice to encounter such open-mindedness. Far too often, people draw conclusions based on anecdotal observation or just make wild assumptions. Getting that on a regular basis makes threads a cumbersome mess too. Heck, that is a contributing factor to these blogs. At least I have a means of finding the information later. Forums aren't laid out in chronological order either. Threads overlap and there is no way to find highlights of what happened on any particular day. That contributes heavily to online problems. It's really unfortunate. The big picture is lost in that format. Oh well. That's why blogs exists. They compliment the forums. Anywho, here's what I shared about the heater: The new "*active grille shutter*" is a nice improvement for getting the most of the heat available. Some owners have been doing that blocking themselves for years for heat-retention and reducing the amount of air blowing through under the hood. Now, it's a standard feature. The "*vapor-injected heat-pump*" is an obvious improvement too. It's the best in the industry for electric heating in terms of efficiency. That's a nice advantage other plug-in vehicles can't compete with, using just regular heat-pumps or resistance-heating.
- 12-13-2016 Delivery Wait.** You wonder how long it will take for me to actually be until I take delivery of my Prius Prime? I expect there to be a wait of a few weeks still. It just doesn't seem realistic for such a new approach to be established so quickly. Think about that fleet model. Seeing that Toyota is delivering some to dealers with the "*not for sale*" notice is a clear indication of intent to educate. Much needs to be done for all involved to learn what needs to be taught. That requires hands-on experience. You have to drive the vehicle a number of times to even begin to figure out what questions need to be asked. Finding the answers then takes awhile. You want to ensure the information is correct too. There far to much opportunity for misconceptions to emerge. After all, why study something that will remain limited inventory for perhaps years, especially with the profit-margin so small. From a sales perspective, you'll make much more commission from the wide assortment of vehicles available on the lot instead. After all, demand for plugging in is a big unknown and gas is still cheap. Understanding the technology is key. Batteries have proven to be robust. How they actually work though isn't common knowledge yet. That's why I have a growing expectation of wait. Spring will be here soon enough. By then, I would have been driving the Prime and collected lots of real-world data to share. In the meantime, that education at dealers is taking place. It's still a challenge to be patient though, despite it being totally worth it.

12-14-2016 **Seeing What You Want.** The choice for you or I means little on its own. Do other share the same sentiment, priorities, interest? Sometimes, asking those questions provides a surprising answer, like: "*I bought the car I wanted to drive.*" It's not often to get a confession of that matter. Purchases based upon want, rather than need, are good to know about. It's not wrong to fulfill desire, but please don't misrepresent that as it being what everyone else does too. They don't. A large chunk of the population simply cannot afford that. This is why I asked "*Who?*" so often. Being aware of such fundamental differences in reason for buying is a very big deal. It's also quite frustrating when having to deal with someone who isn't. They see what they want. Today, I dealt with it this way: That is the very reason why you have yet to understand who the market is. Want is for enthusiasts only. Need is what everyone else makes decisions upon. This is why the common SUV keeps getting smaller and hybrid options are beginning to be offered. This is also the competition-with-traditional options... like Prime... possess the potential for real change. Say what you want. There is now 6 years of sales confirming great buys for those enthusiasts but little to draw interest of ordinary consumers. We have overwhelmingly seen disregard & dismissal from the mainstream. Face the facts. Overcoming the status quo takes far more than what you want.

12-14-2016 **The Trap.** Far too often, something is posted online to mislead or undermine. That certainly was happening today. This post speaks for itself: Determining "*compliance*" is a red-herring, an undermining distraction from the goal of traditional vehicle replacement. It's a trap far too many fall into. Achieving minimum mainstream demand levels (5,000 per month without tax-credits) is far more difficult than initial low-hanging fruit sales. In other words, don't get hung up in greenwash labels. Stay focused on the effort to reach ordinary consumers. Their purchase interest is vital... that means actually being able to compete with vehicles they share the showroom floor with.

12-14-2016 Bolt Deliveries. Remember range anxiety? We're seeing even worse now. At least that tried to sell you something you really didn't need. What does Bolt bring to the effort of replacing traditional vehicles quickly? A online friend of mine put it this way: "*Which part of bovine fecal matter applies?*" He sees the inability to deliver something able to be sold in high-volumes for a profit. It's all show. True, the technology should work fine. But what's the point if so few are built & purchased? My joining of the topic was with: I had to deal with a tremendous amount of that when pointing out how Volt was following in the path of Two-Mode. The pattern was remarkable too. This repeat chase-the-halo episode is worse though, since there's a such a heavy dependency on tax-credits. The consequence will be stifled availability followed by an abrupt loss of interest. It's a disaster in the making, even without taking into consideration the other choices that will be available. We can see the strides Nissan & BMW will be making, with some odd "me too" effort on VW's part. That will add a lot of pressure to GM's growing struggle to capture the interest of their own customers. With respect to Tesla, how can there be any comparison? The difference between Model 3 and Bolt is obvious. They clearly aren't targeted at the same audience. As for Ford, who knows. We could see interesting things from Chrysler though. That brings us to Toyota. The potential Prius Prime offers for winning hearts of showroom shoppers is profound. The effort to transform the hybrid we've grown quite attached to very real competition with traditional choices is becoming difficult to dispute. It's come down to the basics. You don't have to do anything other than plug it in to get absolutely outstanding results. The interface is elegantly simple. There's nothing to learn and nothing to set up. It's a "just drive it" design with realistically profitable configuration. That's why looking at Bolt makes you wonder. GM expended quite a bit to deliver maximum range, making sacrifices resembling sales problems of the past. Why was the formula for achieving something able to compete on the showroom floor so carelessly abandoned?

12-15-2016 Cannibal Sales. A new thread was started today, one that addresses a topic I take to heart. It was able how an automaker will cannibalize their own sales. Right away, it was clear that definition wasn't understood. This required correction right away: "*ok i get it . . . cannibal as in eating sales of similar cars. But are there any 200 mile moderately priced ev's? For now - the bolt (a kind of small & not too sexy looking car) only matches range of the much more luxurious Tesla.*" His thoughts were misguided. That's a very, very easy trap to fall into. Losing perspective is common. It happens with the best of us. Hopefully, this clarification helped: No. Taking away sales from other automakers is: CONQUEST. Taking away sales from other vehicles within that automaker's own product-line is: CANNIBAL. In other words, cannibal doesn't achieve the goal of growth from within. In this case, we can clearly see GM is putting Bolt against Volt. There are only so many tax-credits available, making the concern of spreading too thin very real. Look at it this way, how are they going to promote those choices? The point of Volt was to overcome "range anxiety" from having an EV with a small battery-capacity... a limitation Bolt doesn't have. Mixed messages to consumers will just keep those mainstream buyers away, rather than attract them. What will draw their interest? It boils down to loss of focus. Rather than sticking to the purpose of replacing traditional vehicles with clean & efficient choices, we are seeing a king-of-the-hill battle. Where's the effort to attract Malibu, Cruze, and Equinox buyers?

- 12-16-2016 Horribly Vague.** When a person actually calls himself a troll, how do you deal with comments like this: *"Until gas prices really climb, I think the Prius and Prime will have some type of discount from Toyota."* I gave it a try: What does *"really climb"* actually represent? Are you talking \$4 per gallon? What does *"some type"* actually represent? Are you talking \$1,000 off MSRP? I'm tired of having to point out horribly vague posts so often. Remember what happened in the past from not providing detail? Let's try to be constructive. That means addressing the why & how. Discounting costs less than advertising. It's an effective means of getting loyal customers to switch from their usual choice to trying something new. The price of gas doesn't even have to come into play then. For that matter, neither does the tax-credit. It's a compelling enticement to draw interest that would otherwise be a missed opportunity. Remember, the ultimate goal is growth. That means getting more than just early adopters to purchase. The low-hanging fruit (enthusiasts taking advantage of tax-credit incentives) is in no way any part of the mainstream tally. Look at how GM has struggled to reach beyond that initial group of buyers... hence the cannibal concern. Toyota is striving to avoid that same trap by offering something with a compelling sales price. It's a configuration actually capable of competing with traditional vehicles.
- 12-17-2016 Another Halo.** I enjoyed responding to this: *"Think about 3 years from now. Will GM sell more volts on their own, or a combination of volts and bolts, and hopefully other cars developed using voltec technology. It's a no brainer to GM that wants to use plug-ins to off set trucks for cafe to innovate if they can."* The blindness that comes from being overly optimistic (or just poorly informed) is really worrisome. 3 years from now is mid-cycle, not a good time for financial help to end. The incoming administration won't be green friendly either. We're in for a number of big challenges. Looking at them through rose-colored glasses is a recipe for disaster. That's why I'm pushing harder now. After all, the gen-2 Volt is stumbling along with a struggle even more difficult than what gen-1 faced. Cheap gas, increased plug-in hybrid competition, and a growing number of EV choices puts Volt in a bad position... even without taking Bolt into account. My thoughts were: Tax-Credits will be in the phaseout stage then. Think about how growth will be achieved with subsidy money gone. Sales will be a challenge just to maintain. GM desperately needs to offer a plug-in SUV. No offset nonsense. Just do it already. We see the other automakers heading in that direction. As nice as Bolt may be for the EV push, it's clearly another halo vehicle.

- 12-17-2016 Plug-In SUV.** One of the very helpful Prius PHV owners who frequently posts on the big Prius forum is facing a new audience. It's similar to what we see with any generation upgrade. Things change and more than just the status quo hadn't been considered prior to this point. Understanding all that Prius Prime has to offer is challenging enough. There's a lot to learn and it's way too easy to make assumptions, especially when the big picture hadn't really ever been discussed. Why would you? You're on a big Prius forum. All was going well. Abruptly switching to discussions of EV competition and sales beyond early-adopters is very confusing. Reading this confused me though: "*toyota needs to offer a plug in suv.*" Had he not been paying close enough attention over the past few months? We've had discussions about potential other plug-in offerings from Toyota. Heck, I seem to remember him even making a comment about a potential Camry Prime. So, his growing puzzlement about putting pressure on GM was a bit odd. Anywho, I responded with: RAV4 Prime is quite realistic. The technology is being established and the hybrid has been well received. Toyota is clearly pursuing that endeavor. From GM, there's been avoidance. Cruze wasn't offered as a hatchback (which had been extremely popular in Europe) to avoid cannibalizing Volt sales. Equinox we be offered as a diesel, rather than a hybrid for what?
- 12-17-2016 Volt Owners.** Pretty much every article published about Prius Prime ends up with a comment to this affect: "*I bought my 2012 Volt and my current lifetime MPG 99. There are no prius out there, even the plug in, that can give these numbers and drive highway speeds all EV.*" You have to read the rest of what they post to get an idea of their intent. In this case, it was a superiority post. He claimed Toyota is falling even further behind and will really be in trouble if they continue to dwell on hybrids. It was obvious he had no idea how much of a challenge getting traditional buyers to even remotely consider plugging in really is. Loss of perspective is easy after a few years of plug-in ownership. That's why I so thoroughly enjoy the monthly Prius meets here. I'm the only plug-in owner. That group keeps me in check about priorities. It's how I came up with this for my reply: Clearly, you don't know how Prius Prime actually works. I have a 2012 Prius PHV. With only half the battery-capacity of Prius Prime, a top-EV speed of 62.1 MPH (100 km/h), no electric-heating or pre-conditioning, and no battery pre-warming, my current lifetime MPG is 72. Reaching 99 MPG with the larger pack, an EV speed increase to 84 mph, an industry-top electric-heater, grid pre-conditioning, and warmed battery, that's quite realistic. I'll be able to prove it too, when my 2017 is finally delivered. Take a test-drive. You're in for a surprise. This newest model of Prius provides quite an upgrade.

12-17-2016 Cannibalization Thoughts. The topic has been a big one lately. We're finally taking a look at the big picture. Yeah! Naturally, GM has a bull's-eye on it. There's no way around the publicity that automaker thrives on. It can't be avoided. So, why not give it some attention? I saw the plug-in SUV interest as that opportunity to get feedback and posted this to get it:

What was the point of "Voltec" (second-generation Two-Mode system, with a plug added) rolled out in 2010, then upgraded again in 2015, if there was no intention of ever using it in a SUV of any size? This is exactly what I mean about kicking the can. How much longer must we wait for the need to finally be addressed?

We were shown a prototype 9 years ago, at the Detroit 2008 auto show. Anyone remember GM's Green-Line vehicles? That next step of introducing a Saturn Vue which used Two-Mode with a plug was to fulfill the dreams of many. Bankruptcy negotiations in 2009 even addressed that program, resulting in assurance of was no reason for a "*too little, too slowly*" concern.

Now, after nearly a decade, some are wondering why we are so negative. Really! Why shouldn't we be? How many "*under promise, under deliver*" rollouts should we be willing to accept, especially when it comes with federal assistance in several forms? We should be pushing GM hard to finally offer more than just a halo or niche vehicle. The masses need a choice.

Cannibalization (like how Bolt will take away Volt sales) isn't a wise move. That's why getting Equinox buyers to purchase a plug-in hybrid model makes so much sense. Yet, we hear nothing. Not even a peep, despite promises of a small SUV offering a plug, makes you wonder. Will GM squander away all their tax-credits on Bolt to compete with Tesla, rather than actually improving their own product-line?

12-17-2016 More Cannibalizing. I keep pushing: Many believed those promises. They gobbled up hype. That was the point. People bought an idea, not a vehicle. I knew from the initial reveal it wasn't going to happen... and got attack relentlessly for providing evidence to support that. In fact, to this day, there are some who still hold some resentment toward me for the vaporware claims... since those were proven true. Being able to logically reason through spin, able to analyze facts, puts in at odds with the majority... who react from their gut and believe hype. They want to be sold hope... and find ways to excuse resulting failures. I see a mismatch of action & goal. An analogy is a teacher assigning homework and the students handing in something well done, but not at all what was assigned. In other words, how does Bolt or Volt change what Malibu, Cruze, and Equinox shoppers actually purchase? With Toyota, we see a clear effort with Prius Prime to reach out beyond Prius buyers... the hope of attracting Camry & Corolla buyers without cannibalizing Prius sales. It's a move to diversify, just like the introduction of RAV4.

12-18-2016 **Newbie Perspective.** This was thought provoking: "*Hey, this EV thing isn't bad. The only downside, in my opinion, with the PiP was that it used just about any excuse to turn the ICE on. Then, there's the Volt.*" I posted this in response to that newbie perspective: Toyota clearly stated from day one that Prius PHV was designed exactly as the market had requested, for it to be a PLUG-IN HYBRID. That history was documented in great detail back then, as it was playing out by me... so many years later, I could prevent innocent comments like yours from getting distorted by the looking-back-long-after-the-fact perspective. Volt was designed to serve as an EV with a backup power-source, to prevent "*range anxiety*" concerns. That idea fell apart though. The system ended up being far more of a "*blended*" hybrid than the original vision of it being a "*series*" type. The gas engine was needed in the cold and it served as more than just a generator. Sales didn't "*leap frog*" Prius either. So, in a way, Volt really was a game changer. But rather than changing the game as intended (becoming an EV leader), it got stuck between the plug-in hybrid and electric-only vehicles. That became an identity-crisis over time, leading to uncertainty of intended market as the gen-2 rolled out. That technology worked, but wasn't configured in a way to attract ordinary buyers. That's why the lower-cost approach of Prius Prime is really beginning to stir interest. That idea of augmenting the hybrid system is no longer the focus; instead, we're seeing more of a "*Volt done right*" configuration. Why? It's because the market changed their request. The EV drive is indeed what's desired, as GM had hoped. However, there is an unwillingness to pay a great deal more for that... hence Toyota's newest effort. They are striving for more of a balance of purchase priorities.

12-18-2016 **Personal Attacks.** Sometimes, your rebuttal is so good, there's nothing for the person to reply with. That means you should plan on getting personally attacked. I did today. It was rather brief though: "*As usual John, wrong.*" Nonetheless, it still offered good reason to respond. I did too, with: I call out those who attempt to misrepresent history. For that claim to be correct, GM could not have any motor & battery experience prior to Volt rollout... since that is the way it was for Toyota with Prius. Turns out, that couldn't be further from the truth. *GM already had extensive experience from both EV1 and Two-Mode.* Also for that claim to be correct, GM could not have any subsidies or incentives for the first 5.5 years... since that is the way it was for Toyota with Prius. Turns out, that couldn't be further from the truth either. While there was nothing but a \$2,000 DEDUCTABLE for Toyota with Prius (which came to roughly \$400 on the typical tax return), *GM gets a very generous \$7,500 CREDIT* (which is the full amount of \$7,500 for most buyers). Lastly, let's not forget how many Volt got the benefit of HOV lane access, where Prius got nothing. Lastly, ELR and Malibu aren't really much for diversification, by no means the same. Camry used a larger gas-engine, electric-motor, and battery-pack. It wasn't just a rebadge with a different body and operational limits altered. It was a truly new system. Highlander (along with Estima in Japan) added another motor, to provide AWD. That provided yet another unique choice for consumers. What does GM have to compare re-using Voltec? Of course, if you want to match histories in this market, *Volt should be selling at 4 times the current rate.* Rather than the 24,000 annual rate we're seeing, it should be the 108,000 Prius was selling at.

- 12-18-2016 Oil Trouble.** We see the wave of resistance building. A formal oil industry CEO will become Secretary of State. A former presidential candidate who has expressed extreme dislike for the Energy department will now become the head of it. And sadly, we will see the Environment Protection Agency run by someone who has been strongly opposed to efforts unfriendly to the fossil-fuel market. It's an ugly situation we'll soon have to deal with. That much power in favor of promoting oil consumption is very bad sign. Watching funding get cut is the obvious early fallout effort you can expect. Another is extending time-schedules and delaying dead-lines. That's so difficult to witness. Rather than help energy production become cleaner, there are plans being made to exploit natural resources. We're turning back the clock on progress. Of course, this is coming from a president who doesn't even use email. His setting up of new administration that favors old-school ways of business is no surprise. He's in a position to strongly oppose and is clearly preparing to do so. Remember the "*too little, too slowly*" concern? None of use ever expected all those missed opportunities to become a regret on this scale. 2017 certainly is going to be one for the history books.
- 12-19-2016 Higher Priorities.** Claims of seriousness pretty much all focus exclusively on battery placement. Even cost of the battery itself is dismiss in favor of not trading any storage space. How much more it would add to the price isn't addressed. Detail is entirely absent. They don't even try. All we get is vague comments like this: "*If Toyota was serious about electrification, their TNGA would have been designed for batteries. Instead the Prius makes do by trying to find a place to stuff them.*" I was annoyed, but tried to respond constructively: Toyota placed production-cost, ride-quality, and EV driving as higher priorities. Are you saying that should have been traded off for the sake of offering more cargo room? GM has already provided quite a bit of real-world data from Volt showing the price consumers are willing to pay is absolutely vital, it must be competitive with traditional vehicles. From Prius itself, Toyota learned the value from improving rear-suspension and cabin-sound. And of course from the market as a whole, it's easy to see the emphasis being place on the EV experience. All those priorities were taken very seriously. That's exactly what has been delivered for Prime. To just toss those aside without care or consideration of how they'd be impacted by another lesser priority isn't constructive... especially when you know that mid-cycle could potentially introduce an improved battery-pack, one that's smaller. In other words, I'm not buying the "*need more space*" argument without any reasoning. It's easy to get on-paper claims that fall apart in real-world experience. That happens in a regular basis. We need solid examples. After all, that's how those other factors became higher priorities.

- 12-19-2016 Follow Up.** Someone else called me out on my response to that personal attack. There was an item of importance he objected to: *"let's also 'not' remember that genII Prius (2004) did have yellow stickers in the largest state, California, as well as access in other states' HOV lanes."* That seemed a valid point. I wanted to find out for certain. Often, the devil is in the detail. It's quite common for a timeline to be forgotten or the scale to be misrepresented. Fortunately, the big Prius forum doesn't dismiss facts like that daily blog. Finding out more about what actually happened and when will sometimes bring a debate to an end. So, I gave it a shot by hunting down some detail: September 23, 2004 is when approval for the yellow stickers was given. Distribution followed shortly afterward. They were not effective until January 1, 2005. So... the HOV access was first available for the 2005 model. Again, writing off the first 4 years isn't exactly a true representation of what actually happened. I do appreciate the fact-checking effort to keep it all on the up & up though. Point being, we're still getting a lot of excuses from GM supporters. The need still very much exists for targeting showroom shoppers. Watching the Bolt vs. Volt battle play out isn't helping those who simply want a high-efficiency SUV.
- 12-19-2016 -20°F.** All I can say is: *Whoa!* The temperature plummeted and our plans for staying inside all day didn't work out. A few errands needed to be run. That meant jumping into a very cold Prius PHV and starting the engine right away. It was not a time to be taking advantage of blending. Use of plug-supplied electricity isn't helpful when the heater is powered by the gas engine. Warmth from the coolant is how the current generation of Prius I'm driving gets heat. There's just an old-school core transferring that energy to make the cabin comfortable. True, that is a very efficient method of warming (since the energy would otherwise be wasted). But I am looking forward to electric-heat with the Prius Prime. True, that uses a heat-pump which won't work in -20°F conditions. So, I'll still be relying on a heater-core anyway. But thankfully, it's not that extreme outside here often. We routinely see temperatures in the teens throughout the Winter on average. The heat-pump will work fine then. It does indeed get much colder, but those are cold snaps... not the entire season. We get a few days in a row with below zero. Today, it was quite a bit colder. The Prius drove just fine anyway. We stayed warmed too. The only penalty was MPG. It dropped to 35 for that short trip into town with a few stops. That's actually impressive. Think about how much lower a traditional vehicle would operate in the same conditions.

- 12-20-2016 Buyback Complications.** There really aren't any now. That hope VW had to fix the remaining 60,000 of their TDI vehicles is rapidly fading away. These are the ones with the larger engine, those more expensive luxury models. It makes sense that their would be an effort to make the diesel emissions from those clean enough to meet minimum clean criteria; otherwise, it will cost VW a great deal to pay for those too. That's not realistic though. The \$15 billion in settlement claims will have to grow. Those only accounted for 20,000 in the larger-engine category of 80,000. Adding those others is pretty much inevitable now. Of course, we knew from the start the buyback would be loaded with complications. Far too many issues arise with retrofitting. The existing design is compromised too much. Owners won't be happy with fixes. Owners will be happy with compensation. Being able to purchase a new replacement vehicle with that money from VW is very appealing... especially at this point with so many much, much greener choices emerging. We never imagined an abrupt end to diesel. The reveal of a scandal exposing the violation of 475,000 vehicles is a trying remarkable point in history. On one specific day, the death can in the most harsh of possibilities imaginable: penalty enforced buyback. Whoa!
- 12-20-2016 2017 Kia Niro.** This upcoming new hybrid is stirring interest. The official rating is 51 city, 46 highway, and 49 combined. With MPG values that high, its supposed SUV appeal should draw more than just attention. The estimated \$24,000 price is raising questions though. That's quite low. How is such a vehicle possible? Something does add up. It would be great to have another automaker reinforce the raised efficiency bar. It doesn't seem realistic though. Maybe the body is really small. Perhaps it is underpowered. You'd think Ford would have been working to deliver something like this, no Kia. But then again, the parent company (Hyundai) has been striving to improve product & image after their previous issues. There is potential. There is also good reason not to just accept claims without proof of some sort. Estimates leave much to wonder about. We need detail to really know for certain.
- 12-20-2016 Growth.** The fundamental question of purpose is coming up on a regular basis now. Growth is vital. That essential nature of the business isn't being taken seriously though. I'll continue to point out its importance: Prius PHV was a mid-cycle update, rolled out allowing for change based on market response, with gen-2 already well into development. At the very same time, Toyota introduced Prius V and Prius C. Additionally, prior to gen-2 rollout, Toyota also introduced RAV4 hybrid. We most definitely didn't see anything of the sort from GM for product diversity. It was a one-size-fits-all solution. They bet the farm on Volt, which hasn't achieved mainstream sales rates. Bolt doesn't have high-volume expectations either. That's why what's happening now comes into question. What should we expect from GM? We know Toyota will be promoting Prime. The potential to draw new interest is clear. It's not a regular Prius with a larger pack and a plug. There's opportunity with this unique & affordable configuration, even in a market favoring low gas prices and little desire to reduce consumption. What is there to attract ordinary consumers to Volt or Bolt who simply aren't interested in spending much for getting a plug? It's similar to the problem hybrid have always had, but amplified due to the tax-credit dependency. In other words, how will growth be achieved?

- 12-21-2016** **So Early.** This came up from an unexpected source: "*why do so many suspect low bolt sales (especially so early) ?*" You wouldn't look to someone who talks down Toyota's approach to electrification on a regular basis to suddenly pop out a question like that. The response was an easy one: Because GM said that's what we should expect. That's why I've been questioning supporters, to find out what they expect now that the bar has been set. How will growth be achieved?
- 12-21-2016** **Fundamental Question.** Almost immediately, I had more to contribute... and ask? Clearly, that question was a popular one. It was evident that others had been thinking the same thing. So, I added this to the discussion in response to the "*why do so many suspect low bolt sales (especially so early) ?*" question: We also recognize the pattern. Things just don't add up. Then when you look to find out why, evidence showing goals being missed becomes obvious. So, we ask a fundamental question. Years ago, it was: "*Who is the market for Volt?*" That ultimately revealed the problems with gen-1. Now that there's nothing too prove technically, the question had changed. The fundamental question is: "*How will growth be achieved?*" How that is answered will tell us much about GM's electrification future.
- 12-21-2016** **Inventory Call.** I finally heard back from my salesperson. There's only so much she can do for me. Living so far away from both coasts, delivery to the center of the country simply takes longer... and in this case, isn't a priority. Next month will be different. Right now though, the end-of-year focus means taking advantage of high demand right there near the ports. That means very limited availability here in the Chicago distribution region. My phone rang. She did the best to reduce my expectations right away. I was told the package I wanted could be obtained, but not my color preference yet. They had a gray one in inventory. I knew that was coming. Waiting for the color unique to Prime meant an inevitable extra wait time. It's worth it too. And with plenty of Winter still to come, there really isn't any rush. True, it would be nice to take delivery prior to year-end; that certainly isn't necessary though. I thanked her for the check. Verifying that my interest still was very much on getting the Blue Magnetism color was nice work on her part. I appreciate that. I also feel good that a few deliveries will be taking place locally, even if it isn't mine yet.

12-21-2016 **Good Enough.** The spin & denial got out of control. Excuse after excuse in defense of GM. That pattern is quite familiar. Do whatever you can to mislead & distract. It was an amazing display of desperation. I posted this to bring the discussion to a screeching halt: "*TRADITIONAL VEHICLE SALES ARE ABSOLUTELY CRUSHING PLUG-IN VEHICLES.*" It did too. That harsh reality is painful to acknowledge. No matter how much they try to sugarcoat the situation. The actual numbers to support the optimism. And that's with the status quo perspective! Once you take into consideration the mounting opposition from the upcoming new administration in addition to the inevitable expiration of tax-credits, the situation does not look promising for GM. That's why Nissan has been so incredibly quiet lately. That's why Mitsubishi has been on their continuous delay. That's why Ford & Toyota aren't committing to long-range EV offerings until the next product-cycle. That's why we don't actually get any detail from Chrysler. It boils down to uncertainty and the unwillingness to admit change is needed. Since Toyota embraced change by halting PHV production and switching over to a new approach with Prime really stings. Toyota actually took that step. Meanwhile, we see GM taunting Tesla. Why? What the heck will that accomplish, especially at the expense of Volt? It makes no sense spreading resources so thin... knowing that was one of the problems contributing bankruptcy. If the goal of competing with traditional vehicles was taken seriously, the risk could be acceptable. But with nothing but a stream of excuses with a good enough attitude is totally unacceptable. Settling is not how you get the masses to embrace change.

12-22-2016 **Fake News.** Everyday now, I'm seeing articles posted about Prius... all saying something about how it competition is eroding away it's popularity. It's clearly a propaganda effort. The source is unknown, but the websites publishing the content adhere to the template. The style is very easy to spot. I've seen it so often, the pattern is obvious. A great deal of effort is being spent to spread this fake news. The appearance appears credible. But when you read for content, there isn't actually anything there. The articles don't actual say anything. There's just a string of vague implications with the attempt to get you to assume there's a problem with Prius. Seeing that over and over and over again is how they get you. The feed of information is so consistent, the hope is you will just keep reading that rather than do any research on your own. That's how the successful brainwashing happened with the election. So, that's what we are seeing in the form of greenwashing in the automotive market. Just keep saying bad things about your opponent. Whether they are true or not doesn't matter. Even if facts don't add up or are incomplete, it doesn't matter. None of it matters. All they do is keep repeating the same message. Sound familiar? That's how GM built up hype for Volt.

- 12-23-2016 New Education.** We're are now starting to see the real questions of new ownership emerge. Unfortunately, I still don't have my Prime yet. So, the real-world data is quite limited. I can provide examples from the past though. There's enough of that to have proven importance of certain information. In this case, it was about how the ECO mode works. We have forum participants who have never been exposed to any of the detail; their basis of knowledge is only anecdotal. That presents opportunity. I took advantage of that today by posting about the heater: With gen-3 came ECO mode, which would lower the "*engine on*" threshold from 145°F to 114 °F for the coolant temperature. That enabled the heater to run longer when the engine was off, since that trigger could be adjusted by the driver. It resulted in less gas being consumed. With PHV came a tiered approach, dropping thresholds even lower depending on heater settings and battery-pack temperature. (I've seen it down to 82°F). That resulted in an even greater return from ECO mode. You need an aftermarket gauge to see the sophistication of the system. Toyota does not provide that level of detail in the owner's manual.
- 12-23-2016 Charge-Mode Misconceptions.** It was only a matter of time before they emerged. This is what I stumbled upon: "*My understanding is that I can use charge mode to give the battery a boost with the ICE. Would it be advantageous to force this charging when descending a long hill, or would the car, in normal operation, do this charging without my intervention?*" That seems innocent enough, until you read the discussion thread for context. Posts had been related to power and lack there of. It's subtle enough to overlook, especially if you focus on the when part. There had been concern expressed about how the electric system behave when the battery is low. I jumped in with: That's an interesting new misconception. It's easy to see where that assumption came from too. Volt has a "*Mountain Mode*" which is designed to fulfill that very need. It provides a 10-mile buffer on the battery-pack for times of high-demand. That most definitely is not what "*Charge Mode*" is for. Prius Prime already has plenty of power readily available. That's what "*EV Auto*" will provide automatically. "*Charge Mode*" is for special circumstances when you don't have the opportunity to plug in, but would have the advantage of EV mode efficiency if that electricity was available. In other words, if you are on long highway trip and your driving around at your destination will be just short jaunts where preventing engine warm-up would be beneficial, go for it. I routinely take trips like that. Once there, the running around from place to place is only a few miles. Being able to do that entirely in EV from electricity generated while efficiently cruising along the highway prior to that will be great. Being able to avoid having to run the engine at all will be a nice improvement, clearly enough of a gain to offset the earlier charging.

12-24-2016 **Hope & Progress.** You ever wonder what will ultimately happen with GM's efficiency efforts? We're now hearing that MPG shortcoming fines won't be enforced as planned. There's been a massive push to delay any type of reaction to violations of the agreement already in place. In this case, we can clearly see the demand for SUVs and Trucks is preventing automakers from reaching targeted levels. With potential enormous penalties, it's easy to see how much hope was placed on the success of Volt, then shifted over to Bolt. There was a strong belief in the "*if you build it, they will buy it*" motto. Turns out, that doesn't always work. You have to carefully study want & need. With GM, they surveyed small groups and enthusiasts. It was a flawed approach... since focus was entirely on want. You have to seek out the opinions of those showing no interest, those who stick strictly to need. That's how progress is made. If you can find a means of swaying their beliefs, that supply will result in demand. It's a tricky balance though, since want & need are so easily confused. Some people genuinely mix them up, to the point of swearing a want is actually a need. That's how hope came about. It was an expectation of a goal being fulfilled that didn't actually represent a step forward. Delivery didn't result in a progress. That's a very big oops! It's the reason why GM gets so much attention. You wouldn't think repeating the same mistakes would be so easy. Yet, that's what we are seeing. Ugh. Thank goodness the other automakers don't follow the same approach.

12-24-2016 **TDI Buyback.** All I can say is: *Whoa!* There was talk online of a few VW owners very angry with the "*clean diesel*" scandal. It seems to be a cause for humiliation for them. Think about how relentlessly some harassed Prius owners. The arrogant & cocky attitudes outweighed any type of hybrid smug you'd encounter online. They posted MPG data on a regular basis, driving situations that were clearly bias. We'd call them on it too, pointing out that highway-only results are not representative of ordinary driving. Daily commutes consist of a variety of driving conditions. When it came to emission, the "*clean*" data was always exclusive to carbon. When the smog type was brought up, they'd just dismiss it as unimportant. We'd point out the "*50-state*" certification was a meeting of only the minimum to qualify for sales... the opposite end of the spectrum compared to the PZEV rating for Prius. Even on paper, the diesel technology didn't compete. In real world, we wondered how the MPG quoted could actually be achieved. With so many engineers owning Prius, our breakdown of engine operation didn't add it. How could VW have achieved such a miracle. Turns out, they didn't. They cheated instead. Now those owners have to deal with reality. Hearing about retaliation in the form of stripping down a TDI vehicle prior to buyback is one thing... seeing it is quite another. One owner actually removed all the doors and all but the drivers seat. The car had been gutted down to the bare metal in places. Photos of that were quite a sight. Needless to say, it got VW's attention. That resulting bad PR is part of the healing process... hopefully.

12-25-2016 Sales & Song. With the hope of a good feeling, this spiteful poem was re-posted yesterday: "*The Night before Priustmas*". It was a creative attack on myself along with a good friend from a Volt enthusiast very unhappy with the outcome of gen-2 rollout. Things were not going well and scapegoats were needed to express disappointment. I found it quite telling. The childish attitude toward goals of change resulted in massive disappointment. An entire year later, that feeling hasn't diminished. Some still feel hurt. One even reposted that spiteful poem... on a thread summarizing plug-in vehicles for 2016. I took the time to layout facts and point out goals. My response was to address actual need, not engage in games of chest-pounding. It's hard to believe they'll allow it to come to this:

Scores of times this question was asked: "*Who is the market for Volt?*" For years, the answer to that was calls of "*O Come, All Ye Faithful*". But to the dismay of performance advocates, they didn't come.

Instead, celebration turned to conquest sales based upon great lease offers. Victory became shallow, since many simply abandoned Volt when expiration was reached. Loyal customers of GM weren't ever swayed. Their support for Malibu, Cruze, and Equinox remained strong. Gas was cheap and the newer model was much nicer than the one it replaced.

That now changes the question to: "*How will growth be achieved?*"

Despite an upgrade of Volt to second generation, sales still are not attracting those loyal customers. They still are not interested. They still lack the a desire to plug in. To complicate matters, GM is rolling out Bolt, focusing limited tax-credits on an effort to attract those interested in Tesla Model 3. Does that mean the answer to the who question remains unchanged?

This topic features plug-in vehicles of 2016. The surprise newcomer that this group in particular, claimed would never be possible, was revealed and rollout has begun. Enthusiasts of Volt mocked, belittled, and insulted the system Toyota offered, absolutely insisting it could never be upgraded to compete. They refused to address the possibility that it could, and at a substantially lower production cost.

A plug-in hybrid capable of actually taking on the true competition... those traditional vehicle sharing the same showroom floor with loyal buyers very difficult to sway... is now being delivered. With a MSRP price so low, even when the tax-credits expire, it will be able to draw interest from consumers currently without any desire to plug in.

Rather than Volt being an ally in the fight against traditional vehicles, enthusiasts chose to represent it as "*vastly superior*" in the very limited market of plug-in choices. They refused to consider the big picture, to acknowledge how much faster sales must grow, to embrace the changes that must occur. That's really unfortunate.

Oh well. We will now hear songs from loyal customers, telling us it is Prime time. The affordable price, combined with enough EV range to cover commute & errand driving of many, along with outstanding HV efficiency, will achieve that sales growth.

12-25-2016 **Enjoying The Holidays.** With the onslaught of fake news (articles with almost no substance posted to spread rhetoric), it's difficult from some to really get an understanding of what the market has to offer. Some see the "*business as usual*" and just ignore the green choices entirely. They view them as alternatives, rather than the next step. There are others who simply look at anything with a battery in an overly simplistic manner. They simply lump all of them together, never even bothering to see if there are any differences. Then you've got some who think they are a good idea, but don't see them as something to decide upon. It's seen as an option for others. In other words, a bulk of the population couldn't care less... and that's before the next administration takes office, one who plans are quite counter to concerns of oil dependency and protecting our environment. The holidays offer an opportunity to not have to worry about those things for a little awhile. I look outside and see heavy rain. This is Minnesota. We are supposed to have a White Christmas. That means beautiful cold scenes outside while drinking delicious warm beverages inside. Instead, we watch the ice-skating rink on the pond wash away. Our climate most definitely has changed. Whether you agree upon cause or not, that's no reason not to try to reduce the impact. Prius is on the 4th generation now and there's a growing variety of hybrid options. What will it take for people to embrace them? Remember the good old days when we looked forward to a predictable holiday season? Those were the days, back when the grandparents were still hosting family gatherings. Now, it's up to us to make things nice for the children. They need happy memories too.

12-25-2016 At Home Charging. Not at all pleased by the unprovoked personal attack on a website I haven't even posted on for quite some time, it was an invitation to say whatever I wanted. After all, the article was about the plug-in market in general. There was no reason whatsoever for the lashing out. But then again, when someone is looking for a scapegoat, they tend to find one. It was actually rather vindicating to get such a response without any participation. It confirms the message had been received. So, I used the stir to direct attention to something actually helpful:

Want to have a constructive discussion?

Let's post about "*at home charging*".

The recommendation from GM for Bolt is to use a 32-amp level-2 charger. To accommodate that, one must have a 40-amp line in their home. How many people actually have that much capacity available? Many older homes only have 100-amp circuit boxes. Upgrading to support more and run a new line to the garage is an expense no one wants to provide any details on. In fact, all we've heard is that GM will provide financing for it, allowing you to roll it into the loan for the vehicle.

For Volt charging at home, there are many who bought & installed a level-2 charger. What amp rating was that? Choices years back were less powerful than now, which means slower recharge times. Will they upgrade line & charger? How much will that cost? Using a 16-amp charger would get the job done overnight, but will gen-2 buyers understand that time difference upon purchase or make the discovery later? How is GM educating people about charging needs?

Toyota kept it simple. Using the most basic 120-volt outlet at home, an ordinary 15-amp line will provide full recharge in 5.5 hours. That's easy to accommodate with overnight charging. Using just level-1 means no surprise extra expense. If you have an ordinary 20-amp in your garage, there's an option to plug in 2 chargers at the same time. Each can be setup to draw 8 amps instead of 12 to provide that option for dual plugging. Capacity of the Prime battery is small enough that the added recharge time would still fit into an overnight timeframe.

Think about how easy it is to plug in a 12-gauge extension cord into an ordinary 120-volt line rated for 15 amps to provide electricity for a level-1 charger. You may understand what all those numbers mean, but a mainstream consumer probably won't have a clue. They will have the outlet though. So, even in a cluttered garage, they'll still be able to recharge a Prime overnight... even if the line is shared with something else, like perhaps a chest freezer. No big deal. The sale is simple for both salesperson & buyer.

Make fun of the "*25 miles*" of EV all you want. Only enthusiasts care about that. Consumers shopping the showroom floor want a vehicle that's affordable and easy to plug in.

12-26-2016 **Vastly Superior, history.** Witnessing it repeat is an expectation. Those shallow & empty claims online we see on a regular basis impair progress. It's really annoying. Reading though though brings up memories that stir opportunity for change: "*In my mind, the Volt is vastly superior to the Prius Prime...*" The reintroduction of that same problem was a great invitation to try to break the cycle, using a new approach: You need to tell us why Volt is supposedly "*vastly superior*" to the Prius Prime, so people will buy it instead. That's called advertising. Not actually conveying any information won't convince many of superiority. First step is to consider audience. Who the heck is the advertising for? Targeting enthusiasts is far different from targeting ordinary consumers. Second step is to consider venue. Where will the advertising take place? Drawing attention randomly from television & internet is far different from stirring interest on the showroom floor. Third step is to consider features. What aspects of the vehicle do you wish to emphasize? Selling a performance vehicle is far different from appealing to a family transport shoppers. Fourth step is to consider timeframe. How long that specific promotion takes place can be a major factor as to how the message is received. Bing bang is far different from on-going repetition. Finally, you come up with a simple message. This is what advertising will build upon. Something is needed as a take away from the advertisement. How should those seeing it react? Needless to say, there is much more to advertising, as the history of "*vastly superior*" claims has taught us.

12-26-2016 **Vastly Superior, advertising.** He responded, but with a evasive move to avoid providing any detail. That intentional effort to not acknowledge what was posted is the same old nonsense we saw in the past. I stayed on track, pushing for a proper response instead of taking the bait. It was surprisingly easy how to accomplish that too. With a little ambiguity about which vehicle I was referring to (with the hope of it stimulating thought, rather than just another avoidance attempt), I posted this clear & concise list of detail for each step:

Audience = *ordinary consumers*

Venue = *showroom floor at the dealer*

Features = *EV drive, 21st century styling*

Timeframe = *beyond tax-credit availability*

Simple Message = *affordable and easy to plug in*

- 12-27-2016** **Vastly Superior, grade.** The troublemaker quickly sounded off, drowning out all the other posts... including what I my attempt at being constructive. He wasn't happy. He'll never be happy. His purpose is to promote superiority at all costs. It's intriguing to watch someone who you know won't ever give up, even when everyone else has moved on. I was intrigued... since that type of stubborn dismissal of facts is often where ideas emerge from. When else would anyone ever push such an extreme? Anywho, this was how I responded: There's no need to debate. Advertising an ability to educate serves a purpose, but it doesn't do anything to stir emotion. The best you could give that is a "C" grade. Homework delivered, but in no way deserving of praise, isn't what you want to spend on television commercials. Toyota has this nailed with Prius Prime. The quad-headlights, dual-wave window, and larger touch-screen are standout features, a clear effort to stir emotion. Here, we also get an optional color heads-up display. In Japan, customers also get the option of all-wheel drive, solar charging, and a 1500-watt AC inverter. Again, each can draw interest in a strong & unique way. There is a collection of safety features included standard that other vehicles lack. Prime also includes a charge-mode standard. All that is an effort to earn an "A" grade. What compelling features are there for GM to advertise about Volt?
- 12-27-2016** **Vastly Superior, sales.** When cornered and there's nothing else left, the originating source of conflict tends to emerge. In this case, it was clearly: "*No. Too little too slowly is referring to making weak technology, later than the competition, thus not being compelling to the market. (see PiP)*" I got a kick out of reading such a revision of history, so easy to disprove. In this case, it brings us back to the ultimate purpose too, sales. It's unfortunate that unsuccessful attempts to introduce a new product are viewed as utter & complete failures, rather than just an opportunity to adopt, adapt, and improve. You learn from the experience and move on... unless your you was to prove a technology was "*vastly superior*" rather than just come up with something that sells well. Ugh. Why does pride get so in the way sometimes? Oh well, this is how I dealt with it: That most definitely is not true! The blogs of the time clearly confirm that fact too. The automotive task-force overseeing the bankruptcy expressed the "*too little, too slowly*" concern to GM executives about Volt, wanting assurance that it would be sold in high-volume for a profit shortly after rollout. That's how the 60,000 annual-rate target for sales by the end of the second year came about. We have yet to sales even remotely close to that 5,000 monthly minimum... hence all the grief I'd had to put up with about yet another "*over promise, under deliver*" problem. That's why focus on advertising has become a topic of discussion. It's an effort to figure out how to deal with the situation. After all, many here have complained about Volt not be promoted enough... so it makes no sense for you to respond with that "*good enough*" attitude.

12-27-2016 **Vastly Superior, growth.** This is clearly the new question for this generation Volt: "*How will growth be achieved by not trying anything new?*" None of the efforts with the first resulted in sales growth. Even that massive price reduction didn't do any good. Sales remained flat. Hope turned to the second. No growth resulted from that either. So far, all we've seen is signs of trouble to come. Bolt will gobble up interest, as well as tax-credits. With such an extensive list of features that Prius Prime offers, it makes sense that we are seeing a final lashing out. Reality is finally setting in. Prius isn't the competition. Leaf isn't the competition. The vehicles competing with Volt are others from GM's own product line. I can see hints of the online arguments revealing that mindset shift. Of course, much of that comes from pride. There's simply no way to argue against Prime's improvement over PHV. The same thing is expected from the upcoming inevitable upgrade to Leaf. These next-gen vehicles wreck how Volt was promoted. Claims of "*vastly superior*" are of no interest to mainstream consumers. Those shoppers have very different priorities. All that leaves are those who have moved on to other choices. That leaves the question of growth in a state of utmost uncertainty... which explains the fanatical behavior lately. How?

12-28-2016 **Vastly Superior, features.** Things did end up getting interesting. The discussion turned in a constructive direction. Yes, I know it will ultimately become destructive. But what the heck, why not take advantage of this opportunity: "*But you can get a Corolla for \$10K less. Why buy a PP?*" Comparing within a product-line, rather than cross-automaker is quite shift. This came from an antagonist who absolutely refused to acknowledge anything without a plug, in the past. Things are changing. This was too good to resist. I gave it quite a bit of thought before choosing to post return in this fashion...

These are all standard features, included in the base model:

- * 25 miles of EV
- * 54 MPG without plug
- * SULEV rating with TZEV
- * Star Safety System
- * Toyota Safety Sense P
- * dual 4-inch displays
- * quad LED headlights
- * LED tail & brake lights
- * dual-wave window
- * heated front seats
- * hatchback with folding seats
- * smart-key door & button start
- * backup camera
- * remote A/C

Star Safety System = Enhanced Vehicle Stability Control (VSC), Traction Control (TRAC), Anti-lock Brake System (ABS), Electronic Brake-force Distribution (EBD), Brake Assist (BA) and Smart Stop Technology (SST)

Toyota Safety Sense P (TSS-P) = Pre-Collision System with Pedestrian Detection (PCS w/PD), Lane Departure Alert with Steering Assist (LDA w/SA), Automatic High Beams and Full-Speed Range Dynamic Radar Cruise Control (DRCC)

- 12-28-2016** **Vastly Superior, struggle.** When dealing with someone who will never accept defeat, bringing it to an end requires giving them a good fight. Then they feel like pride has been retained. What seems to work best is just head-butting the best you can, then leave them confused. He certainly was today too. References to other vehicles and options having nothing to do with plugging in were outright dismissed with the claim of being off-topic. The comments most definitely were not. But when your world is a simplistic view, omitting everything you feel has nothing to do with the purchase decision, it's easy to say something is incongruous. I was somewhat surprised that the entire list was summarily rejected. It was comprehensive, addressing a variety of features ordinary people express interest in... efficiency, safety, greenness, techy, style, comfort, and convenience. I repeated it too, stressing the diversity. It has always been a struggle for any of the hybrid & plug-in choices to reach beyond the stereotypical audience. Growing the market requires new approaches... something he clearly is unwilling to accept. He continued to recite the same old advertising criteria from way back in 2011. That stay-the-course-and-be-patient approach is what I call a "*good enough*" attitude, unworthy of spending any more time on. So, I concluded with: Dismissing the rest of what GM builds & sells has been a fundamental barrier to understanding why sales have struggled.
- 12-29-2016** **Vastly Superior, signs.** There are things to watch out for when certain personalities are encountered online, clues that indicate you are in a no-win situation. The first sign should be obvious... when they take something personally that has nothing to do with them at all. Just out of nowhere, an emotional respond abruptly appears from someone who was offended without them ever actually being addressed or anything of a personal nature having been posted. Not much can be done about that. There isn't an preventative either. In this case, there was a need for superiority in a market where finding compromise is required. It's a guaranteed losing situation when winning isn't even an option. The second sign is much more difficult to notice... when the topic switches to something popular to discuss. Those red herrings are very compelling, temptations so irresistible, someone will inevitably respond. It's not trolls dropping bait either. This situation is simply that of strong interest. But once that is responded to, getting back on topic is nearly impossible. You won't win that either. The original line of logic is lost. In discussions that are nothing but a daily thread, there is simply no hope of return. The third sign is when a desire is stated rather than a goal. They'll just state it over and over and over again, as if that was a need being fulfilled. But when you step back to look at how it accomplishes a business objective, there's nothing supportive about it. This is what we see at auto shows. You hear great praise about an aspect of appeal that isn't ever a priority when actually shopping for a vehicle. Long story short, this is how we've fallen into the trap with Volt. Some developed a mindset of superiority so self-confirming, they've lost sight of what the ultimate purpose was. Remember the intent to replace traditional vehicles?

12-30-2016 **Vastly Superior, defeat.** Remember how Two-Mode faded away? Without a spotlight anymore, the sales struggle turned to dealer disinterest. Why bother? Not only has Volt lost the spotlight to Bolt, it also faces a wide variety of plug-in hybrid competition. That makes traditional competition even more difficult, since the plug-in hybrids still have plenty of tax-credits available. The delightfully low MSRP for Prius Prime puts even more pressure on the situation. Once tax-credits run out, Toyota will still be fine. Volt is in a world of trouble. What will GM do for it, especially with so much emphasis being placed on Bolt delivering high-volume prior to Tesla's rollout of Model 3. So much time was wasted on proclaiming Volt as being "*vastly superior*" to Prius. It boggles the mind how pride could lead to so much lost opportunity. It's still happening too. The idiot posts of recent confirm it. My favorite quote coming from all the desperate spin was: "*Toyota again has settled for another weak offering.*" That shows us how little this individual actually cares about ordinary consumers. He's been so obsessed with EV performance, sacrifice for that benefit became the norm. He was willing to dismiss the priorities people shop for in favor of promoting superiority. Only electric purity matters. It was amazing to witness such blind hope. And after so many years of excuses and an obvious end approaching, he's still not going to admit defeat. Of course, I'm not looking for a surrender anyway. I just want the next step to be taken. Get over it. Analyze lessons learned. Move on.

12-31-2016 **Vastly Superior, evade & avoid.** The situation growth well beyond tolerance. I was quite willing to be patient though, waiting 2.5 days for a reply. That's an eternity on a daily blog. It was worth it though, to draw the year to a conclusion with a reply to this the morning before: "*No one is dismissing anything.*" That was his final post. He clearly just did too. But rather than follow that bait, I decided to make it very personal by addressing exactly what he had posted. This is how:

Yet, that's exactly what your list does, by specifying such a narrow focus:

- * superior drive
- * 100% torque off the line
- * 1000 mile between gas station visits

You have also had several days to provide detail, but still have not. So, it's time for me to attempt to look in depth at what you did provide.

The claim of "*superior drive*" is interesting. It very much resembles the common advertising approach we've seen for decades: "*new & improved*". That does indeed grab attention, but it doesn't actually tell us anything. Compared to what? Which components are superior? How much more will it cost?

Next is saying "*100% torque off the line*". We rarely ever see people racing away from stoplights and rush-hour merging certainly doesn't require full-throttle. When is this important? Who is that trying to impress? How does less matter?

Lastly, the "*1000 mile between gas station visits*" raises even more questions. That is obviously impressive compared to the usual 400 to 500 miles people typically get with traditional vehicles. But you have told us many, many times that other plug-in hybrids are the competition, not traditional vehicles. That being the case, it's easy to see the trouble... since Prius Prime does too.

Sorry, but that's the precedent you set. We've also been told by you how absolutely vital it was for the drive experience to be 100% electric. That came with the implication that Prius wouldn't ever be able to deliver it. Not only does Prius Prime fulfill the same criteria, it is also a little bit more efficient in the process... which earns it an "A+" grade.

The ultimate selling point though is price, a factor you continue to evade & avoid. GM set a target of "*nicely under \$30,000*" for reaching their high-volume profitable goal. MSRP for gen-2 Volt hasn't achieved that yet. Could it mid-cycle, with battery improvements and some package tweaks? Possibly. That current \$33,220 for the base model may be able to drop enough by then.

Toyota's approach for the plug-in Prius was quite different. They set a target of a "\$3,000 to \$5,000" premium over the regular hybrid model. They clearly didn't reach that goal with gen-1, which was a major factor in limiting rollout to only 15 states. But since that was only a mid-cycle update anyway, it was a great opportunity to collect real-world data to help with gen-2 refinements.

The first nationwide rollout is that gen-2 design. Price of the base model Prius (package

"two") is \$24,200. Price of the base model Prius Prime (package "plus") is \$27,100. It does indeed achieve the MSRP target. It delivers a superior drive, more torque, and more miles between gas station visits. It also includes an appealing array of standard features to draw new buyer interest. There are some attractive unique optional features available as well.

In other words, it's time to come up with a new way of advertising Volt.

Happy 2017.

- 12-31-2016** **More Fake News.** The flow of articles published, an obvious effort to undermine Prius, continues. The content of each has been reports of inferiority. There's quite the collection at this point. The series follows the same pattern still too... with the exception of title taking a hostile turn: "*2017 Hyundai Ioniq Shows The Toyota Prius How Much It Sucks*" The data provide was haphazard. That's what you want to when leading people to assumptions. Being vague & ambiguous helps as well. No real substance and lots of generalization is all we've been getting. Clearly, it's some staff writer searching the internet for something to write about which they can sell. Making money from such articles is likely what's feeding the effort. Never having actually driven any of the vehicles or even having anything beyond a stock photo is quite telling. It's unfortunate such things exist. Why do we have to deal with such nonsense, when there are several reputable websites? The war of propaganda is well underway. We have evidence of election influence by such efforts. Now, it's becoming clear the green choices are struggling with similar problems. I wonder what counter-measures will be dreamed up to deal with it. Hmm?
- 1-01-2017** **Happy New Year!** We're seeing a trend emerge. Many of the automakers seem to be targeting the 25 to 30 mile range for EV capacity of plug-in hybrids. That's clearly adding to the annoyance of Volt enthusiasts. They continue to absolutely insist that more is necessary to achieve high-volume sales. It's really unfortunate how uncooperative they've been. Rather than usher in plug-in hybrids as the next step to ending the reign of traditional vehicles, we're seeing a confusing collection of contradicting messages. Emphasis on EV driving makes sense. Disparaging electric-only vehicles to convey the value doesn't though. Belittling the smaller capacity plug-in hybrid offerings doesn't either. Remember 10 years ago, back in January 2007 on the 6th? Most people don't. I do. Looking back at my blogs, I can confirm my memory. Problems immediately emerged. There was a "*trophy mentality*" that undermined attempts to have constructive discussion. When a sensible question was raised about battery capacity & cost, it was met with unusually stout resistance. That made no sense. How could such blindness come about so easily? Prius certainly didn't have a history like that. Toyota talk was well balanced, with a sincere effort to address all concerns. GM support came in the form of cheerleading, optimism based solely upon hope. Any type to clarify ended up getting the "*vaporware*" label. There was a stubborn push to avoid & evade. Now, a decade later, we're still seeing it. Ugh. Oh well. Happy New Year!

1-01-2017 **Vastly Superior, advertising.** The thread topic was advertising. It exposed yet another vulnerability of Volt, showing how the mismatch to mainstream consumers is making a bad situation worse. It's really unfortunate. The technology itself works fine. The configuration is at issue. Think of the situation as a computer configured in a manner unhelpful to the user. If the case is smaller than needed, the hard-drive bigger than needed, and the processor faster than needed, asking someone to pay more than what they budgeted for to purchase it just plain doesn't make any sense. Yet, that is very much the way Volt is. The capacity (battery) and speed (acceleration) are overkill. The small case size (cramped rear seating) makes usage difficult. No amount of advertising can overcome the shortcoming of priorities. Need isn't fulfilled. Needless to say, I'm quite pleased this is all coming to a close now. We're starting the new year with an effort to move on. Yeah! Here's what I wrote:

I titled my commentary on the post yesterday "*evade & avoid*" without any idea just how much the reply would reinforce that.

Choosing to start the response with a textbox exaggeration followed by several denials of easy-to-confirm facts made the effort to not actually address the advertising topic quite obvious. Should I even bother to reply to such counter-productive posting? Well, perhaps I could with a summary by highlighting "*EREV*".

It was a failed attempt to promote "*vastly superior*" status. Problem was, the definition kept changing each time a new plug-in hybrid offering was rolled out... since they ended up fulfilling the criteria stated, which wrecked the superiority claim. That advertising by enthusiasts became a confusing mess; adding to it was a series of ambiguous press releases, all so vague that hampered the entire market. There was no clear message of goals or intent.

Now, we start 2017 with that continuing... more spin & rhetoric with no effort to even try to discuss advertising. The final sentence wrapped it up really nice though: "*I haven't seen a single advertisement for a PP.*"

That shows a lack of understanding how advertisements are distributed. Toyota has clearly stated they will not be promoting Prius Prime in a traditional manner. Generic television commercials are a waste of money in many cases. Unless there's a specific sales event, those only serve to build or retain reputation. That's why targeted advertising is being used now instead.

Do a search online for "*Prius Prime*". Watch what happens to the websites you visit afterward. Notice the flurry of advertisements promoting Prius Prime?

1-01-2017 **Not The Same.** Our resident troll on the big Prius forum is well informed and likes to debate. So, he routinely drops bait. Heck, he even calls himself a troll. From time to time, I bite. It can be informative. Stirring the status quo is ok, if done in a constructive way. This is what caught my attention today: "*That's like saying NiMH prices didn't fall fast enough to save the gen1 Prius.*" It was in reference to pointing out that battery-cost did not drop anywhere near as fast as GM had anticipated or Volt enthusiasts had hoped. I responded with: How is that the same? Toyota didn't set a mainstream level sales goal like GM. Whatever the case, it isn't gen-2 Volt either. That \$7,500 dependency is a very big problem still. Battery cost for 18.4 kWh capacity simply is not going to drop \$7,500 in the next few years. If the beliefs of \$200 per kWh are true, that means the entire pack for Volt is only \$3,680 in terms of lithium cost. It would currently have to cost double that just to break even. To actually grow the market, price of the vehicle must come down too. And what the heck does "save" mean? That generation ended production as planned, following the usual product-cycle schedule. The plans for Volt achieving mainstream sales was mid-cycle. The gen-2 is expected to go full cycle. That means at least 4 more years of sales. The tax-credit will run out long before that. Bolt will be gobbling them up. Look at Prius Prime. With an MSRP of just \$27,100 for the base model, there is no dependency. Even without any tax-credit, it has the potential to grow. Any mid-cycle update will contribute to that. It most definitely is not the same.

1-02-2017 **Television Advertisements.** All that recent "*vastly superior*" nonsense emerged from a daily blog commentary about an article published claiming television advertisements for plug-in vehicle are radically fewer than that for traditional vehicles. While true, it really didn't address what is actually needed. It was only a count analysis based on the assumption that more advertising that way is better. I wholeheartedly disagreed, but couldn't express that until I dealt with the onslaught of trophy-mentality. Thankfully, that ended. So, I posted the following:

Television commercials are what people like to skip. They are generic, poorly timed, and really don't tell you anything. How much can actually be conveyed in just 30 or 60 seconds anyway? The very idea that showing more of them can be better is fundamentally flawed. Who really wants sound-bites forced upon them from an automaker? All they do is draw attention. There's no detail, no real information to make an informed purchase decision.

Spending a lot of money to show commercials hundreds or thousands of times on cable & broadcast television simply isn't a good idea anymore. Automakers should be using more effective means of reaching consumers. It's not the 20th century. Why use such an outdated medium like that to advertise a plug-in vehicle? To actually learn about the vehicle, you have to do research on your own. Automakers should invest in material which provides that type of advertising instead, not television commercials.

Simply go to YouTube and search for "Prius Prime". Look at the long list of results. There are dozens of in-depth reviews from third-parties. Those are the advertisements that actually compel people to seriously consider a test-drive. All Toyota had to do was provide those third-parties with a vehicle to drive for awhile. Getting an endorsements from someone who has had an opportunity to film their own experiences, their own way, then publish a long video telling you about it is far more effective than anything the automaker can provide.

1-02-2017 **From Volt to Bolt.** On the eve of Bolt's debut month sales results and the 10th anniversary of the Volt concept reveal, an automotive journal published an interesting article today titled: "*GM's journey from Volt to Bolt. A troubled vehicle paved the way for more audacious bets.*" Upon reading the first paragraph, it's easy to see why there was so much resentment toward those like me pushing for cooperation rather than superiority. It stated this short & painful description of Volt: "*It flopped.*" The article went on to describe the failure to achieve annual sales of at least 60,000 even with a money-losing price. Fortunately, the battery technology will survive the perils of business reality. That's what was used to create Bolt. So, even though the small, expensive, niche-configured vehicle has no expectation of mainstream acceptance anymore, its successor does. It's a gamble only the die-hard Volt enthusiasts were not willing to accept... until recently. That series of "*superiority*" posts appear to be the final battle. There's so much excitement about Bolt deliveries now, it's as if Volt was just a step in the evolution of plugs which had this planned obsolescence all along. In reality, we see the abandonment. But then again, that was expected by those like me, who witnessed the very same thing with Two-Mode fell apart. Volt replaced it in similar same manner... though, the time span was more drawn out. This is rather abrupt. Of course, news travels much faster nowadays. It's really unfortunate the Volt enthusiasts absolutely refused to recognize the pattern. I repeatedly pointed out the history parallels repeating. Their denial of the possibility of those same mistakes being repeated ran very deep. They didn't want to accept the evidence provided... then, as it was happening. Now, it's being published as a retrospective by automotive journalists.

1-02-2017 **Looking Forward.** We are approaching the point which automotive battery technology for plug & drive is no longer easily dismissed by misconceptions. It's becoming recognized as feasible. To advance to it being realistic, we have to address efficiency & affordability. This is where shortcomings of Volt get looked upon as problems of the past, rather than issues of contention still. The gen-2 model was rated at 31 kWh/100 miles. That made it somewhat of an electricity guzzler. When rolled out, that was just brushed off with the "*electricity is better than gas*" excuse. Now, we can actually take an objective look at electric efficiency... since Bolt is improved with a 28 kWh/100 miles rating. That undeniable progress from GM makes discussions easier. Being constructive is still a problem though... since Prius Prius is even more efficient with a 26 kWh/100 miles rating (specifically 25.9 when the value isn't rounded). In other words, less battery is needed to travel the same distance. It's how affordability comes into play. That next step is a very important one too. Mainstream acceptance requires a price low enough to still be profitable when competing directly against traditional vehicles. The challenges between electric-only and plug-in hybrid appeal are quite significant; however, they do still share efficiency & affordability requirements. Looking forward, we will hopefully find more in common. After all, the ultimate goal is to replace traditional vehicles.

1-03-2017 **Teaching Moments.** We've all heard the phrase "*teaching to the choir*", but how many people actually go out of their way to seek an audience that isn't already receptive to your ideas? There are very few. In the online world, most who come from outside and stir the status quo are labeled as a "*troll*". The nature of people is to resist change, especially if you can find a place where you can post daily. Messages which disrupt the happy flow of cheerleading are regarded as unwelcome. But if you really want to learn what the market is like outside of your protected sphere, that's what you have to do and where you have to go. I've heard that same suggestion from many successful journalists. You have to go where the problems are. That's what I've been doing for many, many years too. It's quite stress dealing with the continuous onslaught of resistance. But that's where some of my best material comes from. Their different mindsets are what provide new ideas... for me. Every now and then though, the flow of knowledge works in reverse. That absurd "*vastly superior*" argument ended with a teaching moment. My comments about television advertisements actually sunk in. He parroted back a "*That's why GM is using targeted advertising*" response. Looking back through all the posts over those past few days, it was quite obvious he had no clue of that approach prior to me posting about it. That was clearly a me-too measure. He got caught unaware and didn't want to admit that I had a valid point. Acknowledgement of having overlooked something so important isn't something you should ever expect from an antagonist. Reading them post about something later you originally pointed is an entirely different matter. It's confirmation of change. I got the message through to a very stubborn opponent. It's really unfortunate he still believes the competition is other plug-in vehicles. That's such a detriment to the effort of replacing traditional vehicles.

1-04-2017 **2016 Sales.** Understanding the opposition to plug-in vehicles is quite a challenge... except with Volt. That "*vastly superior*" attitude revealed the intention to dominate, rather than collaborate. The enthusiasts simply didn't like the idea of a smaller battery-pack and performance on-par with mainstream vehicles. They felt better was absolutely necessary... a need, rather than a want. That fundamental clash of purpose has caused many problems over the years... because the measure of success is sales, not engineering extremes. Volt enjoyed a major spike in purchases during December. That's no surprise. Between the growing popularity of plug-in and the usual year-end rush to collect tax-credits, the spike was a realistic expectation. Stepping back from the monthly numbers to look at annual totals, you get a different story. Expecting the first full year of gen-2 to climb close to mainstream minimum was reasonable. After all, the enthusiasts boasted about doing it for years. That number count 60,000 sales. For the first full year of gen-2 Prius sales, the total came to 53,991. Enthusiasts had set an expectation of exceeding that. Why not? The new generation represented a massive amount of engineering with years of refinement. It also would have a \$7,500 tax-credit. That wasn't the case for Prius. All it had was a \$2,000 tax-deduction, which only came to between \$300 and \$400 on your return. Toyota didn't have an much experience as GM at that point either. That's why the 2016 total for Volt of just 24,739 is really a source of concern. That's well short of the target... and now there is the added pressure coming from Bolt. Growth is essential. Watch how things play out over the next few months.

- 1-06-2017** **Freaky Cold.** The usual temperatures well below zero are here no, right on schedule. First week of January here in Minnesota, you have that expectation. Being cold so much lower than just the freezing point means the engine starts up right away. Seeing that negative sign though gets me quite curious. What will I experience when I finally get my Prius Prime? Being able to warm the cabin with electricity supplied directly from the charger will be a nice perk at work. But how effective will it be then, when heat-pumps don't have much warmth from the air to draw upon? There's a point at which the engine will start up anyway. Of course, it won't need to run as long with the battery-pack also having an electric warming feature. The steering-wheel and seats will be electrically warmed too. So, comfort for all is covered. There is that reality of needing to clear windows though. Whatever the case, it will be even more efficient than the Prius PHV now. It will also warm faster. That's good, exactly what you want from a next-generation upgrade.
- 1-07-2017** **Repeating Fake News.** It's really getting frustrating. Yesterday, an article with this title was published: "*2017 Chevrolet Volt Brushes Off Prius Prime Success*". It contained lots of greenwashing. The technique most common is to omit vital detail. In this case, there was no mention of availability. Sales results were presented as if availability was the same. You are led to believe people actually had the choice, that inventory was available to decide upon. That couldn't be further from the truth. There are people going nuts in the Midwest waiting for Prime to arrive. There simply aren't any yet. What makes that frustrating is when you read the same article again, word for word, published the next day on a different website. Today, that happened. The new title of the article was: "*2017 Chevrolet Volt Doesn't Care About Success Of Toyota Prius Prime*".

1-07-2017 **More Cheerleading.** The blind optimism never ceases. The enthusiasts see what they want. Yesterday, it was a reflection of last month's sales with: "*Bolt and Prime validate Volt. Sales, regardless of incentives, are up. Way up.*" I waited a full day before responding. I was curious if anyone had anything constructive to say about that. Turns out, none did. So, I sounded off, pointing out and asking:

A spike in sales at year-end is the usual expectation. People rush to take advantage of being able to collect tax-credit money right away, rather than having to wait an additional 12 months. That influence cannot simply be dismissed. Sales going up temporarily is normal. What happens in the following months is what tells the real story.

As for Bolt validating Volt, how? The premise of Volt was to alleviate "*range anxiety*" by providing an engine for backup power when electricity runs out due to battery limitations. Bolt doesn't need that. The 200-mile EV range overcomes the same concern... which invalidates. Bolt's capacity growth through increased energy-density and cost-reduction counters the selling point of Volt.

With respect to Prime, what is the Volt validation? We always knew the mid-cycle, limited-rollout Prius PHV would be replaced by a nationwide next-gen model featuring a larger capacity battery and more power, for a price competitive with traditional vehicles. That's exactly what Toyota has delivered. What influence did Volt have? It certainly wasn't a need for liquid-cooling or much further EV range.

Put it this way. The sales goal hasn't changed. 24,739 is well below the target of 60,000 set for mainstream penetration and maintainable profitability. Bolt will be competing for the same limited quantity of tax-credits with Volt. Rapid significant growth is essential. That record high 3,691 needs to climb to 5,000 and remain there. Otherwise, what's the point? Replacing traditional vehicles with plug-in choices requires strong sales without subsidies.

1-07-2017 **April 2012.** Once upon a time, when my Prius PHV was only 1 month old, I took in on a trip up north. We unexpectedly ended up getting a bunch of new snow. That provided an amazing opportunity. The fresh, sticky white stuff coating all those trees in isolated, scenic areas was great. I went nuts with the camera too. Unfortunately, those photos remained unseen for all this time, nearly 5 years. That new plug-in hybrid had me busy with lots of other stuff. So it wasn't until now, as I'm preparing to upgrade to a Prius Prime, that I'm catching up and finally publishing some of the photos. There were many. Choosing the best is a challenge. It's rewarding to have such a collection available. Here's what I ended up selecting to share, those long lost PHV photos from many years ago... [photo album 197](#) [photo album 198](#) [photo album 199](#)

- 1-07-2017** **2010 Prius.** Believe it or not, I had even older photos that never got published. In this case, they were of my Prius prior to getting the plug-in model. Interesting thing about them is the captures were underexposed. The setting was a icy dirt road just after sunset. That made the lighting extremely difficult to work with. In other words, they were too dark. Correcting problems like that is easy nowadays though. I found a digital filter able to bring out the sections needing to be brighter without washing out the sunset. The results look great. Lots of detail was revealed in the foreground, stuff you wouldn't have been able to see otherwise. I guess waiting in this case really paid off. Sure glad I didn't just abandon these. They look nice, capturing a circumstance few rarely ever see... especially with a Prius. Check them out: [photo album 199](#)
- 1-07-2017** **Wind-Turbine.** I'm still finding treasure in my archives. More photos of the 2010 Prius were found. In this case, it's especially exciting. I found photos at the same location from 2 different times of the year. One set was from late harvest, in the Fall. There's corn fields in the foreground and a big wind-turbine in the background. Being able to park right along side that looked really nice. Catching that scene right before sunset made it even better. The second set of photos is the same place, but Winter. 3 months later meant snow instead of corn. It was also right when the sun was setting. Seeing the same place like that under different circumstances is really interesting. There's 2 that especially peaked my excitement though. I turned off the paved road to a dirt road, for photos from a different angle. That was the very location I was at in the previous photos... 2 years later, that same icy road... only a few feet from there, but facing the other direction. Check out my 2010 Prius with a large wind-turbine in the background: [photo album 200](#)
- 1-07-2017** **Even More.** Yes, more unpublished Prius photos. This collection was stored away on a memory card, not forgotten... just set aside for someday. Finally getting to look through what I had captured over 6 years early was very exciting. I still remembered taking them quite clearly. It was at the old military testing facility from World-War II. There were nothing but concrete frames remaining. Some of it was surrounded by untouched land in a secluded location. Other parts were bordered by corn fields. Much of which is accessible anymore. Some was fenced off. The rest sold to a manufacturing facility. So, having taken them is a nice way to preserve the time... with the Prius, of course. Remaining unpublished for so long isn't so bad. I wish I would have had time to share them sooner. But it sure is fun now looking back at those treasured memories from long, long ago... [photo album 201](#) [photo album 202](#)

- 1-07-2017** **Plug-In Prototype.** I had an opportunity way back in the Summer of 2010 to play with a prototype Prius for a few days... a plug-in model. This was the testing configuration put on the road for use by ordinary people to collect real-world data. 2 full years before the production model was rolled out, some of us were experiencing the dream firsthand. It was an augmentation of the hybrid system. Toyota added battery-capacity and a plug to enhance operation. The goal was to provide a MPG boost. There was no EV drive requirement back then or later when the PHV model was rolled out. That didn't come until other offerings stirred the market, carrying it in a different direction. All those years ago, focus was on making the hybrid even more of a hybrid. Nowadays, that sounds counter-intuitive. Back then, the adding of a plug was viewed upon from a very different perspective. Anywho, I took that prototype out to a beautiful country setting, an isolated road surrounded by fields of corn. The photos turned out great too, see: [photo album 202](#)
- 1-08-2017** **Fake News Deception.** These attempts to undermine Prius has turned to outright lies. Today's new article claimed "*The latest generation Prius is severely struggling to attract a lot of buyers...*" without providing any actual numbers. They hope you will assume the quantity is low and you won't do any comparisons. Reality is, there were 989,863 of the regular model Prius purchased here in the United States last year. How can that be considered a struggle, especially since sales didn't begin right away. Remember, the gen-4 sales didn't begin until February. There was also a "stop sale" for almost an entire month due to the parking-brake recall. They don't tell you that though. They don't tell you the popularity of Prius in its domestic market either. They just say "*struggle*" and hope you assume the worst. They carefully avoided mention of other vehicles also using that hybrid system... like RAV4, which was the second-best seller here last year with 45,070. Instead, they paint this picture: "*Toyota Prius: Did Losses Cause Secret To Escape?*" That title was to get you to believe Toyota is becoming so desperate, they must now sell their secret technology to other automakers to allow it to survive. That's an outright lie. Rebranding is a common business practice... so common, Toyota already did that years ago. It's not a secret, as the article claims. There was a Nissan Altima hybrid. Reading new articles published everyday that are clearly designed to undermine Prius is quite frustrating, but at the same time vindicating. To see some group going to such effort is confirmation they are worried, that the technology has become so capable of competing with traditional vehicles, they feel it is necessary to greenwash about it.
- 1-09-2017** **Reporter Mistakes.** Wow! What a mess: "*Because the Prius Three is larger and heavier, don't expect any record quarter-mile elapsed times but you'll be pleased how peppy the package actually is. However, the ability to drive 25 miles on full electric power is quite impressive.*" That was bizarre to read. The article was about the gen-4 Prius, specifically the package 3 that had been tested and was featured in the photos. Yet, there was that added comment about the 25 miles. How could that be? My guess is the reporter assumed he was driving a plug-in hybrid, but never bothered to actually check on anything related to electric driving. Somehow, he got information about Prime and must have assumed that's what all Prius offer. Needless to say, that made it an extremely misleading article. But more concerning than the obvious reader problem is the fact that such terrible reporting can take place. Doing so little research is as disturbing as people making decisions solely upon sound-bite impressions. Mistakes like that are what contribute to greenwashing. Don't assume the writer is well informed. Always confirm facts. Like in this case, some will be found to be wrong... which makes dealing with fake news even harder.

- 1-09-2017** **Voltec SUV.** Has the message finally gotten through: "*Most of us on this forum had been begging GM to release a Voltec SUV; however, even though GM had a major lead on all other players, it was Chrysler that stomach punched them with the Pacifica Hybrid.*" Asking doesn't do any good though. There's basically nothing in common. A minivan does not compete with a SUV in any way. We see the potential, but don't see action being taken. That old "*too little, too slowly*" concern has been so overwhelming validated at this point, it's hard to know what to do next. Basically, GM doesn't express any care. They don't want to disrupt their SUV market by offering plug or hybrid technology. That abandonment happened years ago with Two-Mode. I can still attempt to keep the topic alive: 242,195 Equinox were purchased last year. That's a massive amount of missed opportunity. We see the potential from the popularity of the plug-in hybrid Outlander in Europe, over 100k purchased overall so far. We also see the purchase of over 45k RAV4 hybrids last year as potential too. The opportunity to offer a Voltec model of Equinox still remains an excellent idea.
- 1-10-2017** **2018 Camry.** Things are getting interesting now. The very old hybrid is getting a big improvement late this Summer. Sales last year were respectable at 22,227. The expectation is much higher though for a best-selling vehicle, at least 30,640 like the year before. But then again, the much newer Fusion hybrid only had 33,648 purchases. We need more. Growth is needed. The potential for this next-generation doing that is looks good. The reveal yesterday showed us a stylish sedan hinting at "*Prius-like efficiency*". There will be 2 flavors of hybrid too. One with a NiMH battery-pack, we assume similar to the base Prius. One with a lithium battery-pack, featuring a design which allows it to be hidden under the rear seats, rather than consuming space in the trunk. None of that is the interesting part though. It's the sport mode. That will offer simulated "gear" changes with a paddle-shifter. Since Corolla's CVT has automatic simulated gear-shifting, providing a type of manual for Camry can be a realistic purchase enticement to try out. Why not? Since production will be TGNA, expecting a competitive price isn't too much of a stretch. This is what we've been waiting for. Yeah!
- 1-10-2017** **Classic Cars.** How strange. I ran across a glowing review of Prius Prime today. The detail was spot on and the photos were outstanding. That certainly was unusually. It stuck out as an oddity among some of the other news twists lately. This was quite nice. It got me wondering though, even before I finished reading. What was the source? How did something so different emerge? The answer became apparent when I scrolled down to the bottom of the webpage. Vehicle after vehicle was decades old... all in incredible condition too. What the heck? Why so many articles about classic cars? Oh! I was on a classic car website. That was intriguing. Somehow, Prius Prime was so impressive, the website decided to provide an endorsement for it. That quite an unexpected twist. Who knew such a positive could come out of nowhere like that? I've been growing weary of all the negative. That certainly was a welcome change.

1-10-2017 **Why No Announcement?** The autoshow in Detroit sure is stirring the pot. Bolt rollout already being underway means people are looking to find out what comes next. Nothing is being said though. Silence from GM is obviously causing some to become concerned. What will become of Volt? Knowing the success of SUV hybrid RAV4 and expecting the upcoming Nissan Rogue and the upcoming Kia Niro... both SUV hybrids as well... should put pressure on GM to finally offer one of their own, I couldn't resist asking about Equinox. I started by pointing out that last year's sales were 10 times that of Volt; yet, we nothing of intentions to offer it as a plug-in hybrid... or even a hybrid. That must frustrate supporters to no end. You can't really label me as a troll for pointing out such an obvious situation either. Wasn't the point of Volt to establish "Voltec" as technology to spread to other GM vehicles? With Equinox being so popular and the continuing strength in that market almost a guarantee, why haven't we heard anything still? No announcement of any kind is reason for concern. Opportunity is being missing, as I pointed out: Sales went to guzzlers instead... a lot of sales. What is GM waiting for? Seriously. Why no announcement of any sort, especially from an automaker which thrives on publicity like that? There should at least be something to look forward to. Way back in early 2005, there were hybrid SUVs. Where is GM's plug-in taking advantage of the already well established Voltec? With gen-2 Volt widely available, it makes sense to shift focus and set an expectation on what GM primarily sells... not compact cars... SUVs. What is the delay?

1-11-2017 **Opportunity Missed.** The same old antagonist wasn't happy, again. This time, it was from an article highlighting the redesign of Camry, specifically this snippet: *"for its redesigned Camry lineup which includes a Hybrid version with *Prius-like* efficiency."* You could tell his lashing out was specifically to me, even though I hadn't actually made any comment: *"Why didn't they put a plug in it? What a missed opportunity?"* The intent was obvious. I pointed out just yesterday that reality of *"too little, too slowly"* in the form of opportunity missed. Why haven't we heard anything at all from GM? It's a good question. Meanwhile, we can see that progress happening with other automakers. So, I was happy to answer those questions: Who's to say they won't? Switching Camry over to TGNA production is the first step. Toyota is currently busy ramping up lithium battery production. The gen-4 Prius uses it. Camry hybrid will now too. At the same time, they are also introducing the C-HR hybrid. So, much is happening with electrification besides the Prime rollout. Remember, the goal is to have the architecture in established. Adding a clutch and switching battery-packs is a small part of the equation, an easy next step. Don't forget that RAV4 is already being positioned for that. What step is GM at with SUV plug-in choices? How about Malibu hybrid with a plug?

- 1-11-2017** **Shame & Anger.** My opportunity post resulted in an explosive retaliation, a clear confirm of having got the point across and the message having identified a weakness in their stance. There was definite anger. The return message made that obvious: "*So, how many of the millions of P-cars sold were plug-ins? Shame on Toyota!*" An abrupt shift over to attacking Prius is a dead giveaway, especially when there is also an emotional appeal. So, I took that invitation to punch back and went all out: Ironically, all those millions of P-cars saved more gas than Volt. There's power in numbers. The point is, the design readily supports the transition to a plug. Adding a clutch and swapping in a larger battery is quite basic. Prius (hatchback) already does that. RAV4 (compact SUV), C-HR (crossover), and Camry (sedan) are all positioning for that too. We see the potential for GM to do the same thing. Should we push for that or shame them for not? Wasn't the point of Volt to have its tech spread to other vehicles?
- 1-12-2017** **Tax Credits.** This started off the morning: "*If change is to be made to the Plug-in credit program, hopefully it is the change that should have been made long ago.*" Then he went on to endorse Tesla, GM, BMW, and Nissan with the reasoning of them having done the most development and taken the greatest risks. Why not include Toyota? If the intent of the vehicles is electrification, how isn't attempting to convert the existing fleet to hybrids not a risk? And what about the work done to shift Prius over to lithium and to do it using only air to cool the pack? There's also the problem of Prime undermining Prius. A runaway hit with the plug-in model means the regular model will suffer. How is that not risky? Neither Volt nor Bolt have any risk of taking away existing green customers, because GM doesn't have any. Toyota does, a very large quantity too. That's why Prius took a radical turn with gen-4. It was a risk Toyota was willing to take that none of the critics are willing to acknowledge. Anywho, this is what I posted in response to that hopeful comment: Changes didn't happen because there was no agreement upon purpose. Are the credits for the automakers or for the consumers? Then there's the subjective problems of "*most*" and "*biggest*" measurement, especially when there is no agreement upon what should be delivered. Think about goals & risk... Nissan really took a gamble with their effort to deliver a system not requiring liquid-cooling. Ask yourself: why?
- 1-12-2017** **Honda Hybrids.** They've been a little odd. The hybrid technology delivered, but was expensive and demand was surprisingly low. Adding a plug didn't do anything to boost interest either. Accord simply faded away last year. By the end of this year, there's a renewed expectation. In a vague announcement yesterday, we heard about an upcoming plug-in hybrid version of Clarity (Honda's fuel-cell vehicle). Supposedly, it will offer about 40 miles of EV range. That's all Honda reveal to us. Nothing else to ponder is disappointing. But then again, getting that is a whole lot better than being left to wonder... especially since the CR-Z hybrid just faded away too. Production ended and nobody noticed. This could be a new twist to help shake up the industry to help it move forward... or it could just be yet another expensive choice that doesn't provide any benefit. We hope this isn't one of those deterrents, making the option to plug less appealing simply because it is out of reach financially. We'll see. At least one encouraging point is that it assists with the effort to demonstrate confidence in batteries. Each automaker contributes to that advancement in forward thinking.

- 1-13-2017 Road Trip.** There's nothing like planning a 1,600-mile trip for the coldest time of the year. It's what you do when you want to celebrate the holidays with family that doesn't live close. With the temperature below freezing on the way there and driving at a steady 80 mph, hopes for high efficiency aren't good. To my surprise though, results weren't too bad. The MPG displayed after 716 miles of driving that first day was 41. That's pretty good. I had only used 60% of the battery available too. The drive home is expected to be much warmer. It really makes me wonder what the same circumstances will yield with the Prius Prime. The engine is more efficient, so results will naturally be better. Having the ability to recharge while driving will be an interesting new twist too. All the travel once off the highway will be using electricity. That's an operation/efficiency tradeoff which I'll be able to take advantage of. In the meantime, I look forward to the drive home in the Prius PHV. It drives really well, even at such high speed.
- 1-14-2017 Assumptions.** Talking about making incorrect assumptions. Read this: "*Although Toyota sacrificed fuel economy for style by altering the Prius' typical backside, the Prius Prime still gets excellent mileage at an estimated 55 mpg on the highway.*" The style does quite the opposite. That dual-wave curve in back is for increased fuel economy. It provides greater aerodynamics. The measure of reduced air disruption is an easily quantifiable figure. The improvement should be obvious. How a reporter could come to the opposite conclusion is disturbing. Apparently, some don't do any research at all. We know many are written without ever taking a test-drive. But to not even consider that increased shape could lead to a more slippery profile is quite strange. Think about sports car design. None have plain, flat surfaces. Instead, you see elegant forms. Some are quite costly to achieve. In fact, that's where some of the carbon-fiber forming originated. You could get complex shapes with the added benefit of reduced weight. Anywho, I found that quote quite annoying.
- 1-14-2017 Commitment.** Between the spin and the effort to restore pride, this was no surprise: "*It's possible to see the tiny Prime EV range as a lack of commitment on the part of Toyota rather than as a deliberate strategy. 20 – 25 miles is about as small a range as they could get away with and still claim value. It does seem like Toyo is at least five years behind and that Prime is *too little, too late.**" I especially liked that vague 5 year claim. What does that even mean? Volt struggled with sales growth until just recently. There's no guarantee demand will be retained either. Bolt rollout influence may only be temporary. Heck, it may end up drawing prospective Volt buyers. Where is GM's commitment to draw interest from those shopping for Malibu or Cruze? I ended up posting: It took awhile to figure out how to respond to such a profound misunderstanding of purpose & risk... Attempting to deliver as much as possible with as little as possible is a huge gamble that takes a great deal of research & development. Anyone can simply add more battery and hope for the best. It takes a lot of guts to deliver a minimum instead. Toyota is doing that with the 25 miles from Prime. Adding to that risk is taking the chance of not including liquid cooling. It's an expense & complexity avoided, which puts them ahead of others who are not investing in better chemistry for cooling. All the excuses & deflections attempting to draw attention away from the goal of replacing traditional vehicles simply won't work. How can something be too late when others haven't delivered on that goal yet? Nicely under \$30,000 selling profitably in high-volume is the purpose. We see the risk being taken. That's substantial commitment.

- 1-15-2017** **Lease Cheat.** I wondered what the situation truly was. The sales spike of Volt in December seemed to be more than just a rush to take advantage of claiming tax-credit money right away, rather than having to wait an additional year. Even if GM had planned for that, it still struck me as odd. I had contemplated the possibility of the new administration canceling the tax-credit too. It didn't strike me as likely though, since the president-elect had recently put an emphasis on American automakers. Why hurt GM like that... especially when you want to avoid drawing attention to solutions not favorable to the oil & coal industry. Then I stumbled across this: "*The Volt had some very aggressive lease incentives in December. You may not have been aware of this.*" So oddly written really caught my eye, knowing it came from a source normally not so clumsy with the keyboard. Why? Hmm. Anywho, that's quite plausible. GM has used lease incentives to stimulate numbers in the past. That very effectively conveys a false impression of strong demand. In reality, you get just short-term sales that harm long-term business. Look at the ineffectiveness the leases for gen-1 Volt were. How will gen-2 be any different?
- 1-16-2017** **Short-Term.** The limited mindset of short-term thinking never ceases to amaze me: "*I suggest that the Prime is mainly for traditional Toyota buyers who might otherwise trade in their Prii for Volts or Bolts. Toyota has noted what gets traded in most often for the Volt...*" He then went on to reinforce that spin with claims of desperation to stop those losses. Even if that was true, what difference would it make toward the clearly stated mission of traditional vehicle replacement? Toyota's effort to appeal to the masses is undeniable. That's far more than losing a few immediate sales to a just a small group of people. Ugh. Oh well. Thinking that way is futile... which would make my reply that way as well. I wanted to say my piece anyway: Quoting outdated data is misleading, but leaving out vital information is what tells the real story. True, Prius was indeed the most traded. But that was way back when gen-1 Volt was still new. There wasn't any other choice available. GM took advantage of that by offering very enticing lease deals. Who wouldn't trade in their old Prius for a dirt-cheap Volt they could part with after 3 years? In other words, GM took the risk, but lost out in the end. Those "*most traded*" people simply moved on after lease expired to other automakers; many were drawn to Tesla. Heck, we've even seen some of the most loyal Volt supporters declare a loyalty shift over to Bolt instead due to that desire for more EV. The purpose of building up owner to grow the market from within (attract GM's own customers) didn't happen. Traditional buyers weren't interested. That brings us to a question of purpose. If Prime retains Toyota showroom shoppers, what does gen-2 Volt do for GM? Hybrid owners cannot be the only target. Conquest & Cannibal sales are short-term only.

- 1-17-2017** **Weekend Getaway.** I was excited to read this: "*Sometimes I go on trips of 1500 to 3000 miles with no ability to charge. A Prime is going to obliterate a Volt for that, and not just in efficiency but also in space and comfort.*" That excitement came from having mine own recent experience to share: I just got back from a 1,600 mile long-week escape... which was hoped to be in a new Prius Prime. But with no sign of that yet, it was with the Prius PHV... which performed wonderfully. Efficiency at 80 mph (we crossed South Dakota) was remarkable, even at the freezing temperatures. Knowing Prime is even more efficient due to the engine's improved thermal efficiency and the fact that it can recharge on-the-fly for no-plug EV later will most definitely be a big plus over Volt. The raised floor will be a complete non-issue too. The seats are down for our convenience, leaving lots of room in back to shuffle stuff while on the road. So, I'm very much looking forward to the next trip. In the meantime, there's new photos for me to share. We got stuck in Wyoming due to an ice storm in Minnesota. Finding ourselves very close to Devil's Tower on a federal holiday was a golden opportunity. We had the place almost entirely to ourselves. With a light coating of snow, a cloudless blue sky, and a windless warm day, it was a remarkable experience. I went nuts with the camera.
- 1-18-2017** **Distractions.** This was an interesting question: "*Is it just me, or does anyone else feel like autonomous driving is a distraction from alternative fuels?*" With both the Detroit auto show and CES reaching for automotive industry attention, it does make you wonder. Remember all the V2G hype a few years ago? Did you even remember that stands for vehicle-to-grid. Supposedly, the next big thing was having battery-packs for plug-in vehicles serve as a storage medium for supplying power. The charge would be used for other electric devices elsewhere, rather than propulsion of that vehicle. It seemed bizarre. Why would you want to use of cycle of the battery's life for that? There are inherit losses with conversion too. At least with autonomous driving, it has something to do with driving. Why is taking away the experience of driving so important though? The reasons for "*fun to drive*" make no sense whatsoever if you aren't in control anymore. The feel of power & handling is completely eliminated then. Who will want to buy that? It goes against everything marketing has focused on over the past few decades. You'd wouldn't experience any of that with a computer driving the vehicle instead. In fact, the more you think about it, the more bizarre the idea becomes. Why?

1-19-2017 **Enthusiast Publications.** How do you respond to commentary about an article written by a performance favoring resource? They've been publishing reviews for enthusiasts for decades. Their reputation is built upon the study of design to deliver speed & handling. Acceleration reports are their life-blood. They drive vehicles hard to report findings for you to satisfy curiosity... not for the purchase of a family hauler. Your desire for "sport" is fulfilled, not wallet protection. That's fine for enthusiasts, but in no way representative of mainstream interest. That made the recent article comparing Volt to Prime a source of quandary. I ended up posting:

A fundamental problem with this article is the source it came from. Dating all the way back to 1999, nothing published from a performance magazine about Prius ever made sense. It's a mainstream vehicle, not something for enthusiasts. Yet, they still write about it, since that draws attention to them. So, we keep getting new articles.

Right from the start, it was problematic. With a mainstream perspective, you want to compare base models... since that's what those buyers will first consider for purchase. Ordinary showroom shoppers consider what packages to step up to based upon what they find from that entry-level offering. Comparing the Premier model to Advanced clues us in to the intended audience, one clearly different from mainstream buyers.

The true reveal of intent was the terrible representation of efficiency. Why the exclusion of efficiency ratings? Omitting that, yet including detail of acceleration observations is an blatant indication of what they prefer, which is clearly different from someone interested in what the plug actually delivers. Simply specifying EV capacity doesn't really tell much. Perhaps they don't understand what those values mean.

54 MPG combined rating for Prime verses 42 MPG combined rating for Volt should be obvious. Why was such obvious efficiency information excluded?

133 MPGe for Prime verses 106 MPGe for Volt won't be understood by ordinary consumers. Shouldn't the job of journalists be to explain what that means, rather than avoid mention of those ratings?

25 kWh/100 miles rating for Prime verses 31 kWh/100 miles rating for Volt tells us the true story. Yet, that wasn't included in the article either. It reveals to us how much less efficient of an electric vehicle Volt really is. Prime shines in this regard. Why only a 6 (out of 10) for efficiency then? It simply makes no sense giving Volt a 10 once you discover that detail. Volt is a guzzler of electricity in comparison.

Needless to say, the article caters to a "performance" audience, which misleads about the purpose of Prime.

- 1-20-2017** **Welcome.** What do you do when you encounter a die-hard GM supporter who just joined the big Prius forum and posted this: "*That'd be pretty frustrating if I was a Gen 1 PiP owner looking to upgrade to a Gen 2.*" Being such a staunch Volt enthusiast and having purchase a Bolt out-of-state, I figured the best approach to his obvious provoke was to welcome him, as well as point out his position: Hello. I see that you just joined this forum. Welcome. Having been a very active participant on the Volt website and now owning a Bolt, you know very well the importance of audience. How many times did I ask "*Who is the market for Volt?*" The upgrade from gen-1 to gen-2 is a big one, providing lots of enhancements. Owners will get lots of EV driving from Prime. They aren't looking for purity though. The engine will start-up from time to time, just like with Volt. Notice how you forgot to mention the time/distance criteria for Volt? The point is, you get outstanding MPG from Prime. So what if the engine runs. Seeing MPG well above that for even the regular Prius is the point. You get lots of EV for an affordable price.
- 1-20-2017** **Excuses Again.** Witnessing history repeat is fascinating. You are astonished to see mistakes be repeated. Who would not bother to study the past? Not learning from previous attempts is just plain stupid. Yet, that's what I see. What would you call such carelessness? It grows from innocent comments, like: "*With over twice the EV range and Hold mode, a Volt doesn't need a charge-mode to drag down its highway fuel economy. But if desired, Mountain mode can be used to provide 20 miles of EV to a depleted Volt battery.*" The omission of real-world data should raise concern. That's what got GM to change their stance. Initial impressions did not match reality. Look at the claimed necessities for a 5th seat and 0-60 speeds. Both have stirred major issue, despite real-world data. That realization suddenly makes dealing with the rhetoric far more complicated. The feature is nothing but a software alteration. No cost is involved. What does it mean to give drivers a choice? Excuses to justify no offering it is a very good indication there's a shortcoming being avoided... which is exactly what we saw in the past. I put it this way: Sounds just like the same weak excuses Volt enthusiasts used years ago to justify the lack of a HOLD mode. GM ended up delivering that with a mid-cycle upgrade. The trip I took just last weekend, from Minnesota to Wyoming with stops in between, would most definitely benefited from having a CHARGE mode. My routine trips up north would benefit too. There is plenty of driving around once you reach your destination that could be EV instead. Using some gas while cruising along the highway to provide that is a good balance of resources... which is what being a hybrid is all about.

- 1-20-2017** **Rogue & Niro.** First reviews have emerged. Both are new entries into the SUV hybrid market. Rogue is Nissan's attempt. With 330,000 purchased in the United States in 2016, there is definite potential to explore. The success of the RAV4 hybrid debut, which Toyota sold 45,070 of last year, further reinforces the reason to try. Setting expect is a challenge though. What will buyers want? It looks like a decent effort to compete. Kia's upcoming Niro takes a different approach at dealing with the same problem. It appears to be just a crossover wagon, not an actual SUV. The different is no AWD option. That would make it just like Toyota's upcoming C-HR hybrid instead. Whatever the case, it is still an endorsement for traditional vehicle replacement. After all these years of proving battery & motor technology is robust enough, this next step at affordability and packaging to appeal makes sense. (Next is to begin to dominate auto shows.) We are clearly making progress... at least with the technology. We are about to regress politically. That's really unfortunate. To know the new administration is strongly opposed to change is terribly disappointing. To all those who voted for that backward thinker, I hope you can overcome pride quickly. We going to need your help to get out of this self-inflicted disaster.
- 1-20-2017** **New Venue, fanbois.** After years of just barely hanging on, that daily blog for Volt has been all but abandoned. Bolt ended up killing it. There's simply nothing of interest related to Volt to draw attention anymore. The valuable accidental-reveals from arguments against Toyota have become highly unlikely now too. It's a resource that ran its course. So, the fanbois have moved on. I'm finding the same names elsewhere. The catch is, those other venues are only new to them. They are well established... by those who took the "*too little, too slowly*" concern seriously. That makes rhetoric much more difficult to spread. I obviously like that a lot. Far less nonsense to deal with is wonderful. They squandered their time, defending a niche with excuses rather than working to establish something for the masses. I hold a great deal of resentment for their push against mainstream offerings. Now, I have more allies who feel the same way. This is going to be fun!
- 1-21-2017** **New Venue, shame.** This didn't come from a crazed antagonist attempt to justify Volt, it was just car enthusiasts without much understanding of mainstream priorities or how Prius Prime actually works: "*It's a shame the PRIME's electric motors are so small. Buyers will need to learn how to put it in hybrid mode before entering highways...*" It took careful consideration of how to actually respond. With so many different approaches available, I chose to reply with: The assumptions many make online never cease to dumbfound me. You'd think they wouldn't knee-jerk react to numbers. Yet, we see it all the time. Thankfully, the test-drive experience reveals the true situation. That's the audience Toyota is targeting, those who give it a try, not those who just read enthusiast publications. The current Prius PHV offers 38 kW (51 hp) in EV mode. I've merged onto the highway quite a number of times without the engine starting with mine. Prius Prime bumps up the EV power to 68 kW (91 hp). So, it's very clear ordinary driving is easily covered. Spreading of a misconception about a "*learn how*" owner necessity ends here & now. EV-AUTO MODE is what those reading this need to learn about. That's a feature Prime offers in between EV and HV modes, when you want to favor EV as much as possible but need extra power in rare circumstances. In other words, that shame above is without merit. Please don't make assumptions. Upgrades offer improvements. Learn about them.

- 1-21-2017** **New Venue, obstruct.** I wasn't surprised to read this: "*12.2 seconds is slow enough to obstruct traffic.*" I knew exactly what to post in return too: What traffic? You're implying maximum acceleration is needed, without any context or example whatsoever. You've been greenwashed to believe faster is necessary. Driving a Prius PHV for 88K miles, I know quite well that is definitely not the case. I don't have to drop the pedal to the floor when merging onto highways. I have already test-driven a Prius Prime (while enduring the long delivery wait for mine) too. It effortlessly merged onto the 70 mph highway into to traffic in EV mode just fine, even with the electric-heater running. The claim of obstruction is without merit. Wanting more power to be a leader, rather than just going along with the flow of traffic, is fine. There is plenty of real-world experience proving there is not a need for it though.
- 1-21-2017** **New Venue, efficiency.** I really enjoyed responding to this: "*The difference between 106 mpge and 133 mpge is also huge. I wonder why...*" It really makes me wonder how people will reply in return to my post: There are many, many factors of influence beyond weight & aerodynamics. Pointing out why Prime has a more efficient EV drive than Volt will result in much retaliation though. So, be prepared for spin. The first reason should be obvious, the electric-motor. The type of wires and how tightly they are coiled are easy to understand differences. You can think of the efficiencies gained from just comparing to CPU design. The material & size make a big difference with electricity consumption too. The next thing that should easily come to mind is battery chemistry. Tolerances of electrical operation (discharge, temperature, responsiveness, etc) will have a major influence on the output. Then there's the not-so-obvious, the controllers & software. So many hardware components and lines of coding could have an impact about how the system operates. Heck, there's even the connections & wiring to take into consideration. GM's emphasis on simply providing more battery capacity reduced the priority of squeezing out greater efficiency from everything else. Toyota didn't take KWH for granted like that... hence the resulting higher MPGE value.
- 1-21-2017** **New Venue, phaseout.** A newly relocated antagonist posted: "*But the tax-credit doesn't go from \$7,500 to 0. It's phased out.*" He has been a royal pain in the you-know-what. Having him misplaced in this new venue, no longer in a safe haven should be interesting. I hit him with: Once the quantity limit is triggered, the phaseout starts a timer. The credit value is then reduced and the limit switches to a measure based on months. Success of Bolt will bring about that \$0 problem well before the product-cycle for gen-2 Volt is complete. How will GM sell Volt profitably then? There is currently a heavy dependence on the tax-credit money and battery-cost reduction is not enough to compensate. Toyota is already positioned to deal with that. (They have far more tax-credits still available too.) The Prime base-model MSRP is just \$27,100. Mock & Belittle all you want about battery-size. Prime is designed to deal with the lack of subsidies. Volt is not. That's a harsh business reality we will watch play out in the next few years.

- 1-21-2017** **New Venue, superiority.** It was only a matter of time before ranting about domestic automakers being better and (ironically) hydrogen being a distraction got posted. That came about on a thread comparing Volt to Prime, in comments related to that recent enthusiast publication. It wasn't about to let it get any traction. I jumped on that right away, firing off: Misleading about the other choices is a terrible approach to promoting electric propulsion. That 25 mph limitation is only prior to the system warming up and only applies to the models without a plug. So, it makes no sense whatsoever even mentioning it. What do you think the competition is anyway? If you believe it is other plug-in vehicles, you've lost your mind. They represent only a teeny tiny fraction of the market. Sales of traditional vehicles are absolutely crushing the choices offering a plug. Grow up and stop with the rhetoric! There's no place for that. We need to find ways together to offer affordable plug choices for mainstream buyers that automakers & dealers will gladly supply. That doesn't come about from misleading.
- 1-21-2017** **President Who?** Remember way back when, shortly after hybrid rollout began here? The impressive PNGV (Partnership for the Next Generation of Vehicle) program was canceled. That was the very effort which inspired Prius. It was the federally funded program to support research & development of advanced automotive technology to deliver clean & efficient solutions. Only Americans automakers were allowed to participate. Those from Japan were forced to compete without the same opportunity. Little did anyone now such exclusion would result in a profoundly better vehicle far sooner. Anyone, the program was replaced with "Freedom Car". What a joke. It didn't get as much funding, the timeline was extended dramatically, and expectations were lowered. That effort was clearly greenwashing, a ruse to distract & delay. What a terrible letdown by that new administration. Most people have no idea such a major undermining action ever took place. That same naive nature is what those proclaiming "*give him a chance*" will allow similar action to happen again. Heck, the repeating of history is what my blogs are loaded with. Complaint after complaint about not recognizing patterns fell on ears of those in great denial. Yesterday introduced us to a new president. Do you really know who he is? Already having strong ties to the oil industry and having proclaimed strong support for the coal industry during his campaign, there is reason for concern. Don't just sit by, choosing to react after the fact rather than stating demands. This is America. Shouldn't our market be the leader in green acceptance? Embracing solar & wind offers so much potential for new employment opportunity. Why not push for action before any executive decisions are made. Make sure it is well understood that we want abundant renewable electricity in our future. It makes no sense investing heavily in oil & coal. I know this all too well, having some family in Wyoming. The potential demonstrated here in Minnesota makes the solution so obvious. We just need to make sure others see that too. Start with a serious consideration of Prius Prime... an affordable plug-in for the masses.

1-22-2017 **Delivery Delay.** When you study Prius Prime, it becomes easy to see the future soon to arrive. We aren't talking years from now, after there's a scramble to deal with tax-credit expirations. It's later this year, once ramp-up is achieved. Toyota worked hard to deliver a configuration actually capable of competing with traditional vehicles, not dependent upon subsidies or incentives. That's something GM has yet to address... and the fanbois know that all too well. It's why the rhetoric attempts on that new venue failed to stir interest. Not being on their blog that catering to cheerleading has confirmed a variety of shortcomings. They wouldn't listen to me, but could simply use the label of "*troll*" to get their message heard. That doesn't work elsewhere... which they are finding out the hard way. No more spotlight. No more cheering. No more control. They have to address the true problems. That's quite vindicating; however, it can be humbling too. There are true problems. There are delivery delays of Prius Prime. We aren't sure how much each factor influences the overall results. All we know is there are bottlenecks in the production/assembly process. This is how I summarized the situation for a good friend: Worldwide rollout all at once, combined with carbon-fiber and wave-glass manufacturing challenges, along with industry sensor shortages, is a recipe for delay.

1-22-2017 **Back to asking "Who?"** The attempt to move on to growth took me back to audience again. Reading this comment from that on-going Volt to Prime comparison article did it: *"The whole point of driving a PHEV like the Volt is that you are driving it as close as you can to 100% of the time in EV mode. If you are doing the same in the Prime that means you're stuck with a 91 hp car most of the time. No thanks."* Most people have absolutely no clue what the numbers actually correlate to. They only know that more is better, from having been told that. Actual firsthand experience is an entirely different matter. I know. I have extensive experience. That much real-world data emboldens what you say. Hopefully, it wasn't too abrasive: 91 horsepower may not be to your liking, but it is clearly enough. With the 51 horsepower available in the Prius PHV (which I have been driving for nearly 5 years), local errand running and cruising along at 60 mph works just fine. Heck, I even routinely accelerate onto the highway without the gas-engine firing up. Adding another 40 horsepower raises the electric-only speed threshold to 84 mph and allows you to mash the pedal to the floor. I test-drove a Prime (while trying to patiently await the delivery of mine). Even with the electric-heater running, acceleration onto the nearby 70 mph highway was no big deal. That 91 horsepower of EV is up to the chore. The desire for more horsepower is easy to acknowledge. Though, that begs the question of who will be willing to pay for it? Who does Volt & Prime appeal to? Who are the intended buyers?

- 1-22-2017** **Appearance or Technology?** A new post this morning was about the shopping experience someone had. He and his wife simply couldn't get over the looks of Prius, so they purchased a Volt instead. It's entirely possible the "*ugly white plastic*" was a deterrent, but that's why there is an choice to get black instead. Of course, he never actually test-drove a Prime. He didn't even mention seeing one. My guess is there was an assumption of bigger battery only, not an entirely different interior & exterior... despite the 23 Prime photos included in the article. So, I injected this into the discussion: Huh? Your comments were about the regular Prius, not Prime. This further confuses what you posted: "*The full electric miles with no charging anxiety gives it an advantage that Toyota's technology just can't match. Car and Driver was right on with their honest review.*" Are you unaware that Prime provides 25 miles of full electric driving, at speeds up to 84 mph? With the new electric gas-injected heat-pump, it's even more efficient than what is offered for Volt. What is the "*can't match*" claim about technology based upon? Are you unaware that Toyota builds other hybrids with more powerful electric motors? Take a look at the RAV4 hybrid. Think about how little it would take to add a plug. Being a SUV with AWD makes it an especially appealing candidate for battery augmentation.
- 1-23-2017** **The Nightmare Begins.** Reading this today was confirmation of the disaster we feared: "*...a loosening of environmental rules and taxation for a major increase in manufacturing in the US.*" The context of that isn't necessary to even bother wasting any time on. We knew this administration was determined to turn back progress. It was inevitable. Elections of the past made it easy. They'd simply promise lower gas prices. That was all people needed to hear... since no other solution was realistic for mass acceptance yet. Now, we have far more than just a handful of choices. There are a large assortment of hybrids, plug-in hybrids, and electric-only vehicles either already available or being promoted as available in the next few years. That large of an alternative presence is too much to dismiss or ignore. That's why the technology itself isn't getting attention from the new administration. In fact, it's being ignored entirely. I haven't heard any mention whatsoever. All efforts are focused on undoing mandates established by our previous 8 years of environmental & technological advancement. It goes well beyond a "*why bother*" attitude. The feeling now an attitude of "*that has been proven ineffective*". We are watching a strong effort to bring back dirty guzzlers. The nightmare begins today with this confirming of intent. The goal was reachable too. They just didn't want to. Imagine telling your children how we had the ability, but decided they weren't important enough to try.

- 1-24-2017** **Focus.** Trying to get back to the simple things hasn't been easy. There's a lot of barriers to overcome, which makes getting stuck the norm. That's where "be patient" gets abused. Legitimate delay turns into excuses if you are not careful. Objectivity is nearly impossible online though. The venue doesn't promote that; instead, it encourages participation through rhetoric. That's what compels many to sound off... hence the problems we had with the election. Focus was on hype, not constructive exchanges. Needless to say, that situation applies to the clean & efficient market too. They focus on praise for engineering achievement... not with the lack of accomplishment. Addressing the need to reach ordinary consumers is almost a taboo topic. Heavy dependency on subsidizing through tax-credits is the problem. The seemingly endless supply is shrinking. We can actually see the end approaching. That's very bad news for vehicles with uncompetitive MSRPs. A price too high to champion what mainstream buyers expect spells imminent doom... and the Volt enthusiasts know it. So, why not focus on what can be accomplished instead... namely the move of Voltec to a vehicle that will actually result in growth. My commentary on the situation today was: With the technology GM delivered proven and the pool of enthusiasts exhausted, there are questions about next steps to achieve growth... even without an administration opposed to changing the status quo. Concerns of business challenges were brushed aside in the past, claiming great engineering of Voltec was all that would be needed. We clearly see now that isn't the case. What should the focus be?
- 1-24-2017** **Unacceptable.** Someone totally new to what's left of the daily blog for Volt joined, with a very open mind. The attempt to be constructive showed signs of weakness right away though: *"Sales growth is not THE GOAL. In a period of lower than average petrol costs, a compelling design, efficiency, unit profitability, marketing value, and sales volume are ALL important. If GM has found right volume mixes for the Volt and Bolt in the current economic climate they are doing the right thing for GM."* The fallback to defending the status quo with excuses emerged far too soon. That was a big let down, especially on a discussion thread addressing the problems EPA now faces under this new administration. Deflated about the lost potential, I replied with: EPA rulings being changed will continue to keep gas costs low for many, many years to come. The right thing to do is pushing for sales growth regardless. That means offering a configuration fitting that criteria... compelling, efficient, profitable, marketable... in high-volume. Otherwise, the clean tech only makes it to a limited number of drivers. Each sale of a plug-in means one less dirty guzzler in traffic for the next decade. A small battery-pack is far better than no battery-pack at all. I had to put up with the *"wait for gen-2 rollout"* promises for years, despite knowing the push for more drilling and more pipelines would result in cheap gas challenges. Yet, excuses for delay were the mantra. Climate-Change is a problem now. Clean air is a problem now. Good enough is unacceptable.

- 1-25-2017** **What Does Competitive Mean?** I really wanted to get a sincere answer, instead: "*It means GM has a 200+ BEV targeted for mainstream buyers and Toyota does not have one.*" Getting that was annoying. The greenwash of more is better clouds judgment. How can that be the only solution to replacing traditional vehicles? They are the competition on the showroom floor. Knowing that basically anything I post is futile, it's difficult finding a way to proceed. But if you want others to break out of that mindset, you have to keep trying: How can not having any competition be the definition of competitive? The competition we've been expecting from GM is for Volt technology to be offered as a model choice for its own mainstream vehicles, not conquest sales from other automakers. Toyota is working to have its own traditional offerings compete with plug-in hybrid models of the same vehicle. Imagining a Prime version of RAV4 is very easy, especially now that we've seen how affordably that was achieved for Prius. Bolt seems like an abandonment, as if Volt was only a stop-gap until a long-range EV could be delivered. Will we ever see a Malibu hybrid with a plug offered? What about any type of Equinox hybrid? How will AWD and towing requirements be fulfilled? Do you really expect GM customers to just purchase a Bolt instead? In other words, know your audience. Who the competition is makes a huge difference. If GM customers don't have better choices, they'll just settle for traditional models.
- 1-25-2017** **Audience Differences.** It's very interesting to read the results of the same testing interpreted a very different way. Good Housekeeping published an article listing Prius Two Eco as the "*best new hybrid*". That wasn't the conclusion Car & Driver came to though. Their audiences have basically nothing in common. One caters to ordinary mainstream consumers, the other automotive enthusiasts. So, it totally makes sense to see their opinions vary so much. Testing involved driving 1,200 miles on both test tracks and open roads. Rating included value, safety, smoothness, handling, interior design, comfort, and onboard technology.
- 1-26-2017** **What Happened?** Emotion is stirring. Consequences of Volt failing to target GM's own showroom shoppers is increasingly becoming a problem. That realization of conquest not paying the bills really hurts. It's not a victory if loyal customers don't change. Yet, this gets asked anyway: "*Why can't it be conquest sales of mainstream (non-plugin) vehicles from competitors?*" That clear denial of the situation is deflection, attempting to justify an outcome that didn't achieve the goals that were set. I'm getting really tired of the fight to keep the status quo. Change is necessary. Find a way to deal with it. Stop making excuses. Look at how much Prius Prime differs from gen-3 Prius. Both were configured to appeal to the masses. Both faced major challenges to fulfill requirements of a difficult market. Volt didn't do that. Production cost is far too high. That much EV range was not needed. That much power was not needed. Improved efficiency & seating was. To make matters worse, we're seeing an acceptance of diesel... despite the VW cheating scandal having seriously damaged appeal for diesel. In dismay, I posted: Continuing to turn a blind eye to all the popular cars & SUVs that GM produces is just plain terrible. What a horrible attitude. That is totally unacceptable... especially after so many years of plug-in promises. Remember all the hope for Voltec to be spread to other vehicles? What happened? Why are Cruze & Equinox getting diesel instead?

1-26-2017 **Blind Eye.** There has been a ramping of of rhetoric lately: "*What has Toyota done? Nothing other than a hydrogen fool cell science project.*" The reason is simple, the competition is coming. Toyota is deploying Prius Prime to dealers under the must-hold program. They are forced to retain a demo-model for 6 months. After that, it can be sold. Until then, there is a guarantee customers will have something to look at and test drive. That was a very effective rollout technique we saw with the Classic model. It was a painful process though. You'd have to endure the long delivery wait after placing your order. I did that back then and I'm doing it again now. That time seems to drag on forever. But during the Winter here in Minnesota, it's easier. I can wait until Spring emerges. Photos & Video will be much easier then. Anywho, this was my punch back:

Sounds like an alternate reality. By year end, Toyota would have introduced and rolled out in that same time:

- C-HR hybrid
- RAV4 hybrid
- Corolla hybrid
- Prius v
- Prius c
- Prius PHV
- Prius Prime

There were also these next-gen upgrades to long-available hybrid offerings:

- Prius
- Camry hybrid
- Highlander hybrid

In addition to new vehicles & upgrades, the production of dual-wave glass (for better aerodynamics) and low-cost carbon-fiber (for weight reduction) has also been put in place.

The attempt to evade answering the on-topic question about diesel and instead attempting to divert attention to hydrogen is quite telling. The claim that Toyota hasn't done anything is a flat out denial, which makes your reply quite ironic: "*Who's turning a blind eye?*"

1-26-2017 **Nissan Rogue Hybrid.** Some details have been released. It will come with a 4-cylinder 2.0 liter gas-engine and a 30 kW electric-motor. Resulting 176 horsepower is lower than the 194 from the RAV4 hybrid, which has a larger engine (2.5 liter) and more powerful front electric-motor (104 kW). The Toyota also has a rear electric-motor (50 kW). Nothing was mentioned about towing for the Nissan. We know that Toyota's is 1,750 pounds. Resulting efficiency from the AWD model is 33 MPG, which is 1 MPG higher. Rogue price is expected to be similar; however, RAV4 comes with pre-collision braking, adaptive cruise, automatic high-beams, and lane-departure alert with steering assist standard. In other words, it will likely be a nice choice for Nissan customers but a challenge to compete with Toyota. Seeing Nissan make this move is reassuring. Nothing but EV offerings could make the future difficult. A mix with hybrid balances out the product-line. Not everyone has access to a plug.

- 1-26-2017** **Desperate Deflection.** It's getting really bad: "*How much longer do we have to deal with *too little too late* from Toyota?*" The news of Equinox getting a diesel upgrade rather than Voltec has infuriated the last of the enthusiasts. Everyone else has given up and moved on. That's why we see so much attention being paid to Bolt. Discussion of Volt is just a distance memory now. Sales settling at a rate well below sustainability is a very real concern. It's too expensive to survive without tax-credit subsidizing, money GM would prefer to use for Bolt instead. So, getting that desperate deflection, I asked about Equinox diesel: Why is GM endorsing such a dirty & inefficient technology? It simply makes no sense, especially so long after having rolled out Volt. The expectation has been that their popular selling compact SUV would finally get a Voltec system; instead, it gets diesel. No amount of spin will make that competitive with a plug-in hybrid. GM's weak attempt to supposedly compete is being called out. Say whatever you want about Toyota. They already offer a compact SUV with AWD that has a hybrid system, which continues to sell very well. We know the hybrid design can accommodate a larger battery & plug too. GM doesn't have either. That's why you have to deal with it. How much longer must we wait?
- 1-27-2017** **Critical Decision Time.** My ranting has begun. It's time to push for change. Hearing that we must endure more of the same isn't acceptable, especially with the rapidly growing problems coming from the new administration. There's an obvious effort to undermine progress. Controversial oil projects are getting clearance to proceed and work is being done to dismantle environmental protection acts. I came out swinging today: Seeing Volt almost vanish entirely from discussions, now that Bolt is available, has stirred curiosity. But it was avoidance of the topic of Equinox that keeps me coming back, especially with so much favor for the Chrysler's plug-in Pacifica recently. Avoidance of the topic of Two-Mode prior to Volt rollout remained a nagging theme. Why was that history an issue? Despite such obvious parallels, there was a fierce effort to evade references pointing that out. Volt was the successor after all. How come acknowledgement of that was such a problem? Then it hit me: GM's preference for SUVs over cars. The reason for gen-2 Volt remaining a compact car with rear-seating size complaints not having been addressed was the clue. There's more room in a SUV. Any hint of GM planning to offer Equinox with Voltec would have an immediate negative impact on Volt sales. No wonder even the mere mention of showroom shopping stirred such anger. It really was the true source of concern. Volt's biggest threat is GM wanting to sell SUVs instead. Equinox is already a best-seller. Adding the plug-in system to it would make a major draw... enough to raise concern from die-hard Volt enthusiasts. There's a very real fear of cutting losses. The plug-in market is volatile and compact cars are not popular. The hope of gen-2 Volt reaching a sustainable sales level, enough to overcome tax-credit expiration, is far from certain. Watch how things play out. A critical decision time is approaching.

1-28-2017 **Too Late For What?** The concern is very easy to see now. Like with both the downfall of Two-Mode and gen-1 Volt, the situation becomes clear as the 2-year mark approaches. Rather than making excuses though, there are attempts to somehow claim Toyota failed. The obvious question is: what? Stating goals was always the problem. Enthusiasts would evade accountability... and have been for many, many years. Continuing that has become extremely difficult though, hence the approach change... they repel... I strike right where they are most vulnerable. Changing the status quo is my goal. They are stuck in a rut and don't want to admit it. This was my provoke:

"Too Little, Too Slowly" was the concern expressed as part of the bankruptcy recovery. The response to that was assurance that Volt would target the mainstream and become an ordinary part of the product-line, an improvement loyal GM buyers will choose instead. Gen-1 ended up falling well short of that. We were told to be patient, the next-gen would overcome sales obstacles. Gen-2 ended up falling short too. We were told to continue to be patient.

That's changing now. The response is switching to *"Too Little, Too Late"* expressed about the supposed competition. That's clearly an attempt to draw attention elsewhere, to conceal the true on-going problem of *"Over Promise, Under Deliver"*. That was the very problem GM was dealing with prior to the bankruptcy. Evidence is building to reveal something significant must change.

More and more, it's becoming undeniable that GM delivered a "sport" car rather than something intended to result in an improvement in the product-line. Bolt is what Volt should have been. GM delivered that long-awaited roomy interior to a different vehicle. Volt didn't get the much requested upgrade.

The explains why the idea of Equinox with Voltec results in so much deflection. Evidence is growing that people will be happy to trade EV range of a compact car for a plug-in SUV instead. In fact, that is why Bolt isn't a SUV. It's not even a FWD crossover. It's a wagon, so it won't clash with GM's upcoming reset.

No matter what the spin or the number of deflect attempts, that reality of Volt unsuccessfully drawing sales of loyal GM customers cannot be avoided. GM sees how Toyota, Mitsubishi, Hyundai, and Nissan are all preparing to deliver plug-in hybrid SUVs. We even got a hint recently that Ford may be working on that too. Voltec was claimed to be a *"game changer"*. What happened to that GM leadership we told to expect?

1-29-2017 **Electric Improvements.** There was an article today posted about the Fusion Energi, the plug-in hybrid sedan offered by Ford. The writer reported it taking 6.6 hours for the 19-mile rated 7.6 kWh battery-pack to recharge. That's interesting to read. It only takes 5.5 hours for the 25-mile rated 8.8 kWh battery-pack in Prius Prime. The speed improvement from a gen-1 offering to a gen-2 years later is good news for any of those who will be plugging in at home into an ordinary 120-volt household outlet. I suspect many won't bother with a level-2 charger. Why spend the money for a 240-volt system when what you have already will work just fine for overnight recharging? Improvements like that are great. There's another good electric improvement to highlight though. The EPA continues to tweak rating information. Detail was limited back in November. But now with new vehicles being tested, like Hyundai Ioniq, the rating values are being reviewed... and revised, if necessary. Turns out when looking up the Ford information, I discovered the Prius Prime value had been updated:

35 kWh/100 mi = 97 MPGe = 2017 Ford Fusion Energi
35 kWh/100 mi = 98 MPGe = 2015 Chevy Volt
31 kWh/100 mi = 106 MPGe = 2017 Chevy Volt
30 kWh/100 mi = 114 MPGe = 2016 Nissan Leaf
30 kWh/100 mi = 116 MPGe = 2016 VW e-Golf
29 kWh/100 mi = 111 MPGe = 2017 BMW i3 PHEV
28 kWh/100 mi = 119 MPGe = 2017 Chevy Bolt
27 kWh/100 mi = 124 MPGe = 2017 BMW i3 EV
25 kWh/100 mi = 133 MPGe = 2017 Toyota Prius Prime

1-29-2017 **Whoa!** Things are getting quite out of hand. One particular Volt enthusiast very angry with Toyota is attempting to push the fake news theme way further than I have ever witnessed. Rather than post misleading or alternative facts, he's trying to portray the situation as if there is no such thing as Prius Prime. Pretending it doesn't even exist is so desperate, I don't quite know how to react. That's denial to an extreme. Here's my attempt at trying to deal with it:

Pretending Toyota isn't in the process of rolling a new plug-in is truly bizarre. It meets the EREV criteria Volt enthusiasts have held dear for years. So, origin of that denial is easy to understand. But why would you keep chanting "*too late*" without anything actually having been missed yet?

Consumers are only now learning of plug-in vehicles and very few mainstream shoppers have actually begun considering the purchase of one. Prius Prime is an affordable choice they'll stumble upon. With a MSRP of \$27,100 and a full electric driving experience for 25 miles, we can see the beginning of the market for ordinary consumers taking shape. It's the first to break out beyond being a niche.

Claiming "*too late*" and ignoring new choices can be detrimental. People will notice that behavior and question motive. Keep in mind, GM was once so opposed to EVs that they filed a marketing trademark for "*range anxiety*". Change does happen. It is ok to accept.

1-29-2017 **Not Seeing The Point.** It's really a matter of not wanting to see it: "*When is the Prius gonna die already? Sheesh, it was great in it's time, but Toyota just can't let go of ICE. Granted, they make a huge amount off the brand recognition alone, but now with a 240 mile Bolt, I don't see the point??*" That's the same type of person who simply dismisses the rest of the market, pretending the vehicles purchased today won't be on the road a decade from now still. All they actually see is what they want, reassuring themselves that if the most possible battery capacity is selling, even in extremely low quantity with the help of subsidies, their work is done. Care about reaching the masses just plain isn't there. It's that engineer-only perspective. If the technology is there, people should be buying it. Things like affordability are totally disregarded or claimed unimportant or justified by total cost of ownership. It's really unfortunate we have to deal with such attitude. That is reality though. So, we do: \$27,100 MSRP and overnight recharge with existing ordinary 120-volt household outlets is the point. Toyota wants to reach mainstream consumers right away. Bolt doesn't come even remotely close to fulfilling that criteria. It depends heavily upon the tax-credit subsidy and expects owners to upgrade their garage. Those are business & consumer expenses Prius Prime doesn't require. As for letting go of the ICE, are you implying Volt should be abandoned in favor of Bolt? If not, what is the point of Volt?

1-29-2017 **Revising.** Every time a milestone is missing, there's a revision. The resulting spin can be quite compelling to read too. Desperation stirs imagination... but not always. Sometimes, the person just twists the situation around and accuses you of what they are guilty of: "*your revisionist history is showing*". That comment today didn't stir much though. These blogs contains quotes of the past, documenting the stance they had taken back then... clearly confirming they are the ones revising. I simply responded with some facts to mull over:

I am looking forward to your revised definition of EREV.

Remember how it started, while Volt was still being developed? Back then, the expectation was for the system to be a series hybrid. That meant the gas-engine never directly powered the wheels; instead, it was only used for generating electricity. When that was revealed to not be the case, the definition of EREV was changed to fit what Volt would actually deliver.

Then when C-Max Energi came about, it sent the Volt community into a state of panic. Another plug-in hybrid had fulfilled the same requirement criteria. They got over it though, since Ford was a domestic automaker. But when Prius PHV came along later, renewed panic resulted in a new definition. To be EREV, there was now an arbitrary electric speed & power minimum to deliver... values obviously derived to exclude Toyota's offering and obscure the goal of boosting MPG.

Now, here comes Prius Prime. It fulfills that requirement of more speed & power without any doubt. 84 mph with to-the-floor EV acceleration, along with a very efficient low-temperature electric heater, prevent any debate about satisfying the EREV definition. So, I await revised criteria.

Need I point out that BMW's i3 actually does fulfill the original definition? The gas-engine is nothing but a tiny generator. There is no mechanical connection whatsoever the drive-shaft. There are only wires. And with so much larger of a battery-capacity (97 miles verses Volt's 53 miles), need for the gas-engine is significantly reduced.

In other words, we need to start looking at plug-in hybrids for what they deliver. It's those end results that count, not how they are achieved. That's how we win the fight against traditional vehicles, which is especially important knowing GM is about to push diesel for Equinox.

- 1-29-2017** **Embarrassing.** You can see an end drawing near; the spin is showing signs of desperation: *"25 miles of electric range, from the company which made the first popular full hybrid car, is downright embarrassing. It doesn't hold a candle to the new Volt's 53 miles of EPA rated electric range."* It's really sad how some don't see that the true competition is traditional vehicles, not other plug-in offerings. The catch is, they have to admit some plug-in choices won't be good ones. Facing that reality of a failure is extremely difficult... and self-inflicted. If you know change is part of the process, acceptance is much easier. That's what made Prius PHV such a problem for some. They recognized it was mid-cycle offering with a very limited scope. Having rolled out to just 15 states and only a small quantity made taking the next step to Prius Prime a simple one. The mess Volt left with gen-1 meant gen-2 would struggle to re-educate. Finding out gen-2 doesn't appeal to mainstream buyers makes the situation even worse. So, enthusiasts turn to emotional appeal, rather than remain constructive. Oh well. All I can do is confront them with facts: Embarrassing? You've totally lost perspective. The goal is to replace traditional vehicles with plug choices. \$27,100 MSRP positions the technology to be directly competitive. Prius Prime is configured well in that regard, an accomplishment to be proud of. \$33,220 MSRP for Volt is what? It's heavy dependence on tax-credit to subsidize sales and compensate for the smaller rear seating certainly isn't a bragging point. We want plug-in purchased by the masses. Don't forget how much importance they place on price.
- 1-29-2017** **Lots Of Potential.** What I posted wasn't well received... since it made sense. That was predictable. So, I just kept posting. The next step was to point out the potential and explain reasoning. The catch is you have to be to the point. Losing the bigger picture can happen when you provide detail. Antagonists get hung up on pointless facts, spinning a web of deception simply by misdirecting. So, I summarized instead: We see that same *"too little, too late"* chant regularly now. It's the result of Toyota having successfully delivered an affordable plug-in hybrid system sooner than GM. No need for the complexity & expense of liquid cooling. Like Nissan, Toyota invested in better chemistry to prevent that need. And to make a Prius into a Prime, all that's basically needed is a clutch, charger, and a larger battery. So, it's easy to see lots of potential.
- 1-30-2017** **Charge Mode Data.** A report from driving around with a Prius Prime. Yeah! The information we get from actual owners is so much better than having to deal with undermining. You have no idea how welcome this is. The a change of pace this hints at is wonderful. We have much to look forward to in the coming months. In the meantime: *"Highway driving 12 miles around 65mph for 11 minutes. In CHG mode shows 37.2 MPG while battery charged from 0 to 25% (6.5 mile ev range). 8.9 kw charging rate consistent with..."* Others have also observed that aggressive recharging ability. That's a nice new feature few have ever experimented with. Results vary quite a bit though. In this case, the efficiency hit was exactly as you'd expect. There should be a penalty of some sort when using gas to generate electricity. Reports of others witnessing less impact is what peaks my interest. What are the circumstances then? Knowing when to recommend use of the charging feature is very important. It's easy to misuse something like that. It's easy to misinterpret impact to overall efficiency too. Whatever the case, we'll eventually figure that out. For those, we're in the early stages, still sorting out the few details currently available.

- 1-31-2017** **Fuel Cells.** Wow! What a dramatic end to an absolutely desperate attempt to divert focus from Volt. For years, GM supporters have ridiculed Toyota supporters for their diversification effort. They don't spin it that way though. The misleading is to get you to believe all of Toyota's research is devoted to fuel-cell development, that plugging in is looked upon as a wasted effort. Over and over and over again, mention of Volt sales struggle would be rebutted with "*hydrogen*" anti-propaganda. Some were so dead set against the diversification, they believed that was all they ever needed to mention for Toyota arguments. It was amazing to see such close-mindedness play out. It comes from the one-size-fits-all stance. Fighting an array of choices, rather than just a single solution, is beyond their understanding. So, the approach of fighting anything that doesn't fit your expectation is considered valid. That took a dramatic & permanent turn today though. GM announced an \$85 million partnership with Honda to advance their fuel-cell technology. GM embraced hydrogen. The very thing these smug antagonists most feared became a reality. I couldn't have been more delighted. The timing was absolutely perfect. The idiot who had just posted a rant about how terrible fuel-cells were and how thankful he was that GM would never endorse such a technology now had several headlines in major publications stating the very opposite of that. My guess is that he was so angered by the revelation that I'll never hear that line of arguments ever again. And if it does happen, I'll just requote his post. I saved a link to it, just in case.
- 2-02-2017** **Bittersweet.** Monthly sales results often stir new discussion. This was today's quote of interest: "*There's some bitter sweetness to the Bolt EV. I think we will see the Bolt EV outsell the Volt.*" Seeing certain enthusiasts already mulling that perspective is encouraging. Steps forward have to begin somehow. My issue has always been packaging. Choosing such a small vehicle and squishing so much capacity into it was an imbalance too great to overcome. Ordinary consumers wouldn't be willing to accept that tradeoff of cost & comfort. And sure enough, that was indeed the outcome. That's why reaching mainstream buyers has become such a issue of contention now. I expressed that point with: The lack of growth from year-2 of gen-2 Volt does paint that picture. The massive drop from 3,691 in December to just 1,611 in January provides reason for concern. Dropping back to gen-1 levels, despite significant increased support for plug-in vehicles recently, isn't encouraging. The overall goal of replacing traditional vehicles can still be achieved, but there will need to be adjustments along the way. In the case of Voltec, the compact car packaging continues to be a barrier to growth. Choosing to offer it in a small SUV would be a wise next step.
- 2-02-2017** **Choice.** Some people either don't learn or don't want to accept certain outcomes. With one person, who is rather well respected on the big Prius forum, it was using inflation to justify the still too high price of Volt. After arguing in circles, without making any progress, we ended up getting: "*Choice is good.*" I continued to push: A choice of "*nicely under \$30,000*" was the price goal set by GM. The reason for setting that was simple. A configuration able to achieve that with low enough production cost would be both competitive & profitable with other choices available on the dealer's showroom floor. Otherwise, those shoppers will just purchase a different GM vehicle instead. We still don't see that choice of GM plug-in hybrid yet. True, taking the tax-credit subsidy from the MSRP would achieve that goal. But it limits inventory to well below competitive volume and is extremely short-term... hence the close look at Toyota's design. People want to know how Prius & Prime are able to overcome both engineering & business obstacles.

- 2-02-2017 Acknowledgement.** Being quite annoyed by the obvious effort to deflect, I finally lashed out. The constant attempts to change the subject to Toyota are signs of desperation so obvious, it's hard to believe so many enablers are putting up with it. It persists, continuing to post information about GM itself, keeping on topic rather than taking the bait. Sales results bringing out the worst in them is why I end up taking such a terse stance. Today, the response to January sales was to post them... but not cherry-pick only plug-in vehicles. This was showing numbers for the traditional vehicles too. That perspective is quite harsh, especially looking at the entire year. They speak for themselves: It's been nothing but positive news the last 2 months, no matter how you try to spin it. They say the most difficult step to overcoming a problem is acknowledgement... For 2015: Equinox = 277,589; Cruze = 226,602; Malibu = 194,854; Impala = 116,825; Camaro = 77,502; Sonic = 64,775; Trax = 63,030; Corvette = 33,329; Spark = 32,809; Volt = 15,393. For 2016: Equinox = 242,195; Malibu = 227,881; Cruze = 188,876; Impala = 97,006; Trax = 79,016; Camaro = 72,705; Sonic = 55,255; Corvette = 29,995; Spark = 35,511; Volt = 24,739. See the problem now? Growth of sales does not come from pretending all is going well or crying foul. With Bolt now stealing away both the spotlight and tax-credits, it is time to finally get serious about the situation with Volt.
- 2-02-2017 Price Points.** He responded with the same old pigheaded response: "*How am I moving the goal post? Inflation exists.*" I wasn't even the one who mentioned goal-posts this time. Someone else got annoyed by such a lame excuse, giving me a like and him a scolding. My reply was a simple counter: That's why PRICE POINTS exist. You can't just pick the economic factors you like and disregard the ones you don't. An automaker targets a vehicle for that, then makes adjustments as the years pass to retain that positioning. Yes, we've seen a gradual climb over the decades, but being that far off target has proven a barrier to mass acceptance. In fact, that is the very reason why the subsidy exists, to temporarily counter pricing while those adjustments are being made... and time is quickly running out.
- 2-02-2017 Disruption.** It's well known and nearly impossible to argue, gas consumption of the large number of Prius replacing traditional vehicles is much lower than that of the small number of Volt. Looking at the big picture makes that obvious. This is why debates focus solely in individual vehicles. In other words, bragging rights outweigh that of actually making a real difference. Again, this is why the motive of enthusiasts has so little in common with that of supporters. Goals clearly have not been the same. There is a bit of hope though: "*It will have to sell in mass in order to disrupt as much oil consumption as the Volt does. The AER is pitifully small.*" That glimmer of change... actual acknowledgement of fleet impact... is encouraging. I wonder how this will be responded to: With the Premium model \$28,800 and a large number of \$4,502 tax-credits available, selling twice as many Prime as Volt won't be that difficult. That's seriously good short & mid term pricing. The base MSRP of \$27,100 certainly sets up the offerings as a realistic long-term contender too. Even with the supposed "*pitiful*" range, owners will see very high MPG regardless. There's the advantage of Prime being more efficient than Volt in both electric & gas modes too. So, more battery isn't necessarily better. In other words, stop with the "*vastly superior*" crap already. It's time to address what needs to be done to get the masses to purchase plug-in vehicles. Just because the packaging of Volt hasn't resulted in significant growth doesn't mean the same tech in a different body won't.

2-04-2017 Challenges. Some constructive talk is emerging out of the chaos. I suspect some of it is the result of early Prime sales are showing strong rollout potential. This was the post I selected as discussion worthy: "*The Prime can probably challenge for best selling plug-in for 2017... IF Toyota actually wants to sell it en mass.*" This was my response: Rollout is worldwide, all at the same time. So, even if the sales total for the year is similar to others here, there are many more which must be accounted for. The big part of the first-year ramp-up challenge for Toyota is the effort to improve efficiency in new ways. They are delivering a low-cost carbon-fiber component: the back hatch. That's a complex shaped piece which gets banged shut routinely. Being able to deliver that in high-volume opens up great opportunity for other pieces in the next generation. The weight-reduction benefit is obvious. The other effort is delivering a dual-wave rear window. Doing that in an affordable manner provides an aerodynamic benefit. It also delivers style we have only seen elsewhere on very expensive vehicles. GM deserves compliment for making Bolt a practical shape. That can be counted as exploring new options. It clearly addresses the low rear-seating issue in Volt. The catch is, that success should finally result in a Voltec variant offering something similar. In a body like Equinox or Trax, it's easier to justify the higher price than with Volt, a compact car. Car sales only represent part of the market anyway. We can see plug-in SUVs on the way. Toyota, Nissan, Hyundai/Kia, and Mitsubishi are all heading in that direction. There's the Chrysler minivan too. It seems odd for GM not to be part of that.

2-04-2017 Validation. He completely exhausted all excuses, turning to spin: "*True, Toyota is following the Volt's design. Great validation!*" It's bizarre how desperate a few get defending a lost cause. Oh well. Losing a battle is not like losing the war. You acknowledge the error and move on. I couldn't let it go without looking back to point out the attempt to damage-control mislead: Toyota was already increasing EV top speed with Prius upgrades. It started at 42 mph. Then it went to 46 mph. Then it got bumped to 62 mph. Then it was raised to 72 mph. Then it finally settled at 84 mph. Each was direct result of the battery improvements. So, there is nothing to claim in relation to Volt. Toyota determined liquid-cooling for the battery-pack was an unnecessary complexity that added cost to the design, so they definitely did not follow Volt in that regard. The biggest did not follow though was not rolling out a design dependent upon cost-reductions coming later or tax-credits. Toyota offered battery-capacity based upon what they determined to be profitable. So, that validation claim is not true. It isn't even an alternative fact.

- 2-04-2017** **Competing.** There's quite a bit of spin near the end. We saw it with Two-Mode. We saw it with BAS. We saw it with gen-1 Volt. We saw it with eAssist. Each time GM attempts to dominate a market segment with a new high-efficiency technology, things get ugly. The process of dealing with it starts with the goals having been missed entirely or falling well short, which could be constructive... but sadly, hasn't been. The effort to get back on track is circumvented anyway. GM simply introduces a new product instead. That's what we are seeing take place with gen-2 Volt. The spotlight has been shifted over to Bolt instead. The whole idea of "*range anxiety*" has completely fallen apart. The anti-EV automaker has embraced the EV. All that marketing for Volt as the superior choice was for what? It wasn't just an idea on paper or something advertised on television. The campaign resulted in 100,000 sales... which sound impressive. Unfortunately, the heavy dependence on subsidizing profit using tax-credits has become a very real problem. What should be done now? That's a very good question. But rather than answer it in any fashion, the choice has been to seek out validation. Today, it was this spin: "*Toyota is following the Volt's design. Great validation!*" That came about by asking what the purpose of gen-2 Volt was now that "*range anxiety*" has been alleviated by Bolt. Ugh. Oh well, this was my follow up: It was nice to see gen-2 Volt take on the blending characteristic of Prius. That was validation of common goals. You know all too well that Voltec didn't go for traditional vehicle competitiveness (matching mainstream purchase priorities). For gen-1, that was fine for the sake of proving the technology was capable. But for gen-2, it's revealing itself to be an overkill approach... which is how Bolt fits into the picture. That engineering was carried over to make a worthwhile EV introduction... and clears the way to alter Voltec into a matured configuration, so it can compete directly with traditional vehicles.
- 2-05-2017** **\$1,000 Shipping.** There is one dealer in Wisconsin who somehow has had a few unspoken for Prime to sell. How could just that one have them available? It was making some of us crazy... especially after hearing the story about a Prius owner on a trip from Missouri who just happened to stop there out of curiosity and ended up driving home in a new Prime. Talking about lucky! Turns out, that dealer has been purchasing them out on the East Coast and having them shipped over on a truck. For their effort, a fee of \$1,000 is added to the sale. It's a convenience some people have been willing to pay for. I did something similar 5 years ago to get my Prius PHV. Knowing an absolutely wonderful salesperson in Los Angeles, it was just a matter of placing an order with her and contracting my own delivery truck. That would cost me less than \$1,000 to do that again. So, the dealer is clearly making a small profit, especially with the truck fully loaded with Prime. Ordering locally was important this time. Being part of the local plug-in owners group, there's a huge benefit from establishing dealer contacts. We seek out well informed and helpful salespeople, they direct plug-in business to them. It's a win-win situation. One thing we hadn't expected was a dealer being so willing to help, they'd take it upon themselves to seek out distant inventory rather than waiting for regional distribution. Education of business & customer needs to start somewhere.

2-06-2017 **72 Degrees.** Having enough battery power to drive the entire depletion of coolant heat almost never happens. Today was different. Traffic was really heavy due to the snow falling. My wife and I (we commute together) decided to take the back way to work. That route is quite scenic and likely wouldn't take much longer than the heavily congested highway anyway. That meant a lot of EV driving opportunity, after the engine got fully warmed up. I got excited when I saw the circumstances play out. I announced the temperature drop as the degrees fell. Witnessing surprises lows was nothing new. Even with the temperature outside well below freezing, it was still quite realistic to drive several miles with the engine off. That inevitably concluded with the end of EV capacity of the end of suburb driving. Today, luck was in my favor. True, I had just jumped onto the 55 mph highway to cross the river, but the battery-pack was almost depleted already... and the coolant temperature had already exceeded the lowest state I had ever seen. My chance to confirm a prediction was about to come true. 72°F is the well accepted standard comfort-level for many. Was the system in this Prius capable of drawing out heat from the warmed coolant all the way down to that point? From 130°F to 72°F is not what the regular model supports. Turns out, PHV does. I got to watch it happen firsthand too. Being able to keep the engine off to that point is really smart. Toyota clearly thought out every little aspect of how to squeeze out efficiency.

2-06-2017 **Defending Pride.** That individual who had become quite a standout antagonist has recognized what "*too little, too slowly*" really meant. The pain of learning just how much opportunity had been missed and now dealing with the consequences of such blind hope is obvious. Oops! My push to take the next step stings too. That means having to admit making a huge mistake and worse... acknowledging a Prius owner understood the market. No amount of engineering excellence can overcome stupid executive decisions. Harm to business for the sake of pride is nothing new, neither is seeing enthusiasts fiercely defend it. That's why they are called "enthusiasts" rather than "supporters". A true supporter of business wouldn't let pride get in the way of reaching sales goals. If an error in judgment is made, you look back at what could have been done better, then move on. I'm not seeing that. I do give the opportunity to let go of the past... which is take a step forward: It's easy to see which particular questions are being evaded. Attempts to divert attention away from GM are obvious too. The condescending attitude though, that's the real giveaway. That's what leads to discoveries. That's why I have endured so many "*vastly superior*" posts. Bolt's heater is the latest oddity to be revealed. It was said to "*use a resistance-heater that circulates coolant through a heater core*". Why not just a resistance-heater by itself? Does the added complexity of coolant use improve efficiency? If so, is it more efficient than using a heat-pump instead? Or what about using the even more efficient a vapor-injected type of heat-pump?

- 2-07-2017** **Fleet Demo.** I certainly wasn't thrilled to read this: *"Just for the fun of it, I called the closest dealer to us, in Florida. The guy seemed pretty up on what's going on. He said Toyota sent them one, which sold right away."* It was no surprise. Imagining how disinterested some dealers are toward selling a difficult to acquire vehicle isn't much of a stretch. They earn very little profit and have to answer lots of questions. Wanting to just stick to selling the money-makers right there on the lot with a variety of packages & colors is the preferred, by far. At least with Toyota, they already have the Prius reputation well established. That makes participation much more likely. As of this now (early in the rollout stage), only 40% of GM dealers have expressed interest in selling Bolt. We saw the same type of struggle with Volt. So, the situation with Prime isn't so bad. Not being discouraging is good. It's still annoying though. I provided this insight into the situation: Ugh. It's the same old dealer problem Toyota corporate faced back with the Classic model rollout in 2000. They'd deliver a *"fleet demo"* model to the dealer with explicit instructions not to sell it for 6 months, that it was to be used exclusively for education purposes in the meantime. Some dealers respected that, using it for customer demos and salesperson training. Others sold it without any regard for what it was intended.
- 2-08-2017** **Sales Deception.** I'm growing really tired of seeing fake news on a regular basis now. This morning's attempt at deception was: *"This makes the Prius Prime a highly attractive car on the brochures but the poor design is holding the car back from enjoying good sales."* It's bad enough excluding availability information, giving the false impression of dealers having them in stock and consumers choosing not to purchase. But to make a claim of *"poor design"* without providing any indication of what that actually meant is an entirely different matter. I couldn't find anything even remotely revealing of what that could have implied. It was simply a blatant slander attempt. Nothing whatsoever was stated as to what it referred to. Fortunately, only those looking for redemption to back their stance care anyway. Taking claims at face value isn't what someone researching a purchase will do. Those who stumble across the article, due to interest in the topic for whatever reason, will want to find out more. They'll search for clarity. There's also the approach of first-year sales being disregarded too. Mainstream buyers tend to wait until the second year of rollout before even considering a test drive. They wait. The sales deception won't matter by then. So, were good.
- 2-09-2017** **Affordable.** There are some who absolutely hate affordable cars. They look down upon them as a waste, unworthy of their time. So, even bothering to consider one is behind them. That makes any sort of acknowledgement a problem; however, you can sometimes get lucky by pointing out a new perspective. I pointed out that room is being made for the rest of the Toyota product-line to be offered as hybrids, exactly as their long-term plan has stated. Prius is going one direction. Prime is going another. Corolla hybrid will fill in between that. This came about in return: *"But the elephant in the hybrid room is the affordable plug-in."* It wasn't the direction hoped for with the discussion, but it was at least somewhat of a larger perspective being taken into account. So, this seemed a good way to reply: \$27,100 MSRP for the base model Prime, which is fairly well loaded, fulfills that criteria. That affordable price provides the potential to compete with traditional vehicles directly. Also having a \$4,502 tax-credit available will stimulate demand and speed education.

- 2-10-2017** **Better.** We're getting a lot more spin lately: *"It's not that the Prius is losing it's mojo, it because it has taken many years for the public to realize the Volt is a better car."* That's a good indicator of change. When the same old rhetoric doesn't work anymore, they try something new. I enjoyed exploring this angle: For mainstream vehicles, the term *"better"* indicates that it offers a nice balance. The expectation is that they fulfill a wide variety of criteria. That's why those which sell in large quantities are so popular. For other vehicles, you get some type of feature emphasis. Whether it is speed or power or size or agility, there was always some type of trade off... resulting in low-volume purchase. Prius was among the first of the modern vehicles to not require that, consequently selling in high-volume instead. You'd get high-efficiency and low-emissions within the realm of ordinary performance. Gen-3 made that point especially clear. Gen-4 took an odd side-step by actually stiffening the body and upgrading suspension for improved handling, but that was achieved without trade off. So when it comes to "", we need some type of clarity. For starts, are you referring to the regular Prius or the plug-in model (Prime)? In either case, both are much more efficient than Volt in HV mode and both have much lower base prices. If the reference is to range, the *"many years"* makes no sense... since Prime rollout is still in the earliest stages (low volume on the coasts and none available in the Midwest).
- 2-09-2017** **Paradigm Shift.** It's happening. The painfully slow acceptance of gen-2 Volt is getting the best of even the most stubborn. Those enthusiasts of the past are no longer enthusiastic. Failing to draw in a new audience can no longer be denied. I'm writing this on the wall now: GM milked high-profit vehicles for all they could prior to the market collapse and expensive gas. We see them doing the very same thing now. We also see battery cost dropping. At some point, there will be a competitive market for EV cars, able to compete directly with traditional vehicles. They won't offer much of a profit-margin, but they will make driving a guzzling SUV or Pickup passé. Evidence of an upcoming shift is the preparation for it. Both plug-in offerings, Volt & Bolt, are establishing the technology but not actually drawing GM's own loyal customers... who just replace their old SUV or Pickup with a new one. Notice the heavy emphasis on conquest sales? When demand rises for the low-profit choices, GM will have no option but to adapt. We saw this history play out already with the computer industry. Now, it's time for the automotive industry to bite that same bullet. This is known as a paradigm shift.

2-09-2017 **Not Moving.** Sometimes, you actually get constructive discussion: "*It must be profit margin that drives their not moving Voltec to a larger CUV or SUV.*" I was pleased to finally see and respond to that: What else could it be, you ask? There's little reason to wonder if Voltec would work scaled up. The system is clearly overpowered for a compact car and it originated from Two-Mode, which was used in Yukon & Tahoe. The cost of Voltec is still high though and giving up profit isn't the GM approach. There is the possibility of market collapse worry, a paradigm shift resulting from interest in efficiency. That taste for EV propulsion leading to the abandonment of the mighty SUV in favor of sleek aerodynamic style instead isn't too much of a stretch. After all, that is exactly what draws people to Model S and people have found compelling about Model 3. People desire change after awhile. The SUV has been done to death. The sedan has become plain looking. Signs are starting to point in the direction of the sport look again. Remember what happened in the early 80's? There isn't anything to stop that from happening again. With the advent of LED lighting, the trickle down of carbon-fiber, and the re-introduction of waved glass, why not? It all adds up nicely for Prius Prime. The pattern fits with Toyota's history of leadership too. This time though, it looks like a one-two punch. It doesn't take much to imagine RAV4 hybrid being augmented with a plug. The base system is in place already... and selling well. We see other automakers on that plug-in SUV path too. We'll never really know why GM is allowing their opportunity to slip. Of course, the antagonists here will just spin this post as an attempt to change the topic anyway. So, let's simply end with an outlook for what 2017 will bring in terms of Prius sales. My hunch is the regular model will remain relatively flat, right around the mainstream minimum for monthly sales. For Prius Prime, expect it to open up the market for affordable plug-in hybrids. In other words, Toyota will max-out their supplier quota and be scrambling to significantly bump next year's production. Fortunately, Prime's worldwide rollout (Japan, United States, and Europe) all at once does help provide a realistic gauge for estimating demand in subsequent years.

2-10-2017 **Ford Plug-Ins.** It's easy to forget this big automaker. Quite the opposite of GM, they are quiet about high-efficiency offerings. Rather than clamor for the spotlight on a regular basis, you hear virtually nothing. Yet, sales are surprisingly similar. Last year Ford delivered 23,895 Fusion Energi and C-Max Energi models. The total is a combination of plug-in sales, but looking at total in this regard is fine. We aren't talking about major numbers of any offerings yet. Mainstream really doesn't apply until sales grow to the 60,000 annual level without tax-credit help. There's no way to consider them competitive with traditional vehicles prior to that fulfilling that criteria. It puts the 24,739 total for last year from gen-2 Volt into perspective. This is why hybrids without plugs are talked about so infrequently now. Either people are interested in those or they are not. The technology is so well established, there's nothing to mention anymore. The addition of a plug is an entirely different matter though. Yet, you still don't hear much from Ford. We certainly get our fill of GM spin on the other hand. I'll sure be glad when that settles down.

2-11-2017 **Fake Trouble.** Simply publishing a random article with a disconnected title works too: "*The Toyota Prius Prime Proves That The Prius Hybrid Sucks*". There was literally nothing of any substance to support that. It was just a bizarre collection of vague comments. You'd think there was potential. But the trend we've been seeing is that catchy titles are all that's needed. Many don't bother actually reading the article all the way through. Proof of that is how short the articles have become and the complete absence of comments. No one posting anything is quite unusual. In the past, you'd see reader participation everywhere. The diverse audiences were always quite eager to post their opinions. We're not seeing that with the articles fitting this new profile though. Thankfully, the ones with actual detail remain quite active. Nonetheless, it is still quite troubling to see a regular flow of "*fake*" news now. We're hearing how these are being used to simply vindicate the stance a person has taken. They simply want confirmation of their own opinion without bothering to understand the actual situation.

2-12-2017 **Method of Measure?** Concerns of battery-life continue to pop up as the plug-in cars get older. The seemingly basic complications of chemical & component aging make expectations very complicated. Does aging alter internal resistance? How would you measure that? Don't forget the influence vehicle break-in or the increased grip from new tires. Needless to say, it's messy. Some complain about EV range loss, but the accounts are always so vague, there's no good way to respond. How do you make sure to include all influences? How are they even measured? For that matter, who even has a baseline to compare with? This is how I addressed the situation today:

On Friday, my commute was a balmy 27°F (quite comfortable here in Minnesota), so no need for the heater. That meant an opportunity to measure. I went the full 9.2 miles of hilly suburb EV driving before running out of sub-62 mph road. At that point, the remaining EV was indicated to be 0.4 miles. Being able to drive 9.6 miles of EV in those conditions (hilly & sub-freezing) for a Prius PHV just 1 month shy of 5 years sounds right on par for aging expectations.

Right now, I'm at the coffeeshop blogging. The temperature for the drive was 32°F. The route 7.6 miles of all flat suburb (45, 50, 55 mph limit roads). The entire drive was EV. The remaining capacity was stated to be 2.7 miles. The SOC was 39.6%, which confirms accuracy of the estimate. That gives me a total of 10.3 miles of EV driving, which is right on too. There was only 1 stop along the way. Both lights were green and the 3 roundabouts you only have to slow down for. Again, that seems quite reasonable for almost 5 years of use.

Note that during the work week, I recharge twice. At home with 120-volt connection and at work with 240-volt. Both include long cold-soaks (many hours). For random full charging, I always wait a minimum of 90 minutes. When stopping at the grocery store, the quick 10-minute top-off is immediate. The battery-pack rarely ever saw extreme heat. It simply never gets that warm this far north.

In other words, my aged battery-pack is working great still.

Can we get some fresh accounts from others, using a format like that above to describe their own experiences?

2-12-2017 **Calculations for EV.** Being able to move on to a Prius focus (not having to deal with rhetoric much anymore), it's time for some calculations. It sure will be nice when I have my own numbers to work with. But for now, we can use EPA reported values. I did that for this response: *"I can still do 10.3 miles at 32 degrees, but it was more like 12 at one time."* Knowing how imprecise anecdotal observations of the past can be, this is how I worked out the expectation:
Simple math would seem to indicate your pack is just fine still.

$85\% - 23.5\% =$ usable EV capacity available is **61.5 %**

61.5% of 4.4 kWh = EV capacity calculates to **2.7 kWh**

$2.7 \text{ kWh} / (29 \text{ kWh} / 100 \text{ miles}) =$ EV range is **9.3 miles**

That doesn't take into account hills or regen, of course. It's just a basic measure of potential using the EPA measure of efficiency for Prius PHV. Nonetheless, seeing 10.3 miles years later looks good.

2-12-2017 **More Calculations.** Running those same calculations on Prius Prime is interesting:

$85\% - 23.5\% =$ *assumed* usable EV capacity available is **61.5 %**

61.5% of 8.8 kWh = EV capacity calculates to **5.4 kWh**

$5.4 \text{ kWh} / (25 \text{ kWh} / 100 \text{ miles}) =$ EV range is **21.6 miles**

Anyone know the actual usable value? There was speculation that deeper discharging with the new chemistry was realistic, especially since GM decided to expand usable capacity for gen-2 Volt. I haven't heard actual numbers though... and I don't have my Prime yet. Based on the calculation result, it's easy to see where the original EPA stated range was 22 miles. I have found a mention of 6.18 kWh usable. In that case:

$6.18 \text{ kWh} / (25 \text{ kWh} / 100 \text{ miles}) =$ EV range is **24.7 miles**

Note that using the 133 MPGe rating (to be more precise), we get 25.3 kWh / 100 miles. That's 33.7 kWh per gallon of gas / 133 MPGe. Values reported for EPA are truncated, rounded, and adjusted. So, be careful of trying to get too precise. And of course, YMMV.

- 2-12-2017** **Charging Observations.** The official number from the wall is what was reported for EPA is 6.33 kWh. That takes into account charging losses, which are given a standard factor of 15%. That means the usable capacity calculates to 5.38 kWh. The value matches up nicely with observations a friend of mine reported with his Prime. It's a good confirmation. I'm not sure where that higher number came from. That's why I document what I find in these blogs. Sometimes you come across a clue to an aspect of design no one had really notice the significance of yet. Other times, you stumble across the birth of a misconception... which makes understanding its origin very important. Whatever the situation, we start with observations. In this case, it's with respect to charging. That topic is unknown to most people. So, having some accurate numbers readily available to share can be quite help. I can't wait to contribute to Prime's rollout. In the meantime, I'm using the observations collected from my Prius PHV to help document that history. After all, you never know what kind of spin will emerge. Having 5 years of detail available could certainly come in handy.
- 2-13-2017** **Concern.** You can tell how much the attitude from Volt enthusiasts is changing, from statements like this: *"...I'm surprised they haven't offered more models, but it would be foolish to not offer as many models as they can during the phase-out period."* The realization of gen-2 having failed to achieve growth is moving into the acceptance stage. It's trapped as a niche. The clock is running out... and there is no sense arguing it anymore. That crazy lashing recently out over the *"too little, too slowly"* really was the finale. It's over. Time to move on. Evidence of this change came from my simple post today. It wasn't attacked. In fact, the opposite happened. I got positive votes! Gasp, eh? Even the most staunch saw the writing on the wall. GM will need to play catch up if they don't offer the technology they developed in packaging their customers actually want. In other words: Getting caught mid-cycle without any subsidies has been a problem expressed for years. That's why there's been such a big push for a SUV with Voltec.
- 2-14-2017** **Air-Cooling Greenwash.** I was absolutely amazed to see this today: *"The current Leaf's air-cooling is insufficient for hotter climates."* That's a claim easy to disprove. Why would anyone make such an obvious attempt to mislead? Perhaps he thought readers would take the claim at face-value, not bothering to click the link also provided. If they did, the hope would be the age of the article wouldn't be noticed. It was 5.5 years old! Greenwashing by posting outdated information is quite desperate. But when you are a hard-core GM supporter and the article is about Nissan's next-gen Leaf, doing that still happens. Heck, I got annoyed by how many times facts were voted down just because they didn't like them. So, using facts to mislead comes to be an expectation. Anywho, I didn't hesitate to point out the attempt with: September 22, 2012 isn't remotely *"current"* from any perspective. That article has been called out as greenwashing material for being so outdated. Leaf batteries were upgraded mid-cycle, greatly improving their resilience to heat. We know the batteries will be upgraded again (chemistry & construction improvements) with Leaf gen-2 rollout too. We also already know they will be air-cooled.

- 2-14-2017** **Too Late?** Someone else sounded off with superiority chanting. Ugh. I was dismayed by reading: *"Nissan is late to the new EV party. By the time the new Leaf is available, the Chevy Bolt EV has taken up that market. And I don't believe that a *cheaper* Leaf against the Bolt EV will sell better, because quality and quantity has its price, and true BEV believers (just like Tesla buyers) will pay whatever to get the best EV possible."* Was he really that clueless or close-minded? It was yet another audience problem. Some people just never learn, I guess. Of course, it could just be denial. Being backed into a corner, you really don't see much from that perspective. I decided to deal with the denial in this fashion: Late to what? Which market? The acceptance of EV by ordinary traditional buyers hasn't happened yet. We're still trying to get out of the low-hanging-fruit stage. Reaching beyond early adopters is still just a hope... realistic, but clearly some time in the future still. Once sales occur without any tax-credit subsidies, that milestone will be reached. Until then, it's just enthusiasts helping to prove the technology is worthy for the masses.
- 2-14-2017** **Improvement & Cost.** Attempts to inject constructive points into GM discussions when you own a Prius is usually futile. Many just choose to not listen anymore. That's actually progress. It sure beats those attacks of the past. Denial turning to acceptance is much better. Enthusiasts becoming supporters is a challenging process to usher along. It is working though. The struggle of gen-2 Volt has helped it along. We all can see the potential for Prius Prime. Once production & delivery is finally ramped up, Toyota will take the lead they've always feared. It is no longer a matter of *"IF"*. It is now trying to figure out the *"WHEN"*. My hunch is that will be around Earth Day. Waiting for things to fall in place is quite a challenge though, a test of character through patience. It's well worth it, of course. It teaches you not to burn bridges too. Those still showing some resistance will eventually either vanish or become an ally. So, I keep interjecting some sense into the daily topics. Hopefully, this will be considered helpful... someday: With respect to design, there's the big issue of production cost. For EV to be directly competitive with traditional vehicles, it must have a closer MSRP and no dependence on tax-credit subsidies. Not requiring liquid is a way of cutting cost. It reduces complexity too. That's good for reliability. It's the advantage of going electric. For example, electric power-steering doesn't have liquid. It doesn't have a belt either. That's a clear simplicity improvement, as well as a cost reduction.

- 2-14-2017 Diesel is Dead.** The official "50 MPG" rating is making news today. Ugh. That's the highway rating for the Chevy Cruze diesel. Focus on just highway is rather blatant greenwashing, criticized extensively in the past for drawing attention away from overall efficiency. It was cherry picking, plain & simple. A method of deception, similar to "*clean diesel*" from the perspective of intentionally excluding vital information. The choose what to tell you and totally disregard the rest. For example, how often do you hear mention of urea refills? That's the cleansing agent required for diesel vehicles. It's a liquid that's sprayed into the exhaust system. I'm willing to bet most diesel shoppers never encounter any mention of it. There's the issue of diesel being more expensive per gallon than gas too. Think that is ever brought attention to by diesel promoters? Anywho, I don't like diesel for passenger cars... and expressed that sentiment in response to the news: 37 MPG combined for the manual and 31 MPG combined for the automatic is so bad, it's not possible to take it seriously. No mention whatsoever of emission-rating is the evidence of being severely wounded, especially from all the awareness raised by the cheating scandal. After 15 years of tolerating the claims of being as clean & efficient, it's time to move on. Gen-4 Prius easily surpasses that it both regards. Adding a plug to it to make a Prime buries the coffin. Diesel for passenger cars is dead.
- 2-14-2017 Terrible Timing.** I had a follow-up post to my declaration of death. The ironic nature of attempting to gloat about a diesel efficiency rating right when such a huge efficiency hybrid milestone has been met is poetic. The sweet sound of electric silence. That's so much of a contrast to the clatter of a diesel engine. Ugh. I'm amused and was quite happy to keep any spin attempt at bay with: Toyota just surpassed the 10,000,000 mark for hybrid sales. There have been a total of 34 models offered. Availability has reached 90 different countries. An affordable plug-in model is being rolled out in Japan, the United States, and Europe. The timing is terrible... for diesel.
- 2-16-2017 Totally Inferior.** I was very amused to see the term "*totally inferior*" used in place of "*vastly superior*". That's a level of desperation so blatant, it's almost pointless to respond. That mantra of the past was absurd. The gen-1 Volt enthusiasts just kept chanting that over and over and over again. Its lack of substance ended up driving many away. They didn't want any part of a technology unable to actually compete on merit. Needing to embellish for the sake of retaining attention is a bad sign, and they knew it. That lesson learned is apparently something this new gen-2 audience seems to believe they are immune to. That type of attitude is the very reason history repeats itself. The leaders become complacent... exactly as I witnessed today. I was amazed to see that. They say you cannot fix stupid. Seeing it play out firsthand is troubling. But then again, we're seeing similar on the presidential level. Awareness have never been raised to such an extreme level before. I wonder what kind of long-term effect that will have. The short-term outcome will definitely be painful. Arrogance can be quite expensive, stirring unforeseen costs on an enormous scale. Calling something "*totally inferior*" without evidence to support the claim is usually evidence of trouble to come.

- 2-16-2017** **Hitch.** One month from now, the first receiver-hitch for Prius Prime is supposed to become available. That's well timed. With the dual-wave window in back, I wasn't certain the idea of using my adjustable strap-on carrier for bikes in the meantime was a good one. Though, with the other Prius, the feet on top were for nothing by stability. All the weight was on the lower legs. Not being able to actually measure yet had been a set back. Living surprisingly close to 2 different hitch manufacturers would have made that easy too... if I had my Prime. Delivery is still a month away though... coincidentally, it's the very day the hitch could be delivered. Searching online, I haven't found any information yet. My source was from a friend who pushed for one last year, shortly after the gen-4 was rolled out... since he needed a hitch. He let the use his own Prius for measurements to build the very first one. That worked out well. For me, looks like I'll have to do even less... except be patient.
- 2-16-2017** **Scare Tactics.** A common method of dishonestly discrediting is to claim that your safety is threatened. It's bad enough seeing that in politics. Having to deal with those same scare tactics for Prius is even worse. That's puts you on the defensive. Not taking the bait can be a challenge. They'll just keep posting it. For awhile, the claims about Prime being inadequate came in the form of expressing danger when entering the highway. They'd focus on merging. Yet another attempt happened today: "*The only way to merge safely in a Prius is to hope those cruising in the right lane move to the center or left lane so you have an 'open' channel to merge.*" But rather than follow that line of thinking or trying to get back on topic, I kept the focus on acceleration. They don't expect you to play along. You're suppose to fight back directly, throw a punch to the face. I decided to jab from the side instead. It worked too. I simply gave another example of accelerating, one even more extreme: It's claims like that raise the intrigue. Are you in denial, poorly informed, or just desperate? The safety comment is simply not true. I pass with my Prius PHV from time to time. It's no big deal. Heck, even when going through South Dakota at 80 mph, there's still power available for me to accelerate even faster to get around those I no longer want to follow.
- 2-17-2017** **Wasted.** There are some posts that you know are going to be trouble right from the start: "*As a curious person it makes me angry that they wasted so much... everything. Their continued blindness to the nature of electric mobility is shocking and saddening.*" Was this person totally clueless or focusing entirely on something incorrect? Running into an innocent individual who has been a victim of greenwashing happens from time to time. So, you have to carefully consider how to respond. I try by posing a question, then proceed to point out how the situation is not how they interpret it: What was wasted? Toyota is pushing the affordable approach. They didn't take the easy route by simply rolling out an expensive plug-in, then hope for the best with cost-reduction after the fact. Notice how that didn't turn out so well for GM? Heavy dependency on tax-credits is a terrible idea. Instead, Toyota took the more difficult path, having to tolerate the snickers of doubt & belittling along the way. Now, they are mass producing the needed components at an affordable cost. The regular Prius uses lithium battery cells too. That's a huge economy-of-scale benefit other automakers don't have. Also from Toyota is their very successful first-year debut of RAV4 hybrid. It's a platform that sets them up very well for adding a plug to a SUV, the market that no automaker in the United States has yet to tap. In other words, the spin about waste is without merit.

- 2-17-2017** **Instead.** Another technique to discredit is to sight a situation as polarized, with the hope readers won't realize the choices aren't mutually exclusive. I could see that coming with the newest topic on the EV blog... which recognized the strong potential for Prime sales, it catching on faster than EV choices. Naturally, that brought out the hate for Toyota taking the mass-market approach. In the minds of some, leadership is only represented by pushing extremes. Acceptance by large sums of ordinary people doesn't count as progress. They don't recognize that as any type of accomplishment. In fact, many simply don't care. The word "*mainstream*" only serves as an indicator of obsolescence. That's really sad. But then again, we know that the 99% are often not considered. So, the perspective is no surprise, like this: "*It means they will continue to drag their feet as much as they can instead of going full EV.*" My guess is the reply will be snarky & dismissive: How do you figure? Lithium battery-pack production is being ramped up, used in both the regular Prius and the plug-in model. That economy-of-scale is absolutely essential for selling an affordable EV that doesn't depend upon tax-credits... which is well worth waiting for. In the meantime, they continue to improve electric design. Traction motor production is in full swing and they are delivering (in Prime) the industry's most efficient heat-pump.
- 2-17-2017** **Clueless.** That was the conclusion I came to. The series of posts responding to my lithium information were nothing but a collection of off-topic rants. Some rambling is understandable, since not everyone posts well. Communication skills vary. But when the comprehension is totally absent, not even an attempt to figure out the situation, you can tell they simply don't have a clue. For example: "*What are you talking about with the batteries? You think Toyota has some magic with lithium ion batteries? Their batteries don't mean much in the scheme of things.*" Reading something like that is a good sign of when not to bother. They won't have any idea what you're talking about. So, I just ended it with: Prius Prime offers full EV driving until the battery-pack is depleted. Adding more cells increases EV range. How does that not mean much?

- 2-17-2017** **Next Big Thing.** I found this new spin interesting: "*They have clung to the hybrid for dear life for too long now and the industry has moved to the next big thing...*" That was spoken like a truly believer in only looking forward, never bothering to consider what's on their sides or behind. Being so blinded by the hope of roads filled exclusively by EV choices that they dismiss everything else is a very big problem. Seeing Hyundai, Chrysler, Honda, Ford, and GM rollout new hybrids doesn't happen. They find a scapegoat for their frustration to be vented upon. In this case, it is Toyota. The 25-mile range delivered by Prius Prime is too confusing to deal with. A pure EV driving experienced delivered by a non-EV wasn't a problem when it was just the small & expensive Volt. It was a niche, nothing to worry about. Ordinary consumers wouldn't be interested. That's not the case with Prime though. We can see the potential. We see that opportunity about to be exploited, not squandered as GM had done. Toyota is ramping up for the next big thing... which is not EV. We'll see lots of success from the EV market. But the lack of infrastructure is still a very real problem. Prime can totally recharge overnight with nothing but an ordinary household outlet. Heck, you can even use an extension-cord for the charger. You can be out really late and have to leave early for work the next day without worry. It only takes 5.5 hours. No added expense. No special instructions. Just plug it in. Owning an EV isn't that simple for many. Driving range and recharge convenience present barriers... for the foreseeable future. It will change eventually, but throughout this current generation (the next 5 years) we face challenges. Just education alone could take that entire duration. Major expenses, like a new vehicle purchase, are very difficult to pattern break. It's far too easy to just upgrade to the newer model of what you are already driving. That's why the simplicity of Prime presents a very realistic next step for a large number of consumers. That's the next big thing.
- 2-18-2017** **Called Out.** The fighting has escalated: "*They still haven't realized just how much work needs to be put into the effort to march forward.*" There's been a defiant stance taken, making generalizations without any bother to provide specifics on subsequent posts. In other words, there's a sense of new rhetoric growing in response to the potential some see from Toyota's newest offering. It's the same old downplay from the past; they attempt to misrepresent. Making it seem as though the technology is only an upgrade, rather than at a competitive state, is key. Most everything else with a plug is stuck in the "*too expensive*" stage. So, you can imagine how much animosity is stirred from the base price of Prime. \$27,100 for a MSRP is low enough to derail any argument of affordability... so much so, there isn't even reason to mention the \$4,502 tax-credit that's also available. The potential is obvious. That means focus on stomping out undermining attempts to greenwash about the technology itself are a priority. Adding in a little bit of a personal jab works too, to ensure the message gets to intended: Prius Prime has a top electric-only speed of 84 mph. It offers the industry's most efficient electric cabin warmer, a vapor-injected heat-pump. It also has electric steering and electric A/C. There's no tie to the gas engine. It's there to take over after depletion, providing both propulsion power and the ability to recharge the pack without plugging in. Prius Prime is an EV with a small battery-pack. The next step up for power & size will be taking advantage of the hybrid system in RAV4, adding more battery-capacity for EV driving. All necessary work is already done. That attempt to disparage has been called out. You are clearly in denial of recent advancements.

- 2-18-2017** **Too Bad.** I've been participating a lot on the blogging site for EVs lately. Like with Volt years ago, a few see Prius as a threat. They push the same perspective too... lack of purity. With PHV, that had no merit. It didn't make any sense, since the purpose of the plug was to boost MPG, not to offer an EV driving experience. Comparing the two fundamentally different approaches as if they were the same was rather desperate. That's why I participated there so much... to point that out. Struggling sales is what ended up keeping the posts lively though. Technical arguments did eventually fade. Much of that came from posting video which made it overwhelmingly clear certain individuals were outright lying about how Prius PHV actually worked. I wonder if the same will be needed again, here on the new venue. Here's my effort to find out, directly confronting an individual desperate to mislead about how the new plug-in Prius operates: Prime provides an all-electric drive for the first 25 miles of travel. There's no way to spin it. That is a short-range EV, period. You plug it in and get another 25 miles of EV. You don't, the gas engine will provide power instead. With an entire system totally electric... traction-motor... battery-pack... heater... air-conditioner... inverter... charger... and controllers... there is no merit to claims of falling behind or lacking EV experience. Too bad if you don't like the approach. Refinements to design and improvements to production are several generations along now. Steps to offer a variety of affordable plug-in choices are well underway.
- 2-18-2017** **Battery Density.** At first glance, this gives the impression of being constructive: "*With a continual gain in battery energy density, you can just skip the hybrid.*" It falls apart though, when you look for detail... since there isn't any. Vague comments like that are posted all the time. No timeline. No scale. No target. No audience. Nothing. Heck, even what "*hybrid*" actually refers to is uncertain. In this circumstance, it was reasonable to assume the reference was to the plug-in type. Generalizations are basically worthless. When "*waste*" is highlighted as a concern, that waste of our time is a big deal. What did that phrase actually mean? Anywho, I posted this in return: That makes sense, long-term for many, but that certainly isn't the case for this generation of offerings. The option simply isn't realistic yet. Choices are extremely limited. Supply is almost non-existent. Production cost is too high. And the high-power recharge infrastructure isn't there. The realities of dealer disinterest and not having a plug available at home are very real barriers to overcome too. Battery technology is only a small part of the equation. In other words, being a worthy design is far from enough. The market for traditional guzzlers still holds strong consumer interest. Reaching those ordinary consumers means taking the hybrid approach.

2-18-2017 **Barriers.** Over a decade and a half of dealing with thorns has taught me how to navigate through the briar patch. Being able to avoid attack has been key. From time to time though, I have actually been able to proactively deal with the desperate attempts to bring Prius down. Like when in the briar patch, you need to know what to look for and what path works best for each particular situation. Seeing the same thing happening with this new wider audience on the green website (no more daily blog for Volt), I'm well prepared right from the start. So, I'm pointing out problems, rather than waiting to react...

I'm seeing 2 patterns emerge from discussion topics involving Prius Prime:

- Some truly believe the competition is other plug-in vehicles.
- Some couldn't care less about kWh consumption or production cost.

That first is truly unfortunate. But not seeing the forest is nothing new. They focus on their one tree and forget about everything else. Reality is, we haven't left the early adopter phase left. Those purchasing plug-in vehicles are the low-hanging-fruit, the easy sales. They are enthusiasts taking advantage of the tax-credit opportunity. True, they are helping out, but they don't represent mainstream buyers... the true competition, traditional vehicles.

The second is the ugly reality of blind hope. So much attention is set on proving the technology from an engineering perspective that other important aspects are disregarded. In this case, we see the belief that leadership comes from pushing EV range limits. Efforts to make the technology affordable aren't recognized. In fact, some is even shunned & belittled. The other problem is electricity consumption. Try pointing out KWH/MILE ratings. Watch the anger merge from someone finding out their EV is a guzzler in comparison.

Watch for confirmation of the patterns I have observed. For us to progress to further market penetration, we have to acknowledge our own barriers.

2-19-2017 **What Is Your Point?** I climbed up onto the soapbox last night, without any reason to. That surprised & bewildered some. I was asked what the point was of what I had posted. Providing a big-picture summary out of the blue like that is a bit odd to do. But then again, I was attacked for being a petroleum industry supporter for not embracing the purity of electric-only vehicles. Showing favor for a plug-in hybrid is unacceptable for some. Their absolute is all they care about. That's really unfortunate, as well as difficult to deal with. The idea of endorsing battery advancement in the form of smaller packs and lower power recharging doesn't make sense to them? They don't realize most of the world is unwilling to take one massive step all at once. Some are intimidated. Some simply don't have the money. Some don't have anywhere to plug in. Some just don't have that far to drive. In other words, we are back to the "Who?" question... which you've heard countless times now: Understanding audience is vital. If you don't, discussion value is lost. In other words, progress isn't possible.

2-19-2017 **Catching On.** That wasteful "*more is better*" perspective immediately surfaced. It's a terrible precedent to set. The seemingly simplest of things become a problem if you don't think them through. For example, a vehicle that consumes more electricity to travel the same distance will take long to recharge, since it needs more battery. Do you really want to have to wait longer for that? Do you really want to make someone wanting to use the charger after you are done to wait longer too? I expressed the growing lack-of-awareness problem this way:

Notice how some use much less electricity than others to travel the same distance?

35 kWh/100 mi = 97 MPGe = 2017 Ford Fusion Energi
35 kWh/100 mi = 98 MPGe = 2015 Chevy Volt (gen-1)
31 kWh/100 mi = 106 MPGe = 2017 Chevy Volt (gen-2)
30 kWh/100 mi = 114 MPGe = 2016 Nissan Leaf
30 kWh/100 mi = 116 MPGe = 2016 VW e-Golf
29 kWh/100 mi = 111 MPGe = 2017 BMW i3 PHEV
28 kWh/100 mi = 119 MPGe = 2017 Chevy Bolt
27 kWh/100 mi = 124 MPGe = 2017 BMW i3 EV
25 kWh/100 mi = 133 MPGe = 2017 Toyota Prius Prime

Those outcomes are the direct result of design choices. Engineers are typically instructed to favor power over efficiency. Sound familiar?

That same problem in the gas world also exists with electricity consumption. Sadly, virtually no attention is given to the topic though. In fact, a design is often mocked if it doesn't provide lots of power.

Notice how the KWH/MILE measure is almost never discussed?

2-19-2017 **It's Over, Already!** The new attacks are Toyota are quite amusing. It's confirmation of worry about their latest rollout, in this case... Prius Prime. The desperation is quite telling. Sighting extremes and drawing conclusions so early is a dead giveaway. This morning, it was: "*They ceded the EV market.*" How could I resist? Not responding to that is impossible. Resistance is futile. So, I jumped into that mess: Claiming it's all over already, despite still just being in the initial rollout stage (dependency on tax-credit subsidies), doesn't make any sense. Who exactly did the cede to? Who are you trying to convince of this? For that matter, who do you think the EV market is? By the way, I find the constant attempts to discredit Toyota by sighting fuel-cell diversity absolutely hysterical. GM just announced a major effort to invest in updating their fuel-cell technology. Honda & Nissan have been heavy investors for awhile now. Toyota is not alone. Those others also recognize that one solution does not fit all.

- 2-19-2017 Cheap Crap.** It was only a matter of time before the insulting & belittling began. One particular individual responded to several posts on the same thread all with a common theme, attempting to label Prime as: "*cheap crap*". The words of desperation I found most revealing were: "*With that amount of power and that amount of space you can hardly get out of the garage with the driver alone.*" When they don't even try to post something sensible, you know the message has got through. They see weaknesses in their own argument. The response is simply lashing out. Reaching that point is a vindication, a milestone indicating points posted were valid. If they weren't, they'd be addressed. Reverting to childish name-calling says it all. There are always a few who really struggle with the acceptance of change. It's unfortunate we have to deal with that. But then again, this behavior shows us change is happening. Each step forward has included the need to deal with this nonsense. That's part of the process. We are clearly making progress.
- 2-19-2017 Moderator Intervention.** That daily blog for Volt didn't have any. In fact, you weren't even required to register. It was open posting. That's how things became so chaotic. The website I have transferred to is quite different: "*We do not permit direct personal insults, profanity, off-topic posts, gratuitous political commentary, or denial of climate science in our comments.*" That policy isn't taken lightly either. They frequently sweep through discussion threads and enforce those rules. The posts are changed to a notice stating they have been altered by moderators to remove the inappropriate content. Individuals abusing that will get publicly called out too, given this warning: "*If you cannot abide by the rules, please don't comment at all. Repeated violations will get you banned, blacklisted, and reported as an abusive commenter. Thank you in advance for helping us keep comments on our site on topic, civil, respectful, family-friendly, and fact-based.*" The few antagonists who followed me are struggling with this new reality. Their attacks are not tolerated. This website is not filled with enablers. Participants want constructive discussion, not cheerleading. It's quite a wake-up call for those just wanting to stir trouble and express superiority. I'm delighted to see such a reversal of circumstances.
- 2-19-2017 Misleading Titles.** I'm really getting tired of the nonsense. Recently, I've stumbled across several articles where the content didn't actually match the title. If all you do is just read the title and opening paragraph, you wouldn't realize the information to follow doesn't actually support the claim being made. It's a problem we see online routinely with forum posts. That other content confirms whatever point they take the time to make, but isn't what the title suggests. For those simply looking for validation of their feelings, they tend to just gloss over what's published or don't even bother to proceed beyond the introduction. It's really unfortunate such greenwashing exists. I run into articles like that far too often. The hope is that people won't check facts, that they'll accept what's there at face value. Sad.

- 2-19-2017** **Turbocharging.** That's how a number of new vehicles are squeezing out a few more MPG... but with a penalty. There's also some type of tradeoff. Engineering is filled with things like that. For Prius, it was always the penalty of added cost. Fortunately, the simplified transmission offset that. Coming up with that type of balance isn't easy though. Automakers are getting desperate though. So, they add turbocharging. It's not like decades past. Lag is minimized. There is still added cost & complexity. Yet, that is becoming the most desirable upgrade for improved efficiency. Oh well. Someday hybrids will be more common. In the meantime, cheap gas means not bothering to make the serious investment in electrification. It's more of doing the minimum.
- 2-19-2017** **Fuel Cell, part 1.** A software-related recall on Toyota's fuel-cell vehicle is being twisted into a change of plans. How that news got distorted into a turning of favor for plug-in vehicles remains a mystery. But some antagonists have abruptly changed their stance, despite so little substance to support such a move. My guess is they've seen the potential for Prius Prime and didn't have a means of showing their agreement to the approach. Having been in opposition for so long, you look for an outlying excuse to justify the new position. That works, though it's quite a stretch if they expect everyone to overlook such an obvious move. I jumped into the new discussion with: The well informed always knew focus would shift to plug-in offerings following fuel-cell rollout. It simply didn't make sense doing them at the same time, especially since fuel-cell was long-term and the next plug-in Prius was immediate. That's why there were repeated reminders of co-existence and time-frames. It was never an either/or situation. Mirai was low-volume with no intentions of this generation being anything beyond site testing. Toyota selected an isolated area for extended real-world data collection using actual consumers. That's a textbook approach.. not a big deal like the antagonists made it out to be. The next-gen Prius plug-in was always expected to be a major step forward in the advancement of hybrids. We knew all the greenwashing posted about Toyota abandoning EV interest was a just a desperate measure to steal away the spotlight in the meantime. It never ceases to amaze me how often people lose sight of the big picture.

- 2-19-2017** **Fuel Cell, part 2.** Good reception to my previous post keep the discussion lively. A good friend of mine added: "*But sometimes you have to perform the experiment to the bitter end.*" Helping that sense of closing along provided a good feeling for all those involved. I played along, but included a dose of reality too: There was (and still is) the need to be aware of how the oil industry will respond. They are a very powerful entity with a lot to lose and strong ties to regulations. Throwing them a bone with hydrogen production opportunity did buy us time to prove the plug-in robust enough to compete with the big boys. Heck, despite the small pack in Prius PHV, the local plug-in owners group was pleased with my endorsement of lithium batteries. That is vital for both sellers & buyers. Let's not forget that the technology wasn't ever entirely throw-away either. We'll see fuel-cell use emerge in the portable-generator market, a market which Honda has always been a big player in. We'll also see the direct benefit from all the electric components in fuel-cell vehicles carried over to the plug-ins. An affordable, reliable, efficient electric-motor is valuable regardless of electricity source. We get the industry's most efficient heat-pump out of it too. Things like electric A/C, electric steering, and lots of software provide benefit as well. It is interesting to see the hybrid aspect of Prius fade into the background now. It has been so well proven over the past 20 years, that shouldn't be a surprise though. The goal was to make the technology ubiquitous... which essentially makes something you take for granted. After all, how much do you think of touch-screen technology now? 25 years in the making has proven an effort well worth it. The same is what we are beginning to say about hybrid technology.
- 2-20-2017** **17.2 Percent.** Within the next month or so, my Prime will finally be delivered. That has me closely watching final details with my PHV model. Today, it was the observation of warm-up boost. When the EV range is depleted, the engine will start up. To minimize emissions, RPM of the engine is restricted to 1500. Limiting excessive spinning is achieved by using up as much HV capacity as possible. In other words, you can see a discharge from 8 bars to 2 on the battery display. In terms of SOC (state of charge), that's a drop from 23.5 to 17.2 percent. It's a clever way to ensure a long life for the engine, that reduced stress is cleaner anyway. I suspect Prime does something very similar. After all, I clearly remember that happening which each of my previous regular hybrids... especially in Winter. Being so easy on load demand during warm-up worked great then. It was a nice confirmation of a well thought out design... if you are paying attention... since it can be heard when carefully listen. Or you can just do what I did today, watch that activity on a phone-app with lots of gauges and bluetooth connection to a OBD-II reader.

- 2-21-2017** **Consequences.** The result of fake news is beginning to become apparent. There are consequences. First, it's important to recognize human behavior. We're seeing lots of evidence of information avoidance. When a person doesn't want to hear something in particular, they will get drawn to something they prefer. When they find it, they seek out more. That's how the publishing of alternative facts comes to thrive. People feed upon it. That makes it grow. Knowing that, understanding how easily it can get out of control isn't much to ask. Volume normalizing it. Becoming familiar makes the loss of perspective a very real problem. You get so use to that extreme, the unrealistic nature of the claim gets overlooked. How could so many different sources all be wrong? Sadly, they can be. The consequences can be disastrous too. Think about how hard the oil industry has worked to convince you that there's no reason to conserve. You don't give a second thought to driving around a monster-size guzzler. Excuses are abundant. Fake news assures you all will be ok.
- 2-21-2017** **Devil's Tower.** It was a beautiful Winter day... not a cloud in the sky... no wind... warm... where we were. At home over 700 miles away, friends & family were messaging us about the danger on roads back at home. Freezing rain was coming down pretty hard. It made no sense whatsoever traveling there. Our location was just 18 miles from the turn off for the road to go to Devil's Tower. Why not? I hadn't been there for 20 years and never in Winter. Of course, 35°F is hardly Winter by Minnesota standards. So, we headed that direction. Getting there, we discovered the entrance-gate had an "*enjoy the holiday*" sign on it... informing us the national holiday meant no fee to enter. Sweet! To our surprise, only a handful of people visiting too. We almost had the entire place to ourselves. Whoa! That an incredible opportunity. I could park anywhere I wanted to take Prius photos. Hooray! I used the camera here & there, then we went for a hike. What an odd place. It was a beautiful setting out in the middle of nowhere. We did the entire walk around... though lost the trail at one point. That faint path in the snow disappeared. You'd think following it would easy. Turns out, the rough terrain makes things surprisingly difficult. We had a good time though. I took a bunch of photos without the Prius too.
- 2-22-2017** **Clueless.** I keep hearing this now: "*I still have no clue what your point is.*" That's a basic greenwashing tactic not often used... until recently. It has been coming from someone who just plain cannot see beyond the size of the battery-pack. That reality of an owner recharging at work or simply not driving that far for their commute seems to be beyond the grasp of understanding. Heck, my errand running into town is well within the reach of the capacity available for Prius Prime. Just think if I was retired. Bigger would be gross overkill. Why pay for what you don't need? That's a question we aren't even getting to. The simple acknowledgement of electric-efficiency continues to be a problem. Can some people really be that clueless? My effort to find out hasn't been going well: Imagine the same size battery-pack in the same body style. That is the point of EV offerings, for their to be a variety of choices available, right? They won't all use the same amount of electricity to travel the same distance, since efficiency differs. Some use more efficient electric motors. Quality of material and machining matters, so does the controlling software. It is no surprise that most people cannot see beyond the current size of battery-packs. That will become a really big deal at some point. Do you really want some to waste and others conserve? That's an especially important question when considering the "*guzzler*" will need to use a charging station more often or for a longer duration. It also means having a higher ownership cost.

- 2-23-2017** **July Production.** We are finally starting to hear more about Model 3 production. With Bolt still very limited, Leaf pretty much static here (though selling strong in Japan still) and the next-gen unknown, the expectation of Ioniq EV coming soon, and a next-gen eGolf on the way, there's a mix of electric-only stuff going on. So, this news was a welcome change of pace: *"Our Model 3 program is on track to start limited vehicle production in July and to steadily ramp production to exceed 5,000 vehicles per week at some point in the fourth-quarter and 10,000 vehicles per week at some point in 2018."* No one has any idea how things will actually play out in that particular market, but it is very encouraging. In the realm of purchases from the ordinary, the mainstream consumers whom all automakers much eventually reach, we still see a lot of potential for the plug-in hybrids. Being simple & affordable is key. Prius Prime will offer that. There's potential for the PHEV version of Ioniq to do the same. None others have emerged with potential for 2017. We will see Pacifica this year. But like Volt, it's on the pricey side. Being too expensive remains a deterrent for the masses.
- 2-23-2017** **Shame.** The fall of Volt isn't argued about anymore. The standout nature is gone. If faces a very real struggle now, among a market growing more and more competitive. Yet, there's still a sense of superiority. Knowing how much pride gets in the way of logic coming from that perspective, I switched to shame to stir attention. This is why: *"2019 Cadillac XT3 (Equinox-based CUV) is rumored to have a plug-in variant with 30-mi AER. Quoting Mary about lots of vehicles based on Bolt EV, sparked speculation about a full-on EV variant as well!"* It's that blind hope with no aspect of urgency, yet again. I fired back: Still no plug-in SUV after all these years, despite gen-2 Volt rollout completed and Bolt rollout well underway. Remember the Saturn Vue plug-in hybrid GM talked about back in 2006? Waiting 2 more years for a non-Chevy offering confirms they are clearly not interested in changing their primary market. Say what you want about leadership or other automakers. Heck, shoot the messenger too. It won't change that reality though. Some relentlessly fought me about concerns of progress. Yet, their so-called victory now faces expiring tax-credits and a government simply not interested in their cause. Traditional vehicles pose a massive challenge to overcome still. It's time to get serious and stop with the **mine is bigger** nonsense. What a huge waste of time. When will the push for affordable choices that are actually competitive finally begin? Proving the CAFE standards are realistic doesn't come from just waiting and hoping for the best.
- 2-23-2017** **Laughing?** Denial in the form of mocking was no surprise: *"Given GM will be the first manufacturer to run out of tax credits I'm having difficulty seeing your point. They're in first, right? Why not talk about laggards ... like Toyota LOL"* I was quite curious how that was a good thing. Leadership is not just offering technology advancements. Some people still haven't figure that out, as I attempted to convey with some scenarios & questions: Running out prior to having achieved sustainable high-volume sales would be bad. Keeping sales low to avoid running out too soon would be bad. Favoring Bolt at the sacrifice of Volt would be bad. What do we see as good? Remember, the goal is to compete directly with traditional vehicles... head on... no subsidies... and with cheap gas. That's a mighty big barrier to overcome, especially with the cards stacked against plugging in. Sorry, but reality is that Toyota having held off on their tax-credit use could really pay off. Why use them on gen-1 having known gen-2 would be so much better? That's interesting question to look back upon GM with now.

2-24-2017 **Being First.** I expanded upon last night's laughing comment: "*They're in first, right?*" After so many years of sitting back and hoping for the best, you'd think they'd notice the pattern of failure. That goal of sales growth to the level of being business-sustainable, just like popular traditional vehicles, doesn't come from that approach... as I again tried to point out:

Do you need a reminder about the tortoise and the hare? Simply being ahead doesn't mean the race will actually be won. There are tradeoffs from going faster. That story reflects as a fitting analogy. Others could still cross that finish line first. The catch is, it's not just a single race. The competition isn't just other plug-in vehicles either. Each year, traditional vehicles will address the challenges to achieve high-volume profitable sales. We see that the plug-ins have yet to achieve that, even with tax-credit subsidies.

Watching GM squander tax-credits is troubling. Volt will be left mid-cycle without any. A price-tag that's \$7,500 higher will make sales even harder. Introducing a plug-in hybrid SUV under those circumstances is terribly unrealistic.

We've been told plug-in variants based on Bolt are on the way. What does that mean for growth of the plug-in hybrid choices? Will Volt just remain a low-volume offering? We've seen the spotlight move to electric-only vehicles now.

Enthusiasts of Volt worked so hard to promote it as an EV. Have you noticed the negative effect GM's naming decision is having? Calling the electric-only vehicle "*Bolt EV*" pushes Volt out of that supposed shared category. Volt has solidified a label of plug-in hybrid, without a strong selling point. It won't be competitively priced with Prius Prime or Hyundai Ionia PHEV. It won't offer a competitive range with BMW i3. It will stand alone, without a tax-credit.

Sorry, but that is the situation. The consequences of being first are becoming apparent.

2-26-2017 **Weekend Trip.** We took a load of stuff out to my wife's parent over the weekend. The Prius was stuffed silly... not just full, so squished there wasn't even room for a change of clothes. I was amazed. What a remarkable feat. We fit an entire queen-size sleep-number bed inside the Prius, complete with all the plastic pieces for the box-frame and the foam for the outer shell. None if it blocked the field-of-view either. The entire contents fit below the window-line, not impairing the mirror inside at all. We also squeezed in a coffeemaker, 2 pair of boots, and a bag of miscellaneous items. It was quite a testament to the practical nature of having a hatchback. When those seats are dropped, it's quite impressive how much can fit inside. MPG for the drive was impressive. 49 for the 145 miles there and 56 for the 171 miles on the drive back. That was all with just a single charge with temperatures slightly below freezing. I can't wait for the opportunity to do that drive again... in warming weather with the Prime. Running errands aren't so bad when you can do stuff that way.

- 2-27-2017** **Test Drive.** It was a really nice afternoon. I had time available. Called my salesperson. She said stop by the dealer, we can take the demo-model Prime for a spin. So, I did. Then, we did. My choice of where to drive was open. I decided to jump out on the highway into the thick of the fast traffic, then get off on a country road a few miles away. That nice scenic drive brought us to a beautiful park on a lake... where there were 2 charging-stations... which still hadn't been enabled. All through out last year, there was a "*coming soon*" sign. It was disappointing. I took the chance they would finally be activated. Sure enough! It was a great opportunity to show my salesperson how the public chargers worked. I was curious how much faster the Prime would be than the PHV. I saw it ramp up to 3.75 kW, then settle in at 3.6 kW. Nice. That is quite a bit faster than the 2.3 kW from PHV. In the 10 minutes and 53 seconds it was plugged in, 0.608 kWh of electricity was added. We had started the journey without any electricity, so I had put the Prime into charge-mode along the way. Between that and the brief recharge from plugging in, there was about 6.5 miles of EV range available. I took full advantage of that. Pulling out onto the country road was with a rapid acceleration to 60 mph... using only electricity. That was impressive. Clearly, the added power from the new one-way clutch works well. Yeah! It sure was an exciting test-drive experience. There's much to look forward to.
- 2-27-2017** **Delivery Expectations.** According to the information the dealer has, my Prius was produced 10 days ago. In just 3 days, it should arrive in port. 2 weeks later, the expectation is to have it plugged in overnight to recharge... in my garage! We're getting close, so close, it's time to clean out the Prius PHV. Spring has already arrived, making that pretty easy. Back when Winter was nasty, it would have been nice to take delivery... so I could experience the extreme cold right away. Oh well. It gets like that every year. My first drives will be in much more pleasant situations instead. I'll be able to see the new color too. Being dark & dirty during January isn't fun. Having a shiny & clean car for more than just a few minutes will be really nice.

2-28-2017 **Being Affordable.** Having driven a Prius Prime less than 24 hours ago, in the cold no less, all I can say is: *Whoa!* The effortless EV acceleration is great. The cabin is surprisingly quiet. The engine is remarkably smooth. The handling on roundabouts is sweet. So, the attacks have begun. Those reviews with outright lies are starting to emerge. Until now, it was just exaggerations we had to deal with. This morning's article marked a turn for the worse. I didn't like the tone of it right from the start. Then, I read this: *"Just don't turn on the heat/AC, radio, windshield wipers, try to accelerate to fast or – get this – try to regen too much electricity going down a hill. All of these things turn the ICE engine on and keep it on for 5-10 minutes regardless of how much battery you have and what roads you are on."* I know that is just plain not true. Of course, with the silly radio & wiper reference, you'd think that was just another exaggeration example... until reaching that 5 to 10 minute part. Warming up from a cold in the cold only takes 3 minutes while driving. That's it. The 10 made me very suspicious. That was following by this conclusion: *"...it is a retrofit of the hybrid Prius design with a slightly bigger battery/motor and not much else. A hack."* At that point, it was quite clear the writer didn't actually have a clue how Prime actually worked. All the other articles with any type of credibility mention the new clutch which allows the second motor (usually used as a generator) to join in to contribute additional power. This didn't. Having a battery 9 times larger isn't by any perspective slight either. The final comment is what really made the intent clear: *"However, the patch job that Toyota did to make this Prime version an *EV* isn't worthy of your pocketbook. If you are looking for a similar plug-in petrol/EV hybrid, I'd check out the Chevy Volt, Hyundai Ioniq, BMW i3 w/REx or similar options."* No price was ever mentioned. How can you refer to a person's pocketbook without ever referring to cost of any sort? Of course, why the heck was the Ioniq mentioned? We already know the plug-in model coming late this year will have a smaller seating area in back and they electric side will deliver less horsepower. Most importantly though, price hasn't been revealed yet. Prius Prime is all about being affordable. Toyota strived to deliver that... and was very successful. Yet, this article avoided any detail to that affect. I sure will be glad when I get mine in a few weeks. Then I can start filming some drives. Fortunately, in this case, the writer did too. Watching it, we discovered he was in "EV Auto" mode... not "EV" as he had claimed... which negates much of what he said. Unfortunately, most people won't notice that though. That auto feature tells the system to take advantage of the engine when the opportunity arises. Clearly, he didn't study the vehicle before taking it for a drive.

2-28-2017 **New Attacks, Old Rhetoric.** A new thread about Toyota on an open-audience green automotive website stirred the pot. It rapidly fell apart with an effort to undermine by distraction. I was annoyed by the obvious attack on Prime, but kept my response brief and to the point: It truly amazes me how some attempt to distract from the effort to deliver a plug-in choice that delivers both outstanding hybrid efficiency and outstanding electric-only efficiency that's actually affordable by using a hydrogen red-herring.

- 2-28-2017 The Right Way.** I was quite intrigued to find out more about what this actually meant: "*But for them to hack the Plugin onto the HSD is not the right way to do it, imo. They have not moved on...*" What was his opinion? I had no idea what that could even be in reference too. It was well beyond the usual vague. So, I asked: What does "*the right away*" actually mean? Toyota delivered an outstanding plug-in hybrid. They added a one-way clutch to allow the second motor (which is usually used for generating electricity) to provide additional horsepower for propulsion. That modification allows the system to act as an EV without sacrificing any of the hybrid efficiency. Attempting to give the label of "*hack*" a negative stigma doesn't work without any explanation of your claim that they need to move on. What should they move to?
- 2-28-2017 It Got Weird.** The response to that "*the right way*" question was an answer claiming that was a response what the author of the article had written. What? Having used "*imo*" (in mind opinion) clearly confirmed that was not the case. There was nothing of that sort in the article. I couldn't find anything of that nature. So, in return, I posted: Yes, we have an insistence upon calling a "*Plug-In Hybrid*" something it is not, in this case "*EV*". I suppose that should have been given the most attention in reply. That absolute of never warming up the engine sends us astray. It only takes around 3 minute while driving, then the on/off is nearly instant. The engine shuts off so fast after a hard acceleration, you sometimes don't even notice. This makes the EV-Auto mode very handy. I'm about 3 weeks from getting my Prime, but owning an Prius PHV for 5 years, I expect the on/off to become a trivial matter. It's a plug-in hybrid, taking advantage of the engine when an efficiency opportunity presents itself.

2-28-2017 **Ill Intent.** It was obvious the article we were all posting about was an attack on Prime. Reading for detail wasn't even necessary to see that. A simple compare of the cargo photo posted for Prime verses the one for Volt makes that very clear. One was stuffed with boxes and bags haphazardly. The other had a single small item. Ugh. Quite annoyed, I summed up the ill intent this way:

Reading the article for a bigger picture, rather than getting hung up on obvious misrepresentation attempts, it simply looks like that writer didn't understand the purpose of a plug-in hybrid and has carried buyer's remorse for a very long time. This was the clue: "*The local Toyota dealership sold me on the Plug-in version of the Prius getting 12 miles of range before the ICE motor kicked in.*" Regret from having believed an incorrect salesperson can really sting... resulting in clouded judgment later.

Purpose of the augmentation was to deliver a MPG boost. Having a larger battery replenished with plug-supplied electricity allows the gas-engine to work less. Operating at lower RPM and off more frequently was a very straight-forward way of achieving that goal. There was never any absolute declared for EV driving. That's why Prius PHV was called a plug-in hybrid.

Same is the case for Prius Prime. True, you get more battery-capacity, more electric-only power, electric-only heating, and electric battery-warming. But it's still called a plug-in hybrid. In extremes, like driving in temperatures below 15°F, why not take advantage of the gas engine? It shuts off as soon as the coolant is warmed. The engine then stays off until all the heat from that coolant is depleted.

Not studying before a purchase is quite common. People make assumptions. People make mistakes. People stumble across incorrect information. That's no excuse to spread it though. Seeing a follow-up article with detail filling in what the initial review missed would be very nice.

3-01-2017 **Passing Along.** Sadly, I still encounter stuff like this on a regular basis: "*They have not moved on and left the HSD, which was GREAT in its time, behind them. Like others have said they lost an almost 20 year head start (first prius Dec. 1997).*" Lack of information is often the problem; assumptions and drawing quick conclusions are the result. Hoping to not have to deal with that pointless claim, I posted: Are you aware that is passing along of rhetoric spin? GM knew way back in 2006 that there was no possible way to compete with Toyota hybrid technology. Two-Mode design shortcomings made that overwhelmingly clear. That's why the next-gen design of Two-Mode, now referred to as Voltec, had a heavy dependency on a large battery-pack. In fact, that is why all the efforts from supporters about delivering a more affordable version called "*Volt lite*" always fell apart. In fact, that is also why GM's newest hybrid with a plug doesn't offer a smaller pack either. In other words, the others didn't move on back then. Instead, they recognized there was simply no way to match that level hybrid efficiency and devoted resources to alternative approaches. Honda got close many years later, but the system turned out to be very expensive. Hyundai thinks it can, with this year's rollout of Ioniq. Nissan is trying. GM no. Ford no. FCA no. VW no. BMW no. Mitsubishi no. Subaru no. Put another way, it depends upon your perspective. They moved on because they had no choice. That's not good in a time when gas is cheap and regulations are being rolled back.

3-01-2017 **Compelling & Affordable.** Those adjectives are often carelessly thrown about: "*I think the author wishes Toyota would had a compelling and affordable Range Extended EV in its program.*" It's easy to reveal the lack of objectivity with such claims. All you have to do is request detail. Avoidance of any type of quantifiable measure reveals ill intent. I deal with this instance by replying:

The weight increase from the battery turns out to be advantageous for handling. On both my test drives, I hit the tight round-about aggressively. The lack of body roll from the new suspension-system combined with that weight showed a clear improvement upon the previous generation. That is compelling.

Toyota's approach to raise the floor rather than keep it flat sets them up for being cost-competitive immediately, without dependency on tax-credits. That gives them a huge advantage over the more costly plug-in hybrids. It also sets them up for a potential capacity increase mid-cycle.

Very few who participate in online discussions represent mainstream buyers, those ordinary customers would just replace their traditional car with another traditional car. Those here are the ones who step up to the plate and proudly become early adopters. That's not who Toyota is targeted. Going after those more difficult sales is vital... and they are the ones who don't seek out compelling.

Think about how "*exciting*" the high-volume sellers are, those profit-sustaining vehicles. For Toyota, it's Camry, Corolla, and RAV4. Notice how well the RAV4 hybrid is selling? Notice how easy it would be to offer a Prime version? Look at the new hybrid on the way C-HR. Think about who it targets and why.

3-01-2017 **Spreading Misinformation.** That ill intent article was referred to by another. Those hoping to undermine use a misleading source to spread their own misinformation. It builds the appearance of credibility, as if all they are doing is sharing something well endorsed. It got horribly vague right away: "*A certain Toyota Prius Prime owner revealed that his vehicle lacked the promised mileage when it is set to electric vehicle mode.*" Then throughout the article, we got descriptions claiming "*another defect*" and "*sub-par*" and "*disadvantages*". Rather than providing details for you to evaluate, they make the decision for you. It's quite annoying. We've been dealing with that nonsense for decades too. My favorite part of this one was the opening: "*The 2017 Prius Prime doesn't deserve coverage on...*" That immediately set a dismal tone. I wondered who that was. You never know what searches will reveal. Turns out, the source was extremely biased. It was quite obvious. Just scrolling through recent other published articles on the front page made that easy to see.

- 3-02-2017** **Compliance Claim.** The worldwide rollout of Prime all within a few months, starting with the coasts in the United States, has contributed to greenwashing. Today, from a really nasty antagonist came: *"That didn't stop people from making the same claim against the 2016 Volt..."* He just plain doesn't care and has made that clear repeatedly. Now, he's attempting to claim the rollout is only for compliance. I wonder what his undermining efforts will shift to when Midwest deliveries begin. For now, I went with this as a response: Leaving out the part about having a MSRP so high it stands no chance of competing with traditional vehicles once the tax-credit expires isn't constructive. Prime is designed to overcome that very real obstacle of production cost & profit.
- 3-02-2017** **Reality.** It's crashing down, coincidentally, on the eve of deliveries for Prius Prime to the interior of the country. All the excuses for Volt have been used up. The long-time barrier GM created that... just like we worried ...would stifle the market, did indeed. It's history repeating itself yet again. They created a similar mess with diesel decades ago. It caused chaos within the efficiency market. Ugh. Oh well. Sadly, some more history is about to be repeated: *"The tax credits haven't expired yet. The Bolt isn't priced with their expiration in mind. When the credits go away the price will almost certainly come down."* Remember how supporters of Volt genuinely thought battery-cost would drop enough to allow gen-1 Volt to compete? It was yet another *"over promise, under deliver"* situation we could see coming years in advance. Guess what, it's happening yet again. I tried to express a sense of reality with: That won't be anywhere near enough. Simple math using a quick & generous cost drop from \$145/kWh to \$100/kWh for the 60 kWh battery-pack would only provide a \$2,700 reduction. That would only make Bolt competitive with Model 3, a highly desired EV with a nearly identical price almost 2 years sooner. It also leave Volt in a very difficult position. GM won't want to sell 2 plug-in vehicles in high-volume with razor-thin profit margins. That sets the stage for a very unwelcoming dealer & salesperson situation. It also crushes the hope of growth by spreading the tech to other vehicles. Reality is, traditional vehicles pose a monumental competitive challenge. And if you don't believe that, consider how much promotion for diesel GM has been doing lately.

3-03-2017 **Moving On, competition.** We're almost there. This month, deliveries to the center of the country will finally begin. Yeah! That will bring about fresh perspective. In the meantime, it's the same old problem. Focus continues to be limited to only plug-in choices. There's an intense refusal to look at the market as a whole still. Moving on remains a challenge. I keep trying with that stubborn group, who is not ready to consider GM choices. Oh well. Change will come soon. In the meantime, provided a dose of reality to their celebrating, with the hopes of preparing them for what's to come... Except when compared to the true competition: TRADITIONAL VEHICLES. 22,464 - Equinox; 15,367 - Cruze; 12,406 - Malibu; 7,165 - Impala; 6,606 - Trax; 4,658 - Camaro; 2,140 - Sonic; 2,139 - Spark; 2,081 - Corvette; 1,820 - Volt; 952 - Bolt. Sorry to be the voice of reality, but GM is a for-profit automaker. Plug-In sales must grow quite a bit very quickly to survive loss of the tax-credit. When that \$7,500 subsidy begins phaseout, the technology must already be showing obvious signs of being self-sufficient. We are most definitely not seeing that yet. Notice how GM is investing in 10 new diesel choices for their customers? Notice the cylinder-deactivation project underway? What about their recent investment in fuel-cell development? Do you really think dealers will be interested in selling low-profit, low-volume vehicles? It's time to focus on the bigger picture. Look at those other counts for February. Plug-In choices have a long way to go still... and that progress must happen in a very short amount of time.

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3-03-2017 **Moving On, history.** The personal attacks started right away... immediately followed by a newbie asking why. I was comparing GM to GM. It was constructive. It wasn't what they wanted to read though. Having deal with that rhetoric extensively over the years, I choose to reflect upon their version of history with this summary, reusing their own "*long, sad history*" claim: There's a history. A long, sad history. Over promise, under deliver. Too little, too slowly. One size fits all. There is indeed a long, sad history. Trying to steer posts to be constructive discuss has been a huge effort. My active participation in the local plug-in owners group is what keeps focus on the true competition. Celebrating a "*best*" month requires a serious look at overall sales, not just a focus only a plug-in vehicles. The push has been to get GM to diversify, to offer a choice of Voltec options. Ironically, the argument often used against Toyota has been to claim they are resting on their laurels. Now, the shoe is on the other foot. The effort to get a "*lite*" model of Volt fell apart. So, focus has shifted to get a model of Equinox or Trax fitted with the Voltec system. In other words, the goal is and always has been to get something that can compete directly with traditional vehicles... and we are still waiting... long, sad history.

3-04-2017 **Moving On, realistic.** Knowing this will all be coming to an end soon, I went all out responding to a KMA comment:

Again, you are supposed to be realistic. Celebrating a lead is fine; it's the fierce resistance to looking at the big picture that's a problem. We don't want to watch more opportunity slip away, especially with time running out. Think about why the market is moving so slow. The barrier to wide acceptance is not the technology, it's the cost.

Battery reliability has reached the point where talk of replacement due to failure has vanished. Even those with little information about plugging in focus on range concerns now... and that's only with EV choices. When discussing plug-in hybrids, it always comes down to how much they will have to pay.

That consideration of price is the challenge to deal with. Yet, no one here wants to.

GM made the decision to diversify. Great! We want choice for consumers. We want to see a commitment to growing the market. There's a tradeoff though... only enough full tax-credits remaining to last through roughly the end of next year. That means an already prohibitive MSRP will become unpalatable.

For years, we heard about cost-reduction efforts that would make gen-2 of Volt competitive with traditional vehicles. That didn't end happening; instead, we saw a shift from anti-EV to pro-EV. The very problem Volt was supposed to overcome... range anxiety ...was solved without the need for a gas-engine. That has left Volt with no marketing advantage. It has fallen into a niche. The time to be realistic is long overdue.

GM needs something to stop losses on the showroom floor. That market is still not being addressed.

At least with Toyota... since you love to bring up those comparisons ...we see an undeniable effort to align Prime with mainstream buyers. The very appealing MSRP and comfortable seating make it competitive. The fact that it is a hatchback allows it to carry larger/more cargo than the sedans. Plugging in only requires 5.5 hours from an ordinary household outlet.

Already having a competitive MSRP means, when the tax-credit phaseout begins for Toyota, they have choices available. No need for a price adjustment then will provide the opportunity for a battery upgrade. There will be a choice between physically reducing the size of the pack to offer more cargo room or keeping the size but increasing energy-density to offer more EV range.

The point is, that's realistic. Watching opportunity continue to be missed is not.

3-04-2017 **An Evening Out.** We had tickets to a performance unlike anything we had ever seen. I had no idea that would lead to a night of discovery. We decided to run some errands on the far end of the cities, since we'd ultimately end up downtown anyway. That led to a search for a new restaurant, something we could potentially take advantage of later someday when out with a group of friends. That's exactly what we found too. It was a great experience. Leaving there meant taking an entirely new route from highway to urban jungle. The dizzy array of one-way streets & construction detour made us short on time. Upon finally getting close, we decided to park in a ramp further away than expected. Walking was a good way to avoid potential traffic congestion. It was a nice night for a walk anyway. To our surprise upon entry, there were 8 empty spots for plugging in. Gasp! No need to go up several levels with the hopes of scoring a place to park. There they were, right next to the skyway entrance too. Simple parking and a full recharge. Sweet!

3-05-2017 **Moving On, goals.** The upcoming end is bringing us back to the beginning, yet again: *"And in case it isn't obvious to you, we all want the fastest growth possible. That requires all automakers to get on board."* Fortunately, things about about to change. In the meantime:

Fastest requires concise identification of goals, then placing heavy emphasis on them to achieve that speed. Rather than doing that, we've witnessed GM continue to move goal posts. The resulting outcome has been much slower than expected.

They started with the best of intent. Their plug-in hybrid goals were clearly stated: 40-mile EV range, 50 MPG depleted efficiency, base price of \$30,000 MSRP, by the end of 2010. That was a moonshot, but based upon lessons learned from Two-Mode. Unfortunately, those goals were not met upon rollout. So, a new delivery date was changed to gen-2 rollout.

Fine. We could reluctantly accept the revised timeline. When gen-2 was revealed though, the EV range was raised to 53 miles, depleted efficiency was only 42 MPG, and it started with a MSRP of \$33,220. Why had the goals been disregarded?

The overall goal to address *"range anxiety"* seems to have been all but abandoned too. There simply isn't any news anymore about improving Volt to become the EV alternative it had been marketed to be. Attention has shifted over to Bolt instead.

Other automakers are now getting on board, moving to fill in that gap GM is leaving behind. Kia appears to be the first with a plug-in hybrid SUV. Niro is now expected around October or November. Hyundai & Toyota are moving in to provide plug-in hybrid hatchbacks with Ioniq & Prime. Then, there's Chrysler with their plug-in hybrid minivan, Pacifica. We also we Nissan preparing for the potential plug-in version of Rogue hybrid and Toyota with the same for their RAV4 and C-HR hybrids. Let's not forget about Mitsubishi with the Outlander plug-in hybrid selling well in Europe either.

In other words, we want to know what the heck GM has planned for plug-in hybrids. We have the impression GM is getting off board, since plug-in hybrid activity as slowed so much. What are the goals now?

- 3-05-2017** **Fighting Back.** I'm on the offensive again, playing that position like many years ago: At the grocery store this morning, 1 of the 2 available chargers got ICE'd. My wife said "*Hi*" to that person in the spot with his traditional vehicle and pointed out that it is only for plug-in vehicles. He replied back with "*I know*", then arrogantly walked away without a care. Making excuses to try to justify the expensive nature of your plug-in vehicle enables him, with his old beat up guzzler, to not give a crap. Providing him no reason to ever believe he'll have an opportunity to plug in allows him to justify blocking the charger. You aren't taking the situation seriously, so why should he? You are the one holding back progress by blowing off the importance of cost. You are the one slowing advancement by saying diversification is fast enough. You have become part of the problem, no longer contributing to the solution.
- 3-05-2017** **Wrong!** How would you react when someone responds to all of your comments with just "*Wrong. BS.*" That's denial on such an extreme level, there isn't anything to say. Not even bothering to be constructive means nothing will make an difference. The decision to outright dismiss is quite clear. After quite awhile of mulling thoughts, I ended up with: That equivalent of yelling FAKE NEWS is pointless. Voting down to hide what you don't want to see is like sticking your head in the sand to make a problem go away... which doesn't accomplish anything either. Reality is, growth remains a huge challenge and there's an obvious effort to avoid dealing with it. Sales hovered between 1,600 and 1,700 each month for years for gen-1, back when the automotive market was smaller. Now that it's bigger, we're seeing roughly between 1,800 and 2,000 for gen-2. In other words, sales have remained flat. Knowing the \$7,500 tax-credit is limited and some of that is being used up by Bolt, it simply makes no sense just hoping for the best with Volt. You want GM to expand Voltec beyond niche use, you actually have to do something about it. Remember how & why this website got started?

3-06-2017 **Affordability.** The craziness from this paradigm shift about to come led to this summary, dealing with a rather extreme case of denial:

Sounds like your frustration with the outcome has manifested itself into a misrepresentation of me. I was interested in EV1, all those years ago. Not being able to purchase one locally, my interest shifted to Ranger EV, since production was just down the road from here. Unfortunately, the 1999 model wasn't made available here. My support for plugging in remained though, as did my support for electric propulsion... which is how Prius support came about. In fact, I helped to coin "*stealth mode*" back in 2000, from a comment about my test-drive while trying to patiently wait for delivery.

When gen-2 of Prius rolled out, renewed interest for plugging in emerged. It was still far too expensive to be feasible for the masses; however, the technology for it was evolving. The ability to travel up to 100 km/h using only electricity was already part of the Prius design. That push for affordability was well underway by automakers. Owners experimenting with augmentation had begun too, adding battery-packs in parallel to exploit the inherent part of the design.

Volt emerged as a result of a disastrous implementation of Two-Mode, its predecessor. Being well aware of the lessons learned from it and the fundamental shortcomings to overcome, enthusiasts weren't happy with me from the start. I was always trying to be practical, not allowing blind hope to setup unrealistic expectations. My endorsement for a "*lite*" version following the gen-1 sales struggle is what stirred trouble though. Some panicked, assuming that was really an effort to undermine GM's work. Sound familiar?

It was a push for affordability. I never lost sight of what was truly important. The system was simply too expensive to reach beyond interest of enthusiasts. That was overwhelmingly proven the problem by gen-2 rollout. To make matters worse, the price of gas was dropping, resulting in a growing renewed interest in guzzlers.

Being correct about affordability is how we now have the problem with Prius. The regular model uses lithium batteries, an outcome directly from the plug-in model... which I've owned for 5 years. The next-gen model I will be replacing it with next week solidifies that endorsement for the affordability approach. That irritates some Volt supporters intensely, apparently clouding their memory as a result.

Too expensive to reach the masses remains a critical issue. Overcoming that requires letting go of Volt itself, but not the technology. It just needs to be reconfigured for mainstream appeal. The need for a "*lite*" version should be obvious. Look at how many automakers are all targeting around 30 miles for EV range. It's practical & affordable approach. It even ushers in the opportunity for a SUV model. Continuing to sacrifice cost and depleted efficiency for the sake of range & power makes no sense.

Squander more time by shooting the messenger. It makes no difference to me. You know I won't go away and the message is still conveyed. One way or another, that essential aspect of affordability will come through. In the meantime, the reality of flat sales will emerge with each month's posted results.

- 3-07-2017** **No More.** The sale of GM's division in Europe brought things to a close yesterday. It's over. Change has come. I put it this way: GM is pulling out of a market unfavorable to Trucks & SUVs, investing in fuel-cell research, and rolling out 10 new diesels. Making matters worse, GM has not expressed interest toward the offering of a popular vehicle with a high-efficiency choice. Notice how poorly Malibu hybrid is selling, despite all the excitement about it 2 years ago? It's an ugly situation with little to gamble hope upon. There has been a lot of animosity toward me for pushing the "*too little, too slowly*" concern expressed by the bankruptcy recovery task-force. I worried that GM would allow opportunity to slip by... then witnessed it happening. They had their chance to capitalize on the efficiency market, back when gas was very expensive and Volt basically had the market to itself. Instead, supporters of GM praised the conquest sales and showed no concern for loyal customers showing no interest. Now, we are watching the deck getting reshuffled... with the cards stacked against support of plug-in vehicles. It's time to get serious about competing directly with traditional choices. Too bad if you hate Prius Prime for being the first affordable offering, beating Volt at its own game. As you know, my concern is for the masses, those mainstream buyers who won't have a tax-credit available. We need to look beyond that 200,000 vehicle limit for each automaker. Far more are needed right away. The ship is sinking. Efficiency requirements and emission regulations are being reduced. Time is quickly running out. No more excuses. No more distractions. No more shooting the messenger.
- 3-07-2017** **No Brainer.** That really was the end. There was no retaliation for what I posted. No more. Yeah! The endless rhetoric was awful. Seeing things through to a nice end was an unexpectedly pleasant surprise. This is what came about: "*It's a no brainer. Losing money for so long was not a smart thing.*" I kept the discussion going with: Cutting losses has been a fundamental very difficult to overcome. Some don't want to acknowledge change is required. Volt gen-2 clearly has not been able to achieve market growth needed to sustain itself. So what? Move the technology over to a platform more appealing to GM customers. They want SUVs, not small cars. Offering an Equinox or Trax with a plug should be a no brainer.
- 3-08-2017** **No Choice.** For years, I complained about the lack of choice. With the relentless attacks on Toyota, we kept hearing GM would do so much better... offering more choices, better & faster. Enthusiasts were wrong, very wrong. Their blind hope led them astray. When I'd point out the lack of supporting evidence, they'll just start waving the flag and belittling Prius any way they could think of. It was embarrassing to see such brainless behavior coming from those who supposedly were fighting for the same cause. Needless to say, that is over. The silence confirms it. They've given up. I was actually somewhat surprised. But then again, a flurry of recent announcements from other automakers puts them in a very defensive position... hence me now playing offense. To make the message of trouble to come overwhelmingly clear, I pointed out how the lack of consumer choice has now shifted to the lack of business choice: The Osborne effect is a term referring to the unintended consequences of a company announcing a future product, unaware of the risks involved or when the timing is misjudged, which ends up having a negative impact on the sales of the current product. Think of what a plug-in SUV announcement would do to both traditional SUV and Volt sales. GM is stuck.

- 3-08-2017** **Clarity Plug-In.** Remember announcements from Honda on Earth Day last year? Most people don't. In fact, I barely had any recollection. They made a statement about the intent to deliver EV and plug-in hybrid choices. Both would share the same body as their current fuel-cell vehicle. Today, 10 months later, that intent was confirmed. Details will be revealed during this year's New York auto show, which is during Earth Day. Nothing was said beyond what we already knew. The interior would be large like Accord, offering seating bigger than any other choice currently on the market here for plug-in hybrids, and range would be around 40 miles. That's really nice for people hoping for more. Price is a concern though. Honda makes a very efficient hybrid system, but it has been expensive. A capacity of that size obviously bumps the sticker up too. Nonetheless, it's a new choice to broaden reach to consumers. It's writing on the wall so obvious, those vastly superior antagonists had yet another reason to keep quiet... even more opportunity missed. I sure am glad so much time was spent on all their terrible activity. Having to deal with their nonsense was bad, but served a purpose. It was to point out the ignorance and help progress along... progress just like what Honda is striving to deliver.
- 3-08-2017** **Review Shortcomings.** This was the parting thought on a lengthy article about Prius Prime published yesterday: *"Take the tax credit and you're looking at a final cost of about \$25,000 for a vehicle averaging 55 mpg."* It spelled out in detail the packages available, then listed destination-fee, tax-credit, and base price of the regular Prius. That made it easy to understand where the final cost came from. It was well done. A long-time automotive correspondent knows how to properly convey that type information. But when it comes to plugging in, he didn't have a clue. That vehicle average simply makes no sense. What the heck was he referring to? Looking back at his EV references, there was a comment about the 25-mile capacity and notes of ranging from 21 to 24.6 miles electric-only range. Reading more, I got the impression the stated values were only the charging-estimate and that he didn't observe how many actual EV miles were delivered. Looking at the photos, it was obviously not warm. The leafless hardwood trees with browned foliage on the ground was a clear indicate of cold Spring weather. My impression was temperatures were in the 40's at the time of the review and 4 recharges he did. That meant EV range was reduced as a result of heater use. It's too bad the writer didn't take the Prime for a drive in nicer conditions. Of course, reporting overall MPG rather than only hybrid efficiency would have been even better. I suspect readers won't notice that omission. Oh well. It was still a nice article.

3-09-2017 **Misleading & Purpose.** New audiences means same old problems come back. Today, the past was stirred by an article highlighting the flood of new luxury plug-in hybrids coming... all with small capacity batteries. That puts Prius PHV front & center for real-world comparison material. Sadly, that also means fake news re-emerges too. Of course, back then, it wasn't called that. We simply referred to it as greenwashing... a term now that isn't clear, to this new audience. So, I have to reiterate some points before we can look forward: Greenwashing was intense. There was a major effort to misrepresent Prius PHV. The purpose of the plug was to augment the hybrid system, for a significant MPG boost... not to be short-range EV. Even to this day, that spin has taken hold so well, unintentional misleading lives on from unknowingly passing along greenwash material. For example: *"And it couldn't complete even 11 miles on electric power under the gentle EPA test cycles; it had to switch on its engine after 6 miles."* That statement is wrong, on 2 counts. The EPA cycle is not gentle. At the 6-mile mark, there's a hard acceleration. That triggered the engine to run briefly, then it shut off. So after, there was still quite a bit of electricity remaining. In other words, 11 miles of EV from ordinary suburb was a realistic measure. At 90,778 miles, the average with mine is 71 MPG. That's from driving for 5 years in Minnesota, dealing with harsh winters and a number of highway trips without the opportunity to recharge. Prius PHV clearly fulfilled its purpose. As for the luxury vehicles also with a small capacity, what is their purpose? Will people really be driving long distances with them or just short jaunts into town? Think about how those luxury buyers usage compared to the abundant much less expensive vehicles.

3-09-2017 **Remembering Two-Mode.** This first attempt to deliver a hybrid competitive with Prius isn't remembered, since most people don't even know about it. In fact, when Volt first rolled out, there were intense fights claiming it was a first-generation design and we needed to show patience for GM to figure things out. That was a load of garbage, an obvious & desperate attempt to buy time. Later, when gen-1 Volt struggles became obvious, they acknowledged that history. But rather than admitting Volt was a failed second attempt, they spun it as a way of expressing maturity. In other words, the "first" portrayal turned from a fresh new approach perspective into a negative stigma. Now that gen-2 Volt is also struggling to achieve growth and the end of the tax-credit advancing faster, hope has turned elsewhere. It's actually rather remarkable to see how many enthusiasts say there will not be a gen-3 Volt. That's a dramatically different attitude than in the past. Perhaps they finally see the pattern I recognized and warned about years ago... Two-Mode was too expensive and too inefficient, GM will repeat that mistake with Volt. Proof of that came before gen-1 rollout even began... hence the hate for Prius. Remember how Two-Mode was going to provide so much better MPG on the highway than Prius? That wasn't delivered for Volt either. So, hope shifted to gen-2. The same mistake was repeated again. Though third time, you're out. This current Volt just plain cannot compete. Toyota rolled out an affordable plug-in that more efficient in terms of both gas & electricity use. Hyundai is about to do the same thing. Kia will share that honor, with a SUV rather than hatchback. Now, we hear of Honda jumping in with their own offering... one unquestionably more efficient and most likely less expensive. The problem of "*vastly superior*" rhetoric has finally come to an end. Who knew the stubborn nature of some enthusiasts would cloud sensible decisions for so long.

- 3-09-2017** **Political Parallels.** Notice how this administration says everything is fine, despite an abundance of evidence to the contrary? That's a very familiar problem. How many times were we assured production-cost would dropped and demand would rise? If supporters of GM ever want Voltec spread to other vehicles, they have to be honest about the flat sales and the heavy dependence on tax-credits. Pretending all is well undermines progress. It's a self-inflicted wound. Ironically, the opposite happened with Toyota for Prius PHV. Not only was the mid-cycle limited-market rollout recognized as unable to compete (with the true competition: traditional vehicles), production was actually halted 1.5 years prior to a successor being delivered. There was no denial. There were no excuses. There sure was a lot of greenwashing from others though. Admitting more was needed isn't what they had expected or knew how to deal with. So, they choose to deceive & mislead about the outcome instead. Remember how they claimed Toyota had abandoned plugging in entirely, rather than acknowledge that halt could be the result of a much improved design on the way and the obvious benefits of not confusing customers & salespeople by rolling out the older generation any further. In other words, they said what they wanted people to believe, disregarding the information they don't like. That's exactly what we are seeing now in the political arena. It has become like theater, where they hope to draw your interest based on what their performance, not what you see in the world around you.
- 3-10-2017** **Rollout Delay.** I knew this spin would stir discussion: "*We sometimes forget that Volt went from concept to production in a short four years!*" Disregarding for the plug-in hybrid technology itself, by substituting the Volt identifier, is very misleading. It's a matter of semantics. Do you argue the idea or take everything literally? My point is that we continue to wait for that plug-in hybrid SUV promised all those years ago. Why the continued delay? I presented the situation this way, in a topic thread about upcoming technology: GM had been working on plug-in hybrid tech long before that. In fact, they revealed a pre-production Two-Mode plug-in Saturn Vue back in 2008. Being able to deliver the engineering does not mean the business will be able to embrace it though. The cost to produce that tech can keep it out of reach. Watch for parts of the tech to emerge on existing vehicles as standard. When they become common like that, then the business can move on to delivering on the next part. For example, we are starting to see that with safety packages.
- 3-10-2017** **It Gets Complicated.** A smaller battery-pack, offering greater cargo area in return, can face tradeoffs. Offering the same capacity with less physical volume would mean more dense of a build... which could lead to it being heavier. That tradeoff thought rarely crosses the minds of those simply looking at what a tape-measure reveals. Another common oversight is cooling. Increased density (through different chemistry or tighter manufacturing method) could result in a tradeoff influencing the ability to cool. Thermal limitations could impact the electric draw. You ever consider that? Of course, there's protection of the battery-pack itself to consider too. Keeping the design simple to produce & install is a decision factor for both engineering & business. In a discussion with a focus of "*trunk space*", I pointed out that there's more than meets the eye by drawing attention to the power aspect: Tradeoffs are a reality with any type of engineering. Let's not forget about EV power... 68 kW (91 hp) for Prius Prime... 45 kW (60 hp) for Ioniq PHEV. Ask yourself why. It gets complicated. There are many factors of influence.

- 3-10-2017** **Preference.** Reading this, I knew the pot was about to be vigorously stirred: "*Does anyone else notice that whenever there are "Cars of the Future", they are almost always these tiny little electric, self-driving pod-things.*" Concept vehicles rarely resemble the production model that's rolled out many years later. Futuristic renderings of what could be generations from now are basically pointless. Yet, we see them on a regular basis. It stimulates imagination and builds excitement. Of course, that did backfire with flying cars. The oldest generation came to expect something resembling that level of sophistication by now. True, we are starting to see aspects of that emerging with safety features. But we are still over a decade away from anything even eligible for the masses in terms of daily driving. Anywho, I poked back with: That is the very reason I asked the SUV question. Trying to be realistic about what people will actually buy, we need to relate it to their purchase preferences. That is why Volt & Bolt are head-scratchers. Compact hatchbacks & wagons are clearly not what GM customers favor.
- 3-11-2017** **Carbon Fiber.** This got me worked up this morning: "*German car companies have done very little beyond making minimum-range PHEVs so far.*" It was on an EV website discussing the topic of Bolt, sighting how it would have never existed without Volt. Naturally, everyone was putting their own spin on who should get credit. Never once, in any of the comments, was the word "*Prius*" uttered. With all the posts over the years, expressing intense hate for Toyota's achieve, it's undeniable there was an influence. You don't highlight something of no significance. That's why Volt got so much attention here. It was validation of Toyota being right all along, that holding true to mainstream consumer need was more important than appealing to enthusiasts. Anywho, I was happy to point out BMW's contribution. Delivering a system using a motorcycle engine with a tiny gas tank took guts. That's the type of risk GM was unwilling to take; yet, BMW gets ridicule instead of praise. The bigger step forward, which continues to be ignored, is their effort with carbon fiber. That material is 20 times more expensive than steel. The improvement to strength and obvious weight reduction is remarkable... well worth the effort to achieve cost-reduction. This is why Toyota traded some hybrid technology for the sharing of manufacturing expertise. The rear hatch in Prius Prime is carbon fiber. That's a large, complex piece of the vehicle that will have to endure impact routinely was chosen as Toyota's first step toward mass rollout. Knowing that, it should be easy to understand my response to "*very little*" claim: BMW delivered i3, the vehicle Volt was meant to be... a true range-extender, rather than a plug-in hybrid. Range of i3's first year offering was over double that of Volt too. BMW's use of carbon-fiber has been impressive, so well implemented, most people don't even realize that huge step forward in weight reduction even took place.

- 3-11-2017 Back to Basics.** The level of frustration coming from former Volt enthusiasts who have turned to support Bolt is growing. Attempts to distance themselves from that ugly history of desperate misleading for a configuration with obvious shortcomings isn't going well. You can't just ignore mistakes of the past. That's how they get repeated. The pattern is starting to get recognized. Staying true to goals is vital. With Prius, it was a careful tradeoff to achieve balance. Toyota didn't care about power only be average, since it meant keeping cost contained. GM didn't care. That priced Volt well out of reach for ordinary consumers, forcing it into a niche. Enthusiasts hated me for pointing that out on a regular basis, since I kept warning the same mistake could happen with gen-2. It was too. Why? Simple. GM obsesses with power. Heck, that was one of the reasons Two-Mode didn't appeal to GM's own SUV customers. They wanted more towing capacity. Power was inadequate... due to the relentless marketing push from GM that more is necessary. Ugh. I provided a bit of common sense... which is fall on deaf ears. Nonetheless, I posted it anyway: Replace the "*no compromise*" requirement with "*practical & affordable*", then it becomes realistic. That's the classic NEED verses WANT problem, a difference enthusiasts have a very difficult time understanding. Mainstream buyers know. Their purchase preferences are regarded as boring though. This is why Prius has rubbed Volt supporters the wrong way for so many years. Prius addresses need. Volt focuses on want.
- 3-12-2017 Charger Fundamentals.** There are problems. Lack of consistency says is all. How much you pay varies tremendously. How you access them goes beyond randomness. How fast of a recharge speed they provide is anyone's guesses. You just plain don't know. This is a big part of "*too little, too slowly*" the Volt enthusiasts did everything they could to undermine. They were likely oblivious to the problem. It was their obsession with belittling Prius PHV to make Volt appear better that prevented actual constructive discussion. The penalty that caused with gen-2 Volt is undeniable now. Having focused so heavily on EV range, simple matters like charging speed was neglected. That group of antagonists did so much damage to their own cause, they likely will never come to realize the true scope of the problem. An option available in Japan for Prime Prime is CHAdeMO charging. That's those high-speed DC rechargers Nissan Leaf takes advantage of. You'd think Volt would, especially since Leaf was supposedly since it was GM's biggest conventional competitor. (Tesla has the even faster superchargers.) Now, Toyota does too. Heck, Toyota's system offers delivery of electricity in the other direction too. In Japan, you can also get a 1500-watt inverter option. That's the ability to plug in high-power household electric appliances into your battery-pack... supplying enough power to actually run a portable A/C unit. Anywho, even the fundamental of home recharging was disregarded. Think of how many gen-1 Volt owners who end up buying a Bolt, then discover their 240-Volt charger is low-amp. Having only purchase a 20, not realizing that a 40 should have been invested in is a major oversight. Taking twice as long to replenish the battery-pack is a big deal. Needless to say, they messed up. Consequences of that are now becoming apparent.

- 3-13-2017** **800-Mile Trip.** The first Bolt owner long-distance trip published with details for others to critic didn't go well. The expense (time & money) made it clear GM should have invested in some infrastructure. The charging network is still quite limited. After 150 miles of high-speed travel, the hunt for somewhere to plug in becomes a critical concern. Chargers aren't always available. The ones that are have limitations. Some restrict use to 30 minutes per session. Others deliver a slow recharge rate. It's not as simple as using a Tesla supercharger. Bolt's charging speed isn't as fast either. As we know though, GM is terrible at balance. They focus on a strong trait and let other aspects of importance slide. With Volt, it was power & range. With Bolt, it was range & price. As useful as those purchase priorities can be to some, you don't sacrifice others... without some type of penalty. Dealer interest was a major negative consequence from Volt's obvious trade-offs... now inarguable sacrifices. It was intended to overcome the same problem as Bolt, to alleviate range-anxiety. Clearly, there is some still when taking an 800-mile trip. Oops!
- 3-13-2017** **Blatant Denial.** We've been seeing more and more of this lately: "*We are not familiar with any scientific institution with relevant subject matter expertise that has reached a different conclusion.*" That goes well beyond the usual greenwashing tactic of raising doubt. This is just a flat out lie, pretending there is no evidence whatsoever to formulate even an alternate perspective with. In this case, it was about climate change. So much proof is now available and so many scientific experts have confirmed our need to reduce carbon emissions, there is literally nothing remaining to debate. That puts them in the position of either admitting defeat or attempting to push their own agenda by ignoring everyone else. They chose the latter. This reminds me of the tobacco industry decades ago, doing everything possible to avoid their inevitable downfall. Basically, they are now just fighting for delay... but the damage they'll cause in the meantime could be enormous... especially since this is coming from the new administration. Driven by greed, money, and power, some will do anything they can to impede change. Sad.

3-14-2017 **MPG Concerns, next steps.** This new administration is working hard to undo legacy of the previous. There's an intense need to erase anything credible from the past, paving the way for change... in the wrong direction. Eliminating efficiency improvement regulations is getting a lot of attention. This is yet another consequence of "*too little, too slowly*". The naive nature of Volt enthusiasts prevented them from coming to the realization that engineering alone wouldn't be enough to overcome potential future obstacles. They foolishly expected gas prices to rise and battery costs to fall enough to overcome shortcomings with the vehicle itself. They were wrong, very wrong. Now, those same concerns are even more of a problem to overcome. Ugh. Oh well, this is how I put the situation:

All those years ago, in the early stages of Volt development, there was a statement made about price. Specifically, it was a target for delivery was set at: "*nicely under \$30,000*". When the literal interpretation of that was not fulfilled, we saw a wide variety explanations attempting to justify having missed it. The spirit of such a goal remained though... to offer something competitively affordable.

Today's topic makes the reason for that overwhelmingly clear. Worth of hybrids was always measured based upon purchase price, with efficiency gain the means of offsetting the upfront premium paid for the better technology. Worth of plug-in vehicles will be measured the same way. 15 years of history taught us that. It also taught us how difficult diminishing returns based upon MPG increase would be to show.

This is why concern for the heavy dependence on tax-credit subsidies has been a forefront issue. It's proving an extreme challenge to grow the market, even with that \$7,500 discount. Watching it be phased out, then disappear prior to the current product-cycle of Volt ended, is a major problem in the making.... which brings us back to initial price.

I am not sorry to point out that Prius Prime achieved target, since I saw this coming years ago and pushed for a second model of Volt to deliver the same. Instead, there was an intense effort to silence that concern. Now, I ask what should be done.

What next step do we expect GM to take?

3-14-2017 **MPG Concerns, attacks.** It got personal immediate, attacking me rather than even bothering to acknowledge the actual problem: "*Yet another vague rollup of straw arguments, half remembered history and meaningless queries. Meanwhile, GenII Volt easily out-performs GenII PiP in all but extreme edge driving scenarios.*" It was the same old disregard of any concern; instead, that childish "better" rhetoric was repeated. Ugh, again. Oh well, again: That attempt to downplay & evade doesn't change the intent of the "*nicely under \$30,000*" target. As for performance, that claim is a clear indication of misunderstanding purchase priorities for ordinary consumers... which is a big reason why Volt isn't competitive with traditional choices. The claim of "*all but extreme*" just plain isn't true either. Prius Prime is more efficient with both electricity (kWh/mi) and gas (MPG). Those are very important performance measures for everyday driving. Again, the question of next step for GM... What should it be?

3-14-2017 **MPG Concerns, superiority.** After a series of senseless attacks, I decided to fight back against that same comment: *"Yet another vague rollup of straw arguments, half remembered history and meaningless queries. Meanwhile, GenII Volt easily out-performs GenII PiP in all but extreme edge driving scenarios."* Re-quoting it again, but this time blatantly pointing out the advantages of Prime Prime... rather than sticking to the usual regiment of GM only discussion... was well earned:

Hope was the situation would finally be taken seriously. Cards about being stacked against plug-in vehicles. But rather than consider the market as a whole, it was just more of the same old *"vastly superior"* nonsense. I remember that history quite well... and really enjoyed your ironically vague reply today.

In what categories does it easily out-perform?

Volt = 0-60 acceleration

Prime = electric efficiency

Prime = hybrid efficiency

Prime = heater efficiency

Prime = emission rating

Prime = safety rating

Prime = turning radius

Prime = recharge rate

Keep in mind that 25 miles covers more than 50% of commuters, so calling it an extreme would be a bit of a stretch. There will be some, like me, who can recharge at work too.

3-15-2017 **MPG Concerns, goals.** The big problem with GM's struggle has been a disregard for goals. They'd ambiguously state the intent to reach some milestone, then never mention it again when it was missed. With Volt, we heard the 60,000 annual goal repeated on a regular basis. Reaching that sales rate (5,000 per month) would be strived for by the end of the second year of sales. There were attempts to retarget along the way, like the claim that count was really 45,000 for this market and 15,000 for Europe. But when neither of those were met, talk of sales got ugly. Attempts to discuss the much touted 120,000 annual production capacity which has been a popular justification point of the past turned to claims from Volt enthusiasts of Prius owners attempting to undermine & mislead. That's why turning on them by pointing out *"vastly superior"* aspects of Prius Prime is long overdue. They need a wake-up call, to finally accept what needs to be done. The concerns about MPG regulations being rolled back is a good reason to give them the kick in the butt they've deserved. It's not like Voltec is a loss. It's just poorly configured to actually compete with traditional vehicles. The upcoming expiration of tax-credit subsidies will be such a wasted opportunity too. Time is now to do something to prevent that. Addressing goals is how.

3-15-2017 **MPG Concerns, avoidance.** To my surprise, the most intense of the antagonists avoided discussion yesterday. He didn't post any type of rebuttal today either. I knew he was active online, since the new topic had several new posts from him. Normally, he'd lash out afterward to get the last word in. This time though, I obviously drove the point home... Volt has serious shortcoming, so obvious that consumers are not interested. It's really unfortunate a second model configured for mainstream buyers was never rolled out. Oh well. This is how I brought the senseless bickering to an end:

See the reason for MPG regulations?

Investment in battery production and charging infrastructure is a whole lot easier when you know the entire industry is working toward delivery of efficiency improvements.

GM's rollout of Bolt is surprisingly slow. By the time nationwide availability is reached, Tesla will be in a position to shoot past. The hope was that being early meant opportunity would be capitalized upon. We're not seeing that. We're not seeing anything in terms of high-speed charger availability from GM either.

This brings up back to asking about Volt. More of the same is clearly not going to achieve needed growth. Not hearing anything whatsoever about next steps leaves us only with that, which is really unfortunate... and give good reason to push.

Watching GM turn to diesel for higher MPG, because their plug-in sales growth continues to remain a challenge and unsold inventory of traditional cars builds up, is not what anyone hoped for. There's definitely reason for concern at this point.

3-16-2017 **Many Sightings.** I'm seeing a lot of gen-4 Prius now. The first-year glut doesn't appear to be reflective of the second. Seeing quite a number of older drivers (those who look like they've been retired for awhile) has made me wonder. Could it be that the radical look... to them... is the futuristic vehicle they had always dreamed of owning someday? What an interesting perspective. From their point of view, the design does indeed resemble what had been marketed to them long, long ago. After all, we are well into the second decade of the 21st Century. That's beyond what many ever expected to ever live. Imagine being able to fulfill a childhood desire like that. Cool! The new Prius really stands out. It handles remarkably well. Technology is gushing out. That approach really is something they thought they'd never had. What in the world does that send for a message to their grandchildren? For me, I remember inspiration of new-tech coming from my grandpa. Remember how the Mercury Sable had headlights that wrapped across the entire front of the car?

- 3-17-2017 Refill Distance?** I could have reached 1,000 miles for a single tank with my Prius PHV. It was the right combination of weather and driving circumstances. Unfortunately, I ran out of time. The next day was July 4th and plans were to travel. Opportunity lost. Oh well. That should be much easier with the Prius Prime. The longer distances between refills should allow me to collect sizeable discounts from the local grocery store too. Normally, I only have a few cents accumulated. But soon, I'll be making various purchases many more times in between visits to the pump. That should make things interesting... even more saving, beyond plugging in while shopping there. Anywho, these are the numbers from my over the past 5 years: After 91,355 miles and 172 refills, the real-world average tank distance with my Prius PHV is 513 miles. That's as real as it gets. There's a wide mix of short drives, long trips, and top-offs. The variety represents the randomness encountered from everyday need, where you don't plan when. You just do when needed. With the Prius Prime, I'll be able to drive the entire commute with just electricity. There will be a lot of errand running with EV only too. The tank is larger as well. So, it wouldn't be much of a stretch to routinely expect +1,000 mile tanks.
- 3-18-2017 Environment Attack.** It's getting ugly. All we hear is rhetoric. Unwillingness to consider any detail of any sort is a warning sign of major problems to come. Federal funding reduction is being planned on an enormous scale. The belief is that the approach to clean air & water will come from state choices instead, that they will provide the regulations, enforcement, and funding. Problem is, jurisdiction beyond state lines is a major obstacle. Litigation is costly too. Dirty emissions from burning coal or river pollution from manufacturing or construction from neighboring states is a very real dilemma. Who's going to oversee those issues and ensure everyone is treated fairly? The disastrous outcomes can be very, very expensive to resolve... and that's not even taking into account the MPG issue. Even with guzzler sales remaining in place, there are many other concerns the EPA must address still. Preventing that by cutting funds is dangerous for everyone. This administration is so short-sighted. What a terrible situation we are now having to deal with. They don't show concern for climate or the environment. Seemingly benign budgetary cuts, can have huge consequences.

3-19-2017 **Ioniq Reviews.** They are starting to trickle in. Competing directly with Prius won't be easy, especially with the misleading precedents established by Volt enthusiasts... the very thing I fought for many years, foreseeing impeded market growth as the result of such narrow-minded views. Anywho, the initial impressions of Hyundai's approach are looking good. This is what I posted as a comment for an article comparing Ioniq to Prius:

3 months of 2016 sales were lost to slow rollout of that next-generation model and the stop caused by the parking-brake recall. You simply cannot buy what isn't available. Some customers shifted interest from Prius to the new RAV4 hybrid too. There was also a wait-and-see delay from the introduction of Prius Prime.

Judging demand of the newest Prius is easier in 2017. Looking around, you'll spot them on the road much more frequently. Like with the previous generations, that "*polarizing*" demand is what draws new buyers after the first year. For those who prefer to blend into the crowd, there's the new Camry hybrid coming this fall and the RAV4 hybrid.

Looking beyond the visual appear, sticker price, and efficiency numbers, people will discover Prius comes loaded with safety features standard. Things like dynamic radar cruise, pre-collision braking, lane departure with assist, and automatic high-beams are all new and unfamiliar, so most people currently are not including them in the purchase decision. Those are part of the base for Prius, included in all models. Hyundai offers some in upgrade packages for Ioniq.

As for Hyundai itself, they seem to have done an excellent job of delivering a well-balanced high-efficiency choice of design to appeal to the masses. Ioniq should have a very positive effect on the hybrid market. The big influence will come from the 2 plug-in models though, not the regular hybrid.

3-19-2017 **Safety Coup.** The clever move on Toyota's part to offer a collection of safety features standard looks to become a coup. Automakers weren't expecting that. Hybrids have always focused on efficiency, with the expectation of other options being upgrade packages. In fact, most comparisons were mismatches as a results. That constant misrepresentation of writing a review comparing a fully loaded Prius to a base model of something else was just plain wrong. Stuff like that is how the "*greenwashing*" term cam about. Now, we're seeing comment sections pointing out how the effort to avoid bias by comparing base models of both is misleading... since even the lowest priced Prius comes better loaded. Safety features are a strong selling point too. In other words, Toyota stacked the deck and no one noticed. Having such a nice advantage is really a wise decision in this time of oil over-supply. Gas is cheap and there's no end to that expected for many years. This added appeal makes choosing much easier. Sweet!

- 3-20-2017** **Midwest Deliveries.** They have finally begun... or at least Prius Prime offerings are now listed. I haven't confirmed any are actually at local dealers yet. Searches show some though. So, we can at least say "soon" is realistic. Mine is supposedly getting closer. The end of next week is a possibility. If not then, it should be by the early part of the following. Whatever the case, it will no longer be Winter. I was able to place an order for a hitch. My effort to call ahead, prior to websites being updated, allowed for that opportunity. I was the first to get notified. That's nice, just in time for biking season to begin. I already have floormats in the garage... waiting. Meanwhile, I do know of a delivering in Nebraska. He's been anxiously hoping. That worked out nice. This reminds me so much of the first deliveries of the Classic model back in 2000. Similar rollout reports and restless wannabes were keeping the forums lively. Exactly as anticipated, we're seeing rollout ramp up just before Earth Day. This is getting really exciting!
- 3-21-2017** **Growing Demand.** We are already seeing a shift of discussions to Prius Prime. The strange discounts for Bolt and the flat sales of Volt are making that easy. It's nice actually having constructive posts to respond to. What a change. This is how I joined into the flurry of replies: Dealer interest is a major factor, one often disregarded as important in the past. Now, it's finally getting proper attention. They'll contribute heavily to demand growth. Being easy to sell is key. People see Prime, notice the plug and the sticker-price, then go for a test drive. The Prius reputation for being green, efficient, and reliable is already well known. Nothing else to tell the customer. That's it. Sold. The salesperson could matter-of-fact mention plugging in overnight to an ordinary outlet. There literally isn't anything else needing attention. Toyota nailed the KISS approach.
- 3-21-2017** **Tough Decisions.** Slow sales for Bolt and dealer discounts ranging from \$2,000 to \$5,000 has supporters wondering what's going on. This particular comment about the situation really stood out: *"Perhaps GM is suffering from the 'big truck and SUV company' image from EV buyers?"* As you could imagine, I didn't hesitate for a moment to post: Asking *"Who is the market for Volt?"* scores of times eventually resulted in that same thought. It should have been obvious right from the start. Knowing your audience is a fundamental not to be taken lightly. Enthusiasts did though. Consequences of that neglect are reflected in sales struggle for gen-2. This is why the push for spreading of Voltec to Equinox should have happened years ago. Unfortunately, the Osborne effect has become double-edged as a result of the delay. Any announcement now would have a negative impact on both Volt and Bolt sales. To make matters worse, the excitement for Tesla is growing as GM's rollout progresses far slower than anyone had hoped. The first Model 3 sales to regular customers will begin the same time Bolt finally becomes available to a large portion of the country. On the plug-in hybrid side, we are seeing both Toyota & Hyundai pushing low-priced choices, putting Volt in an uncompetitive position. Negative vote this dose of reality. You know it won't do any good. GM faces tough decisions. Are they going after conquest sales or trying to attract their own showroom shoppers? Who?

- 3-21-2017** **Missing the Point.** Some people completely lose perspective, forgetting what the original effort was trying to achieve: "*Why race towards losing the tax credit by hawking Volt as if it were a Cruze or Corolla?*" How can the intent to replace traditional vehicles with affordable high-efficiency choices be overlooked so easily? That comes from making excuses for shortcomings. Volt was plagued with a listed of goals not achieved upon gen-1 rollout. The upgrade was supposed to address them, fulfilling expectations later than hoped, but nonetheless achieved. That clearly didn't happen with gen-2 either... which is why it is mentioned so often in these blogs. Making sure those same mistakes are repeated is vital. So far, we're seeing excellent recognition of need from Toyota. It's too bad they don't. Oh well. I can only restate requirements so much. Fortunately, I can also add some perspective: That is the point of the tax credit. Its purpose is to help draw mainstream buyers to the technology. Only rewarding enthusiasts is a sign of trouble, a reason for concern. Automakers need to build up momentum so the loss of subsidies won't matter. Establishing popularity among the masses prior to reaching the 200,000 limit is how to do that. Remember, there is a phaseout period. That is limited to time, not quantity. An automaker could capitalize on the opportunity... if demand has already been created.
- 3-22-2017** **Delivery Preparation.** There isn't much I can actually do beyond wait. I ordered aftermarket floor mats and a receiver-hitch. One arrived, the other will soon. I'll be ready for a bike trip as soon as the weather warms here (Minnesota). I'll be among the first in the country to do that too. I managed to get an order request in prior to the manufacturer even revealing availability. It's nice being able to work with providers directly. They are quite receptive to those wanting to help get word out about their new product. That means even more initial photos than anticipated. Of course, I've been preparing for delivery for a very long time now. I'm definitely good to go. Keep those opportunities coming! I have a beautiful new location scoped out. It's some land just outside the extremes of the suburbs, a massive new park created to retain the wild setting yet be readily accessible. Development will surround it decades from now, making it a premiere location to escape to. It already offers an impressive pavilion just off of a large spread out parking area... with 2 charging-stations. Paths are not paved yet. The trails going around the lake and through the country are only dirt so far, but you can see the effort to make them become nice paths for walking & biking. The private road that twists through hills will be a great setting to play with the new Prime. I really lucked out with this, prepped beyond expectations. Who would of thought something so nice would emerge just before getting my new plug-in... and it only be 6.9 miles from home!

- 3-23-2017** **Video: Coffee After Dinner.** Having just upgraded to a better OBD-II reader in preparation for getting my Prius Prime, one last recording with the Prius PHV was needed. I could tell the evening would bring a nice sunset. So I saved the last third of the capacity, then plugged in upon getting home from work. That left just enough time to fully recharge while eating dinner. My drive would be to the new coffee shop and back. The engine would be partially warmed. It would reflect exactly what I encounter while running errands at night. I'd had enough electricity to get there, then switch over to the hybrid system during the return trip. That's exactly what happened too. You can see both what I see on the dashboard while driving, as well as detailed information from gauges that aren't usually available. Using that aftermarket device, I was able to capture values, then later convert them to frames of video which could be added to the camera footage. 15.3 miles for the entire drive. 9.9 miles of EV (electric-only), despite the temperature being very close to freezing. 154 MPG was the average for the drive. Looking at the dashboard, you can also see my overall average for the day... [Coffee After Dinner](#)
- 3-24-2017** **Diesel Fallout.** What a mess. As anticipated, the required updates to those VW diesels violating emission requirements are causing problems for some owners. It should have been obvious that vehicle variances would mean the proposed fixed wouldn't behave well in all conditions for all owners. Think about how different each driver's needs are, how different road conditions, speeds, and distances can be. It's hard to know how many are actually having trouble, especially since the internet tends to exaggerate problems. However, there is some merit to claims of burn-offs happening more often. This is when the revs high to produce an excess level of heat so the emissions held in the trap can be released. They need to be burned before purging. The event had been extremely rare, in the past. Now, it seems to happen on a very regular basis. Did VW plan that, but not inform owners? There are reports of stalls and rough idling now too. The expectation of the system now being sluggish & underpowered has been confirmed too. Are you ready to be following one of those TDI vehicles, waiting for a puff of smoke out of the tailpipe? Think about the MPG penalty from those updates. Even if there are not any operational issues for some, there is still that to deal with.

- 3-25-2017** **Looking Back.** Much like the the current administration, boasting doesn't match reality. Attempts to spin struggling sales for both Volt & Bolt went nowhere this week. Enthusiasts had nothing solid to work with. All the low-hanging fruit has been picked & eaten. Thank goodness that nonsense is over. GM's effort to win customers based on nothing but engineering proved a terrible plan. All we're hearing now is the same old chant: "*Give it a chance.*" Neglect of what happens on the showroom floor has significant consequences. That sounds just like the problem with all those empty political promises. Lack of substance is a dead giveaway there will be problems to come. Yet, some people blindly hope for the best anyway. I look upon the failure of gen-2 Volt to achieve the large market growth promised as undeniable evidence of struggle... and a pattern. We were told the same thing about gen-1 Volt. We were told the same thing about Volt's predecessor (Two-Mode). We are being told about Volt's successor (Bolt). How much waiting is required? With so much hype, why aren't the claimed potential buyers stepping up? The answer is simple... there's far more to a plug-in than just engineering. Important business requirements were dismissed greenwashing attempts to distract & discredit. Those who were so naive are now paying the price. We can finally move on to constructive efforts. Yeah! I'm so glad that's over.
- 3-25-2017** **Midwest Rollout.** Looking up inventory online, I see 9 Prime listed for sale locally. Finally! That doesn't mean any have actually been delivered though. It simply indicates at some point that particular VIN will be offered for purchase. None are the Blue Magnetism that I have been patiently waiting for. No one has mentioned any sightings either. I suspect mine will be among the first. It's scheduled for next Friday through the following Tuesday. So... potentially... a week from now, I could be driving a new plug-in. Unlike the excuses still coming from some GM enthusiasts, I expect Toyota demand to be obvious in just a few months. We see that growth in the limited states currently with supply to sell. Spread across the country is all it will take for the spark to turn into fire. There are supporters waiting for people like me to enable them to take the next steps. Some on-going detailed driving reports along with a small collection of videos should do the trick. They'll be able to join in to that mix in the months that follow. Prius Prime is priced for that market potential to be realistic. That horrible "*vastly superior*" attitude won't be part of this. There's simply no need. Toyota designed an affordable choice providing both electric & hybrid efficiency which speaks for itself. Now, it's just a matter deliveries beginning.

- 3-26-2017** **No Agreement.** Collapse of the effort to repeal the Affordable-Care-Act came about from the same fundamental problem Volt suffered. You wouldn't expect such basic mistakes to be made. Yet, that's exactly what happened... they couldn't agree on goals. Replace with what? How many times did I ask that of the enthusiasts. They just kept saying "*vastly superior*" over and over again. It was so idiotic. All they cared about was some aspect being indisputably better. Whether or not the vehicle as a whole stood any chance of actually competing simply didn't matter. They just wanted a victory to declare. Pride blinded them. The same thing happened with our new administration. Not delivering something helpful to the masses wasn't a concern... and they got called out on it. We're seeing the same thing play out with Volt now. The technology isn't progressing. Not having a clear direction on next steps has been the problem and continues to be. What the heck should GM be trying to accomplish? Notice how enthusiasts & supporters have virtually nothing in common? They cannot agree on goals. Heck, they don't even have a clear overall purpose. Mixed messages of the past got worse. They didn't try for any type of unity. It's a chaotic mess now. Oops!
- 3-27-2017** **Better?** I know I won't get an answer to the question. Coming from a website dedicated to early-adopters of plug-in vehicles, there's a bias so deep for more EV range, no one there considers less a good thing. It's always more, more, more. I suspect that will change relatively soon. But with only first-generation vehicle owners participating, that's a tough obstacle to overcome. With the feeling range-anxiety creates such daunting barriers to widespread acceptance, the issue of affordability simply doesn't get attention. Brushing cost-reduction off as an issue to deal with later continues to be the theme. That's why leadership from Toyota in that regard is shrugged off as unimportant. They cannot see far enough ahead to realize the lack of balance is sending them off course. If it cannot even draw high-volume sales with generous tax-credits, how in the world will it compete with traditional vehicles? The disregard for mainstream priorities is a very real problem... and early adopters continue to be unwilling to deal with it. Oh well. That's where I come in. Less EV range isn't exciting for them, but when you see the reaction of ordinary consumers, that demands a rethink. 25 miles is a lot to them. For a minimal cost, they get to plug in too... and still get to enjoy EV driving, as well as outstanding overall efficiency. This is how I asked that group: What does "*better*" mean? GM's low priority to eventually deliver something directly competitive with traditional vehicles is difficult to deny. Yet, that's exactly what Toyota has already rolled out. Again, what will happen when the tax-credits run out? That will happen in this product-cycle. The MSRP for Prime can withstand that loss. That's not realistic for Volt with its much higher price. Remember, the goal is significant sales growth.
- 3-27-2017** **New Photos.** While I wait for my Prime, there's some website stuff to wrap up. A few miscellaneous photos could be shared... before I lose track of them. The expectation is a flood of new opportunity will come with Prime ownership in the first few weeks and I'll be extremely busy trying to document all the little tidbits learned along the way. That initial experience is difficult. There's so much to keep track of that you want to remember for documenting later. Using the camera to save as much as possible is an effective means of leaving notes to myself. Unfortunately, it means sorting through literally thousands of files afterward. Oh well. Bring it on. I certainly do enjoy that work. It's a very rewarding discovery process. In the meantime, enjoy the final few new photos before they become old... [photo album 204](#)

- 3-28-2017 Fake News.** The article was off to an abrasive start with this opening snippet: "...*found it to be competent at maximizing MPG, but not much else.*" I wondered what driving data would be actually provided. Turns out, there was none. They just said it was "*boring*" and "*terrible*" and "*disappointed*". Nothing related to observed fuel-efficiency was mentioned. For that matter, nothing was about electric-only driving either. Their wasn't even any indication it was ever plugged in. In fact, this mention seemed to confirm it: "...*can be charged through a plug port located on the driver's side fender of the car*". That's wrong. The port is on the passenger side. What really got me though was: "*MSRP as tested: \$36,305*". How could that be? The highest priced model is \$33,100. It was yet another source of fake news I had stumbled across. Grrr!
- 3-28-2017 Climate Attack.** Contrary to actual data, we're hearing a lot of claims that green regulations are killing jobs. It doesn't make any sense. Improvements to the coal & oil industry extraction & refining process have been eliminating jobs for years. Sounds more like blame is being placed as a scapegoat. We know for a fact there has been a huge increase in solar & wind product production and installation from increased demand. That creates jobs. Both are renewable resources too, so there's much more potential for on-going employment than the finite amount of fossil fuels available. The renewable industry is only in the early stages too, nothing like the market saturation already causing a growth dilemma for fossil fuels. That's what makes the measures being taken now to rollback regulations such a historic event. You don't even have to take impact to the climate into account. The job aspect alone doesn't make any sense. Why would you just abandon such technological steps forward, allowing other nations to capitalize on the opportunity? It's a losing situation no matter how you look at it, a financial screw up for both short & long term. The only people seemingly pleased about the rollback promises are uninformed voters. Ugh.
- 3-28-2017 Failure.** Acceptance is a very difficult stage. Coming from an enthusiast source, this helps: "*They spent 7 years saying no. Then given a chance to do something they flopped....and they have no one to blame but themselves.*" But it doesn't really address the problem... since that was actually a comment about the Republicans in Congress, not Volt enthusiasts. The realization of the same situation applying to them hasn't sunk in yet. I did find that comment from their daily blog encouraging though. This is how I responded: Will pointing out the irony result in anything constructive? How long did we hear Voltec could be the "*game changer*", that we only need wait for gen-2 for the technology to take off? The unfortunate reality of painfully slow growth and obvious dependency on tax-credit subsidies must finally be dealt with. That attempt failed. Do you try another or pretend all is fine? It happened. Time to move on. Seeing that Prius Prime and Ioniq PHEV poised to take on the mainstream market means the suggestion for GM to introduce a competitively affordable configuration of Voltec for Equinox couldn't be more urgent. That supposed leadership is slipping away as missed opportunity. Who cares what the EV market is doing. That's a different audience anyway. Though, sales of Bolt are eating away at the limited amount of tax-credits available to GM. Something significant must happen this year. On the way is a plug-in hybrid SUV from Nissan, Kia, and Mitsubishi. We could end up seeing the debut of a CH-R or RAV4 plug-in hybrid from Toyota next year too. Shoot the messenger if you want. That isn't who to blame though.

- 3-29-2017** **Tomorrow.** What strange timing. I found out my Prius Prime delivery window has shifted sooner by a day. I could potential hear about it being on the dealer's lot tomorrow. As that anticipation plays out, I'm hearing the president exclaim he's bringing about the end to the war on coal. How ironic. You get the impression that will be an effort to bring back jobs by dropping regulations. Even if environmental concerns about the impact to air & water were abandoned, that won't change the risk to works lives & health. The fossil-fuel industry has moved on. The bulk of our energy from the non-renewable sources is split between petroleum and natural-gas. The demand for them as led to such a precipitous drop in coal interest that there will be very little to gain. Then if you look at the massive employment boom there has been from the wind & solar industries, it simply makes no sense bothering with coal. Think about how wasteful it is simply to transport all that coal. Sending renewable electricity through power lines is profoundly better. Anywho, as that all continues to dominate the news, I rather impatiently await delivery. Just think of how my real-world data will stir interest. Owners have already contributed a great deal. I join in, with 5 years of detailed data to leverage. There's a lot to share. It will be very exciting to do that too. The catch is, I have to wait until tomorrow to begin.
- 3-30-2017** **Charger Charges.** How much do you get charged to charge? There is no standard fee. It varies quite a bit. The property owner can set a fee by time, by consumption, per use, a combination, or free. That's what I tell people who ask about price. There are lots of unknowns and it's hard to tell what the person is actually asking about. In fact, the vague question of "how much" can often be misunderstood as being a reference to time or distance, not what you pay. For that matter, how to pay is usually a mystery to people. That will obviously become a section in the new user-guide I'll be writing. This is very much like back in 2001, when I discovered the large number of unknowns being asked about needed to be compiled into a resource to provide easy answers. Back then, that start helped move along the promotion of hybrids. This time around, it's for plug-in hybrids. Too bad so much time was squandered by Volt enthusiasts. None really stepped up to be supporters, providing assistance just like that. You'd think the success would have inspired. Oh well. Their loss. Now, it's prime time! I'll point out how you can request an access card or setup an account on your phone. Using the app or card will all you to unlock a charger. It's needed, even for the free ones. But the process is simple. You can check status while the charging is taking place, then look at statistics afterward. It's very informative. You can find charging-stations and check to see if they are available. Prices are listed too. It's very handy. So handy, you will likely desire a Wi-Fi enable charger at home to get some of those same data features. Mainstream consumers will have many questions. Most answers are very simple. Finding an effective means of sharing that information is very important.

3-31-2017 **Concluding Thoughts.** It's over. I'll be taking delivery of my Prius Prime soon. That brings the absurd situation with GM to a close. My concluding thoughts on that bring us back to the beginning. GM customers prefer SUVs. That's what they buy. That's what is profitable. That's why GM pursued hybrid technology for them. Abandoning the effort in favor of Volt didn't result in a game-changer vehicle. How could a compact hatchback compete? It never made any sense. The rollout confirmed that too. Volt wasn't able to achieve high-volume sales, even with a enormous subsidy. That massive tax-credit should have propelled Volt into the leadership position, as countless enthusiasts ferociously claimed it would. Finally recognizing audience is long overdue. Of course, this came about as a result: "*Wouldn't you say ALL LEGACY ICE AUTOMAKERS' challenge is the same?*" Ugh. Not recognizing the problem specific to GM seems to be root of most of the trouble. All along, that has been a fundamental barrier... some still to this day don't recognize. Oh well. It's not like I didn't try to point that out. Here goes... one last time: No, since some automakers still do quite well with car sales. It's the imbalance with GM that has been the concern since the first reveal of Volt a decade ago. Prior to that, focus was on making SUVs more efficient... hence Two-Mode. For many years, the argument was those large vehicle were much more important. We heard technology should be developed for them, since cars were already efficient. Abrupt change of focus and hypocritical stance on diminishing returns is what brought about the immediate conflict for Volt. The task-force overseeing GM's bankruptcy recovery accepted the new focus, recognizing that potential Volt had to offered... not realizing GM wouldn't actually capitalize on the opportunity. How many complaints over the years have we heard about GM not promoting Volt? With gen-2 rollout falling well short of expectations, clearly not resulting in a choice able to compete with GM's own traditional car offerings, it's time to finally get serious about SUV offerings. People shopping GM showroom floors clearly don't show a preference for cars.

3-31-2017 **Pre-Delivery Photos.** What a surreal day. My wait is over... well, kind of. I got the call. My Prius Prime was delivered to the dealer, but I won't be able to pick it up until tomorrow. My salesperson is very busy with deliveries and the dealership needs time to prep. Hopefully, they'll recharge it. But if not, at least I know it's getting close. The ultimate emotional stir didn't come from that news though. It was the revelation that my wife could have tortured me... with a golden opportunity. Unfortunately, she didn't think of it until I got home from work. She was working from home. That meant there was time to sneak out to the dealer to see the car before I did. The thought of her sending a photo of my Prime before I had a chance to get out there would have been a prank of epic proportions. Heck, tomorrow is April Fool's Day too. I haven't ever actually seen the Blue Magnetism in person. My salesperson (Kathy, a wonderful person to purchase a vehicle from, btw) said the color looks amazing in person. My wife could have. That was the ultimate gotcha... missed! Sigh. Oh well. We stopped by the dealer on the way out to dinner in the evening. This is what we saw... [photo album 204](#)

4-01-2017 **Historical Footnote.** As the years went by, an on online ally became a friend. We even got to meet in person years later. In this case, it was the guy who stepped up to help provide proof that Prius was indeed up to the chore. It was an on-going discussion thread about the Classic model Prius, back when it was brand new and the only other hybrids available were the original 2 from Honda... which were both the "assist" type. The only "full" type was from Toyota. That was ground-breaking, a new technology with potential very few understood. It was yet to be seen if the mainstream would even be interested. At that point, Prius was still an order-only vehicle. It wasn't even available on dealer's lots until nearly 2 years after I had placed my order on the internet. Anywho, we know how popular Prius ended up becoming... and that was all without any tax-credit help! That next generation to follow achieved sales of over 100,000 annual here on it's own. The subsidies to follow were to provide a push further into the mainstream, not to serve as a initial financial support as we see with the introduction of plug-in vehicles. This generation was quite significant. That friend of mine (Dennis) got the honor of naming it. The group of 50 who had been invited to Detroit for the next generation reveal were trying to come up a label which could be as well accepted as "*Classic*", so our references to the past wouldn't be misidentified. He suggested "*Iconic*". What a great idea! I was proud to support that. The identifier caught on surprisingly quick too. We heard Toyota executives using it almost immediately. My suggestion wasn't fitting... or so I thought. Little did I know that the seemingly insignificant day back November 30, 2008 would become a footnote in history. Looking forward, rather than back, brought about some clarity to what I had done... all those years ago... that I would contribute to the name of a new Prius. This is what I posted: After searching and searching through the thesaurus. It just hit me, like a ton of bricks! Since the current model is the one that was adopted by the mainstream, I followed logic of words like "*established*", "*common*", and "*widespread*". The word "*mature*" has been used countless times in response to greenwashing attempts. All those took the mindset beyond "*historic*" and "*founding*". It was the "*familiar*" feel I was looking for, a sense "*base*" that was heavily "*celebrated*" among typical consumers, even "*renowned*" by some. Being "*well-known*" by a "*broad*" spectrum of people gives it reason to have the spotlight... and will continue to, even as the new model takes hold. See where I'm going with this? I suggest we call the 04-09 model: Prius PRIME

- 4-01-2017** **Prime Time!** It's hard to believe, over a full year of waiting, delivery actually happened. The wait to place my order seemed to take forever. There's was a lot of uncertainty about how the process would take place. Interestingly though, we had enough thorough reviews to satisfy the anticipation. It was quite clear any delay would be well worth it. Taking advantage of the new pre-conditioning, electric-heating, battery-warming features was something I had looked forward to. But the idea of driving a brand new car through the craziness Winter roads here wasn't something to want right away. The heavy traffic and instant dirty is a pain. This way, Spring had already arrived. The day was upon us. My wife and I drove to the dealer to reveal our salesperson. It was to be an emotional release for all of us. What a surreal moment to remember too. So much to do all at once. The workers at the dealer had their first Prime to prep. I was rather let down that they hadn't plugged it in. The car was parked just 4 feet from an outlet too, inside their delivery room. Ugh. There was plenty of time to get a decent recharge. Oh well. All the paperwork went fine, even transfer of the vanity-plates. No big deal. After all, this was my 5th Prius purchase... making me the only person in the United States to own all 5 models. That means lots of new photos & video to add to the collection, over time. For immediate future, I have much to learn. There's lots of little details to study before the major sharing of information can begin. Let the driving begin. It's Prime Time!
- 4-02-2017** **Bike Hitch.** The desire to install a receiver hitch for carrying bikes was intense. Biking season has begun and the time to take about the car to connect the hardware was limited, especially if you want to sacrifice nice weather for the effort. I did. That beautiful Spring day was begging for it. The was, I only had about a few hours available. It was already mid-afternoon. Have you ever taken apart a new-to-everyone vehicle just moments after driving it off the dealer's lot? This was to install a hitch only made available for the first time the week before. There was a lot of complex fascia to remove before even getting access to the bumper, which I also had to remove. The hitch nestles in behind the bumper. So, you could imagine how much of the back of the Prime got removed. Blah. I was basically having another "*where no one has gone before*" experience. Sweet... or so I thought. This is how I reported my doings to the big Prius forum afterward: OMG! They weren't kidding when the install difficulty was listed as 10. It turned out nice, but that's not a recommendation I can give to anyone unwilling to really get involved. The steps are tedious & numerous. It took me 6 hours. Of course, you could always have an installer put it on. Stay tuned for photos.

- 4-02-2017** **Bike Hitch Photos.** That was quite an experience. I didn't realize taking apart the Prime right away to install a receiver hitch for carrying bikes would get so involved. Thankfully, I won't ever need to do that again. Though, it would be much easier process now that I've been through it and know what to look for. I also took the time to document what I did with a few key photos. In one, you can see the factory bumper and 4 big pieces of fascia that had to be removed to squeeze in the aftermarket equipment. Such a snug fit made the work a challenge... as well as a learning process. All those sensors and wires had me concerned. What was the proper process for accessing an area never intended to be accessed? All the connectors are that one-way type, designed to be pushed in then snap for a tight fit. The idea of breaking one or accidentally pulling too hard on a wire could be breaking the sensor-array I wasn't familiar with. Eek! The pressure to get it all done that night for our road trip the next day would have been overwhelming without such an understanding. I really love her. Good thing she trusts me with such an expensive endeavor. She sat outside for awhile to chat with me as my effort progressed. Then she went inside to make my favorite dinner... a celebration for when I finally finished... which I eventually did. The hitch turned out nice. It's well concealed and will likely need an extender. But not sticking out like the previous did on my Prius PHV is a nice improvement. Using an extender will push the bike-rack out a few inches too. That will guarantee the hatch won't ever bump on handlebars. So, we're pretty happy with my crazy decision to take the Prime apart for that. Take a look at the situation I faced during the install... [photo album 205](#)
- 4-03-2017** **Road Trip!** The very next day, it was road trip time. My wife had hoped to surprise me with this trip during "prime" timing. Unfortunately, that had been missed by 2 weeks. Delivery was later than expected. We were to travel to the river valley to witness bald eagle migration. That got missed entirely. Fortunately, there is still a population of bald eagles which nest in the area year-round. So, we still saw a few dozen... but not the hundreds possible, had it been earlier. Oh well. That was still a lot of fun. I got "prime" parking too, the spot directly in front of the entrance to the National Eagle Center. What an experience, discovering a brand new generation of hybrid technology just hours after having taken the back end apart to install a hitch. Our drive totaled 163 miles. The average came to 69 MPG, despite the cold temperature. It was a great experience, lots of opportunity to try out a number of features. Photos on the way.
- 4-03-2017** **Road Trip Photos.** We went on our first road trip with the new plug-in hybrid. With so much anticipation, you could imagine how eager I was to take photos. It was an especially big deal due to the particular color of my Prime. When looking online for samples, you quickly find the true look is very difficult to confirm. Photos vary by quite a bit. Heck, my own phone shows it as a deep blue. That's really strange. What is that palette doing to the sensors? The differences are really surprising. How can that happen? My guess is accuracy was never a big priority. I rarely ever take photos I intend to publish using my phone. It's pretty much always with my camera. The only exception is if I don't have the camera handy, since the phone is always readily available. Anywho, these are the first few photos I have available to share... [photo album 204](#)

- 4-04-2017** **First Commute.** What an amazing experience! Thankfully, it would be fairly routine... not the crazy fog-related accident debris mess I had drive through with the Classic on its first commute. This was a beautiful morning. The 19 mile drive was a delight. Travel was entirely using only electricity, with the heater on. I still had 9 miles of EV remaining when I got to work. Last weekend, I passed someone on the highway at 75 mph, all in EV mode. What is GM waiting for? What's taking so long for GM to compete? Where is the affordable choice for loyal GM shoppers? This is the mass-appeal vehicle everyone has been anticipating. Toyota delivered it. Yeah!
- 4-05-2017** **March Sales.** This was very easy to predict: *"I would bet dollars to doughnuts that the minute the credit gets cut in half, the price of most of the top 10 BEVs/EREVs will drop by a nearly identical amount. GM, Nissan and Ford are milking the system to get as much profit, as early as possible."* Of course, half doesn't account for everything. Dropping \$7,500 doesn't seem realistic in any respect. How could those automakers be making so much from such a demanding design. It doesn't make sense. For that matter, just half of the tax-credit is more of a margin than people can reasonably account for. And that's just to retain the status quo! Growing the market requires an even greater drop. I responded with: That's when Prius Prime will really begin to shine. With a starting MSRP of \$27,100 that includes a nice collection of safety features, it stands a chance of holding its own. The tax-credit dependency is much less. For that matter, the tax-credit is only 60% compared to others anyway. Current sales are still in the ramp-up stage, with multiple markets being supplied all at once. For here in the United States, that means supply in the Midwest is basically nonexistent. There are many still waiting to finally just see one in person. I got mine on April 1st, after being willing to put a deposit down and waiting 6 months... long before anyone really knew how Prime truly worked. Now that they are finding out the to-the-floor EV acceleration and 84 mph top-speed EV really does deliver, interest will grow. The efficiency while in HV mode is remarkable too; seeing over 60 MPG is routine. In short, there's quite a bit of potential the other automakers don't have.
- 4-05-2017** **Prime Sunset.** I went out for a ride with a friend. We drove by a lake as the sun was setting, quite by accident. The timing or location wasn't in any way planned. It just happened to be the route to get from where we ate to back home. I saw the colors and a parking area along the lake. I also noticed a boat launch. So, I took full advantage of the situation. Interestingly, there were others doing the same. I actually had to very quickly take my turn. I parked strategically, then popped out of the Prime with my camera and snapped a few photos. It sure is nice being able to do that handheld now. The old days of setting up a tripod are gone. Phew! Good thing too. Time was up. Getting even more lucky was being able to sneak in with the Prime facing the other direction. Since others weren't including their vehicle in their photos, that worked out well. It was a beautiful day with a great sunset. The reflection of colored light off the lake is what really made the scene. What stands out though are the leaf-less trees. Having open water and nothing but silhouetted trees with lots of branches isn't common. There's only a short span of time in the year that happens. The ice melted early this year though. Check out what I was fortunate enough to capture... [photo album 205](#)

- 4-06-2017** **Nope.** I've heard this over and over again: *"I'm telling you, if you put a Toyota emblem on the Volt, John would be it's biggest supporter."* It's a great indicator that the person doesn't actually read what I post. If they did, they'd avoid giving me yet another opportunity to repeat a certain goal. The simplicity of understanding how GM missed the mark is remarkable; yet, enthusiasts believe a compelling argument will justify paying a huge premium. That's why so many believe Volt's failure is primarily the result of GM not advertising it. They truly believe faster & further will triumph over affordability. I responded to that rhetoric with: Nope, and you know why... NICELY UNDER \$30,000. GM's goal was to deliver a plug-in hybrid with a MSRP price able to compete directly with their own traditional vehicles. That meant a decent EV capacity combined with great HV efficiency. GM still hasn't. Toyota just did. Attempt to distort history all you want; it won't change the goal... or the need.
- 4-07-2017** **Unwilling.** This reply to the stubbornness I routinely encounter speaks for itself: First mention of the *"trophy mentality"* problem was a decade ago, shortly after Volt was first revealed. That became the *"vastly superior"* attitude which pushed Volt further into a niche... where it has remained ever since. Appeal to the masses is vital; yet, that point still isn't taken seriously. There continues to be a focus on going faster & further, rather than shifting attention to what mainstream buyers actually want. Look at how many SUV purchases there are still. Do you really think a large battery-pack will draw sales? A configuration to be affordable is a better choice, something GM has been unwilling to try. Ask yourself why.
- 4-07-2017** **Trophy.** This falls into the category of reading what was posted, but not actually comprehending its intent: *"Nothing about trophies was mentioned in the article, or by anyone else except you."* Ugh. After a decade of a tainted perspective, some people simply don't have the desire to figure out if they are viewing the situation from a bias. It's shocking how each of us, including myself, will fall for that trap from time to time. Only difference here is, they've been informed that it's happening. You'd think after someone points it out, you'd check to see if that was actually the case. Nope. Still can't see it. Sad. Oh well. It's not like I don't keep trying: Repeatedly through the comments posted, acceleration speed and electric range were both touted as superior. That is an implicit trophy claim... which only enthusiasts care about and enjoy rubbing it in with inferior declarations. None of that helps sales. Ordinary consumers don't hold either as a priority. They are nice and often get praised, but there is clearly no ambition to spend the extra required to have that. In other words, you are a victim of the autoshow effect. It's a common loss of perspective. Enthusiasts attempt to normalize it too... but usually fail, as we've seen with the confirmation of painfully slow sales growth.
- 4-07-2017** **Who?** Gotta like this: *"Thanks for helping us fall more in love with our Volts with every post."* Again, oh well: You are an enthusiast, not a mainstream consumer. That's been the problem from day one. Put on your *"could I get mom to buy a plug-in"* glasses. You're in for a surprise. Reality is, most ordinary consumers couldn't care less. So whether it goes faster or farther doesn't mean anything to them. They simply aren't interested in paying such a high premium. Another reality is that Prime has a base price \$6,000 less than Volt's base and it's better loaded.

4-08-2017 **Along The River.** As we were approaching a little town on our road trip, we noticed a park with a road leading down to the river. That would allow me to park close to the water and take some unusual photos. The large trees filled with bare branches up against a gloomy gray sky would really make the color of the Prime pop out. I was really excited to find such a unique location. The location looked very old, something established ages ago, a nice oasis for travelers to just take a break at. Getting close, we could see where boats were launched and were a lot of fish remains had been dumped. With all the bald eagles in that area, I bet a number of people stopped just for the sake of watching them fish rather than going out to fish themselves. That area known for extremely high concentration of bald eagles during migration. So, keeping it in mind for a future visit would be a good idea. We hadn't originally planned to drive how on that side of the river. That made this an especially rewarding find. Anywho, this is what we saw... [photo album 206](#)

4-08-2017 **Final Attacks.** There is a handful of Volt enthusiasts who have chosen to attack Prius Prime, rather than deal with the *"too little, too slowly"* issue. It has been a legitimate concern for years. It wasn't taken seriously though. It was an endless stream *"vastly superior"* nonsense posts to deal with. That has transformed to an effort to mislead. The greenwashing of Prime is well underway. That was expected. Too bad it couldn't be avoided. Unfortunately, it was inevitable. Those who point it out get attacked too: *"An inability to let something go can be a sign of serious psychological malady, and you should really see a therapist."* That was how a post attempting to distort timelines ended. I was amused. Personal responses are a dead giveaway the person has become desperate to change the topic. I simply bounced this back:

Staying true to goals. Keeping focus on audience. Ignoring all the rhetoric. That's bad?

Reality is, Volt promises were renewed for gen-2 and the results aren't looking good halfway through the second year. But rather than actually address that, the choice is to continue to look at the situation through rose-colored glasses. Pretending all is well, that all that's needed is to patiently wait some more, is nuts.

That tradeoff of affordability, for the sake of being able to drive faster & further, has not proven a successful means of achieving market growth. The slow rate at which sales are increasing for gen-2 clearly confirm that. Yet, enthusiasts of Volt refuse to let it go. Claiming I have a problem for pointing that out is crazy.

Dealers won't be interested in selling a vehicle, already a challenge to sell, when the \$7,500 tax-credit is no longer available. Meanwhile, we see other automakers striving to reach mainstream consumers with new plug-in choices. Saying it's best to just let it go and do nothing is idiotic.

- 4-09-2017** **Change, now.** We hit that point today, that undeniable day in history where change can no longer be evaded. I expect an explosion of trapped-in-a-corner responses to result. When an enthusiasts runs out of a excuses, all they can do is lash out to go down with a fight. That's what makes this moment so decisive. It's happening right now, this very moment. The final words in the chapter are being written. I'm actually rather intrigued how it will play out. Looking back, I vividly remember that collapse on the big GM forum. It's happening now on what's left of that broken Volt blog. Change could only be delayed for so long. Some will face denial. Some will be clueless. Some will just accept it. We'll find out soon enough.
- 4-09-2017** **Change, sacrifice.** It started with a repeat of goals, to highlight the sacrifice made: Targeting mainstream consumers was always an effort to deliver something affordability competitive with traditional vehicles. Volt production cost of gen-1 was far out of the reach of that goal. That's why it failed to draw any audience beyond enthusiasts. Ordinary consumers just plain were not interested. No amount of "*faster & further*" made any difference. Even with a \$7,500 tax-credit, the price was too high. GM's struggle was avoided by Toyota when the decision to keep their mid-cycle rollout of Prius PHV limited to just the initial market. They could continue to learn about meeting purchase priorities to achieve high-volume profitable sales, without having to deal with any legacy issues. So, rather than follow an upgrade path, they could start fresh with Prius Prime... and they did. Spin from that decision was remarkable, especially from those setting expectations for Volt gen-2. We now see they were wrong. The "*faster & further*" approach failed to result in the hoped for sales growth. Consumers simply haven't been interested. Too much. It's overkill. Ironically, that is proving the opposite for Prius Prime. Toyota made their next plug-in go faster & further... which fulfills the very criteria suggested for a "*lite*" model of Volt ...and it is showing strong initial demand. GM should not have sacrificed affordability for the sake of increasing power and increasing range. What gen-1 offered was enough already.
- 4-09-2017** **Change, strategy.** Next came an effort to deal with the change by setting the focus forward as a positive outlook: It would be quite interesting to find out that GM has been working on the delivery of a "*lite*" model of Volt after all, something addressing tax-credit expiration. Imagine a Cruze hatchback with the Voltec system using a 9 kWh battery. That would be a winning scenario for GM. Volt could remain a niche, marketed as a premiere plug-in hybrid offering. Cruze would be the choice for everyday users, ordinary consumers who weren't interested in Volt. The situation would save the reputation of enthusiasts while at the same time vindicate those who had argued for a second model all along. Sounds like a win-win.

- 4-11-2017** **Change, hybrids.** I found this especially exciting to read: *"This 'hybrid' movement is a mistake. We can't afford the time to take this 'temporary' answer to the climate problem. The Auto companies are promoting them to slow the transition from ICE to EV. Ignore them, avoid them, make them go away or we will be sorry."* That attempt to dismiss absolutely everything is denial to the extreme. That certainly is one way of resisting change, though futile. I responded with: Generalizations are not constructive. Spreading fear isn't either. The commute today in my 'hybrid' was entirely with electricity, even though it had a gas engine. Promoting them accelerates the transition, by forcing a competitive return immediately. That means the battery, motor, inverter, heater, etc all must be affordable right away. Those same components can be used again later when cost of larger battery-packs comes down.
- 4-12-2017** **Change, weak.** Lasting out at Prius Prime was inevitable. Attack the obvious source of the growing sense of failure: *"The PP is weak as an EV."* It came from an antagonist attempting to defend Volt on a blogging sight not receptive to that type of posting. Sure enough, it fell on deaf ears. Knowing that would be the outcome, I posted this anyway, seeing the exposition opportunity: I've got 640 miles on mine now and all my commuting has been entirely in EV. No gas engine for highway merging, passing, or cruising. It's all electric, with power to spare. The vapor-injected heat-pump is the industry's most efficient electric heater. The electric A/C is a top-notch offering too. I'm also seeing averages around 4.5 miles/kWh. What part is supposedly weak?
- 4-12-2017** **Change, audience.** I was waiting for the enthusiast perspective: *"Many reviewer said that they would rather pay more for the Volt due to FAR SUPERIOR driving dynamic."* It's amazing to confirm how naive some can be. They think their excitement is shared by ordinary consumers. I know mine certainly isn't. If I can draw any interest from my mom, who couldn't care less about a vehicle other than it being comfortable, practical, and reliable, it means I'm on the right track. That means anything related to how the vehicle operations is of no value. That simply isn't a priority for her, as is with most middle-market people. This is how I stated the situation, to hopefully give some perspective: Wrong audience. Ordinary consumers couldn't care less. Those mainstream buyers are looking for a good all-around value. They are unwilling to pay a premium for more, no matter how much enthusiasts provide praise. People declare bias, not realizing they themselves are not representation of those shopping showroom floors, nor having anything in common with them. Volt began as a niche and continues to be. That's fine. We all like faster & further. But that simply is not what middle-market is looking for.
- 4-12-2017** **Change, more.** It's not better. Ugh. You'd think they'd finally come to terms with that, even at this final hour. Nope: *"...don't twist the fate that Prime EV mode is relatively weak."* I find it truly amazing how they think their point-of-view is shared by everyone else. Some people simply aren't interested. That's just the way things are. Different people have different draws. Not everyone likes the same thing. That's why no matter how many times they tell you that the higher price is worth it, some simply won't be willing to pay more. Oh well. All you can do is hope the message eventually sinks in: Face reality. Faster & Further isn't worth a premium for most people. That's why Camry & Corolla are so popular. They target that same market, the middle. Being *"strong"* loses to being well-balanced.

- 4-12-2017** **Change, EV.** Nope, it didn't make any difference. There's still hope that somehow the early reviewers really did interpret their observations correctly: *"I hope they get to test drive the Volt at some point later after having the prius for a while and realize that the gas engine does not have to come on for reasonable acceleration..."* At this point, I've watched quite a few reviewers where the buttons were incorrectly explained. They were clearly mistaken about what each actually did with respect to engine-use and battery-draw. It's rather disheartening to find out how few actually take the time to verify their assumptions. Oh well. Eventually, I'll have videos of my own to refer to, confirming they were wrong. For now: Just switch to EV mode instead. No surprises. There are many reports from people not realizing they are actually in EV-Auto mode, completely unaware that it allows the engine to start at time of high demand. Looking at the button layout, it's easy to see how that mistake could be made. There isn't actually a button labeled EV. You have to look carefully at the dashboard to see the change from pushing them. We've seen people make an incorrect assumption. It's no big deal once you've owned the car for a little bit. Many reviewers simply have no idea what's even available. So, the mistake happens. Owners take the time to push all the buttons. There isn't a rush to write a review and return the car.
- 4-12-2017** **Change, purpose.** Don't you love how some people draw conclusions based on nothing but assumption: *"Most people buying this are gas first, EV second, the opposite of Volt drivers..."* How could that possibly be known about Prius Prime already? I rebutted back with: I don't believe that for a second and I can't imagine you being able to produce data to confirm such a claim. The comments I have encountered overwhelming speak of excitement to use the 25-mile capacity to the fullest, prior to purchase. After purchase, ownership reports of by how much they exceed that EV rating distance are plentiful. Of course, what difference does it make? They aren't the target market anyway. Volt is an enthusiast vehicle. It's nice, but simply priced too expensive for mainstream buyers. More capacity isn't necessary. Faster acceleration isn't necessary. GM doesn't offer something to compete directly with their own vehicles on their own showroom floor. Toyota has just begun. Prime is clearly configured to entice Corolla, Camry, and Prius shoppers. Even without a tax-credit, it can compete directly. The test-drive experience seals the deal. No need to mention MPG. No gas necessary. That EV acceleration, dropping the pedal all the way to the floor without the engine starting, speaks for itself.
- 4-13-2017** **Change, buttons.** The level of desperation has spread. This came out of nowhere: *"I'm also a sucker for physical buttons."* People look at the large screen available for Prime and attack it with claims just like that. There's a full compliment of interface buttons, they just aren't next to the screen. That would make any sense. If you are reaching for the screen, just touch it to make selections. If you don't want to reach, just push with your thumb. Everything you need to interact with the screen is right there... a redundant interface the antagonist hopes you won't mention. They want people to focus only on the screen and assume that's the only way to adjust the sound system or change climate settings. Ugh. I kept my response to that brief: Like all the buttons on the steering wheel? I'm finding that most people look at the screen and never notice all the physical buttons still available.

- 4-13-2017** **Change, price.** The effort to obscure business purpose by focusing entirely on the now from a consumer's perspective was greenwashing years ago. Now, it's nothing but an act of desperation. Yet, a few keep trying: *"Anyway, count in the tax credit, I don't see any point that can make PP win in pricing."* Attempts to misrepresent the problem by confusing cost & price is what I have to deal with most. They pretend they are the same, that it's just an arbitrary label with no different meaning. My guess is the problem originates from people without any type of business background. Never having taken an accounting, marketing, or economics class, I could see how certain concepts could easily be overlooked. Overlooking basics is far more common than most people are aware. That really messes up online discussions. It still try to point out that not-so-obvious problem though: COST not PRICE. Sure, a consumer can snag a good deal right now, but that is very temporary. GM's business model is heavily dependent on the tax-credit. Toyota's is not.
- 4-13-2017** **Change, cost.** Sure enough, I got exactly the response I had anticipated: *"Cost or price doesn't matter as it's just terminology."* That figures. Such a lack of basic understanding means nothing to follow will be of any value. They'll just dismiss what you say as an attempt to twist facts. They pretty much never take the time to actually comprehend what is actually posted. That's the way these final few think... or don't. I'm sure glad there are far more supporters who did. They've become much valued allies for the plug-in effort going forward. Unfortunately, they don't try to help with the cost issue. I suspect some of that comes from price uncertainty. What will GM do when Bolt accelerates the phaseout trigger for Volt? How will a low-volume offering stay relevant in a rapidly growing market? Anywho, I kept the reply short: There's a profound difference, a fundamental relation between business & customer clearly not understood. $COST = \text{how much } \$\$ \$ \text{ it takes to build a vehicle. } PRICE = Cost + Profit - TaxCredit.$
- 4-13-2017** **Change, goals.** Spoken like a true enthusiast of Volt: *"About Toyota, they have been losing the PHEV since the first gen of PHEV Prius, this is their effort trying to get back on track. I have to agree that it's quite a good car but clearly not impressive."* All I could do was recite the same old big picture, which some still refuse to accept... despite the obvious sign of change now upon us: Assuming goals were the same, it's easy to draw that conclusion. They were not though. Toyota rolled out Prius PHV as a mid-cycle update to just 15 states. It started out as an effort to gather a massive amount of real-world data... and continued to be as they witnessed the problems GM was having with the market. That kept rollout confined to those markets, where they could more deeply collection information about what ordinary consumers actually want & need. That has put them way ahead of GM, who has clearly stumbled with gen-2 of Volt... having delivered another enthusiast-oriented vehicle, rather than something for the masses. Say whatever you want about it not being impressive. That will just fall on deaf ears. Those shopping the showroom floor couldn't care less. They don't participate in online discussions. They don't want to pay a premium for performance. Heck, they aren't even interested in statistics. They just want something affordable, reliable, and practical. Toyota has not lost their customer base. The target audience of Corolla, Camry, and Prius shoppers is still there, waiting for Prime. None of them care that GM temporarily gained some conquest sales. Toyota was never off track. They patiently waited and didn't squander tax-credits in the meantime. That resulted in a well-balanced design with a variety of refinements capable of competing with the true competition... traditional vehicles.

- 4-13-2017** **Change, sales.** I wonder what next month will bring. This was my continuation on this history now coming to a close: Reading the same old rhetoric repeated again is a sign of sales growth concern. That continuation of complete disregard for business cost, focusing solely on price paid by the consumer, tells a story of short-sightedness. Attempting to draw as much attention as possible to speed & handling is confirmation. That nonsense solidifies shortcomings. What I find most revealing though is the lack of understanding for audience. Look around. Notice what people actually buy? Ask around. Notice how people actually shop? Middle-Market is what provides business-sustaining profit. That's high-volume production, resulting in sales far greater than the tiny fraction celebrated each month for plug-in vehicles. In other words, the spin here shows that situation still isn't being taken seriously.
- 4-14-2017** **Honda Clarity.** The is currently a fuel-cell vehicle. For the 2018 model year, it will also be offering as an EV and a plug-in hybrid. What I'm most interested in is the later, which is what Honda is too. The other models will be built in very, very limited quantity. The impression given for the EV is just 1,000 per year. So, it's short range really isn't any reason for concern. Honda is simply experimenting with diversification of that platform. Knowing the bulk of those Clarity produced will be the PHEV type is a big deal. The battery-pack will be 17 kWh, which should deliver roughly 42 miles of EV range. The EPA rating expected is 105 MPGe. Being a larger vehicle than Prime, that's not too bad. Electric power is somewhat overkill though. Delivering 181 horsepower isn't really necessary. It's likely a by-product of the battery-pack's capacity. Being larger may offer more amps to pull all at once. That's rather disproportionate to the included 1.5 liter gas engine. It seems rather small, especially when compared to the 1.8 liter in Prius. Of course, it may be setup for an ordinary Otto cycle... which provides more power, with a tradeoff of being less efficiency than Atkinson-Miller. The expected MPG rating was not included in the press release. So, that does seem likely. Recharging only takes 2.5 hours. That's clearly faster than what Prime offers. Having a larger pack, that makes sense. It will be interesting to learn more about this new market entry. Honda most likely learned quite a bit from their limited offering of the plug-in hybrid Accord. That seemed an effective way to collect lots of real-world data, similar to what Toyota did with Prius PHV. We got a nice upgrade as a result. I'm really enjoying the improvements this next-generation provides. Prime is great. Hopefully, the same we'll be able to same about Clarity too. Expanding the market by getting decent choices from other automakers is vital for overall growth.
- 4-15-2017** **What?** The superiority posting continued. It's all about being faster and going farther. That's all this group cares about. To hell with cost. Without bragging rights, you've got nothing... is their mindset. 10 years ago, I said that trophy-mentality would be their downfall. Now, we are watching the change reveal those consequences. They never figured out that their own hopes would have such an influence. It was the same "more" attitude without end. Reading this today summed it up well: *"Toyota is falling behind on this front, considering they practically invented this segment 20 years ago."* I asked: What front? They are pushing diversity by spreading the new design to Camry, RAV4, and C-HR. They are pushing lower cost by not depending upon a large-capacity battery or tax-credit. They are pushing to avoid expense & complexity by eliminating the need for liquid-cooling. They are pushing both EV and HV efficiency results.

4-15-2017 **Who?** The hope was always a recognition of the true problem. That never happened. Now, change is leaving them behind. Lack of audience understanding problem... and appears it will continue to be, for the enthusiasts. The rest of us welcome the next chapter. A variety of affordable choices will be great. We know more isn't better. They still haven't figured it out. It's continues to be just dealing with the problem on a basic level, still avoiding detail: *"Anyone who wants primarily EV driving but still has the flexibility to drive on gas to eliminate range anxiety."* I had no idea my education from 15 years ago about regular hybrids would apply so well to plug-in hybrids. Oh well, it's their loss... which means my reply will just fall on deaf ears: That generically answers the question of who for PHEV choices. It does not tell us who Volt specifically targets. In other words, Prime specifically targets people shopping the Toyota showroom floor. They come in interested in Corolla, Camry, or Prius and end up being drawn to Prime. Volt clearly didn't target Cruze or Malibu shoppers. That was overwhelmingly confirmed for gen-1. Heck, even GM itself made a comment to that effective, identifying the first as a niche. That's why I ask about gen-2. Hearing emphasis for faster & further, at the tradeoff of size & price, suggests this newer Volt doesn't target Cruze or Malibu shoppers either. Notice how Toyota really focused on cost-containment, not giving into the temptation to deliver more, knowing all too well that resulting higher price would disinterest their showroom shoppers?

4-15-2017 **Question.** During a time of change, if you push really hard, sometimes new voices emerge. I got this: "*Question for you: All else aside, do you even like the Volt? Have you ever drove one? If not I'd gladly meet and let you take mine for a spin.*" This came from a die-hard enthusiast who lives in the area that hopes I simply misunderstand the performance benefit of Volt, that experiencing the power firsthand will alter my beliefs. He clearly has no idea how intense my effort in support of middle-market has been. Middle means not maximum. I'm simply not interested. Heck, that's why Model S was never of any interest. As great of a vehicle Tesla delivered, it was always out of reach for the masses. Model 3 is different though. That "*lite*" version strives to be affordable. I always hoped GM would deliver something similar for Volt. After 10 years, no luck. Ironically, Toyota did though. Prime is turning out to be everything Volt supporters had always hoped for. Unfortunately, Volt enthusiasts never agreed with that. Oh well. His question allowed me to climb up on the soapbox one last time:

Yes, I like it, And yes, I have. It was over on the GM Innovation track. That was a lot of fun. I even ended up chasing a Tesla with it. My assessment was the engineering was great, but it was a terrible configuration for high-volume business... too expensive.

So, I campaigned for a "*lite*" version of Volt, a second model that would be affordable for the masses. Leaving the existing version as a niche rubbed those here the wrong way, but they tolerated it with the hope gen-2 would deliver the hoped for balance.

Instead, gen-2 solidified the niche... and gen-2 from Toyota ended up becoming the very configuration I had suggested. So basically, anything I say now in that regard is unacceptable. It's why my focus shifted over to SUVs, the other obvious electrification choice.

Honda's introduction makes the bad situation even worse though... large seating, 42-mile range, 181 horsepower.. That's roughly what an Equinox with Voltec would deliver. Catch is, GM has no plans for that. Kia does with Niro, their plug-in hybrid SUV comes out the end of this year.

Long story short, change is coming. The spread of Voltec to other vehicles will dilute the importance of Volt. This is the closing of a long, drawn out chapter. That's never comfortable. I make myself a target by pointing it out.

It is interesting to look back at the "*range anxiety*" history. Bolt should have never been built based upon what GM promoted for many years. The anti-EV automaker shook up their own status quo.

4-15-2017 **Distorting History.** I get really annoyed when coming across claims like this: "*Then back in 2015, Toyota leaked that the next Prius plug-in would have 30-35 miles electric range.*" It referred back to an article on a popular green website. There were 325 comments posted. It proved to be a popular topic, but now serves as fodder for misleading... which was exactly what happened today. I jumped on that with: "*we heard from an industry source*" is what the article stated. It was unconfirmed speculation, a good topic for online comment posting, but quickly died after nothing was actually heard from Toyota. There was no promise. None of us had any idea what the next generation would bring. All we knew was keeping it affordable continued to be top priority. My guess was double the original target. For gen-1, it was 20 km (12.4 miles). Setting a target of twice that would put gen-2 at 40 km (24.8 miles). That seemed reasonable, especially when based upon real-world data from gen-1. We didn't hear anything from Toyota though, until the first reveal of the vehicle nearly 2 years later, long after production of gen-1 ended. It's easy get a distorted view of history from reading just a single article. Check the blogs of the time, those on-going sources of information. They bridge together speculation with what ends up actually happening, especially when looking back can provide such a different perspective. Also, keep in mind how automakers must be flexible to be competitive now. That means altering plans along the way, as well as allowing an opportunity for a mid-cycle upgrade.

4-15-2017 **Next?** Things are rapidly coming to a close. Those Volt enthusiasts still don't recognize they are about to be left behind. Interest in affordable configurations of plug-in hybrid vehicles is about to erupt. We've reached that point where they are now in reach of ordinary consumers. Those wandering the showroom floor can finally take the choice seriously. In the past, that decision simply wasn't realistic. That "40-mile" belief seriously messed up expectations. GM impaired the initial market with plug-in hybrids much like they did with diesel a few decades ago... they rushed a poorly designed vehicle to dealers. We all worried they'd repeat that mistake. It happened anyway. Now what? I ended the chapter with:

Taking the step from niche to mainstream has been the point of contention. It requires letting go of some of the original aspects of appeal. Niche traits are what made it special. Watching that get diluted for mass acceptance is tough. Since I had extensive experience with making that transition, it made me the focus of resistance. Change isn't easy. Being reminded that it is inevitable is much like the parent reminding the child to finish their homework. Neither likes it. That is necessary though.

With the case of Volt, that same message of change is being sent from multiple sources. There are several new plug-in hybrids. There are 2 major electric-only vehicles. There is GM itself. All are pushing Volt in a direction enthusiasts don't like. Upset about the market stability once enjoyed now being lost is not welcome.

Notice how the seemingly simple question of audience stirred such extreme reaction? It is confirmation of recognition. We witnessed the same level of emotion back when Ford joined in. Placing GM against Toyota was a basic tit-for-tat. Adding in another automaker created an unmanageable level of complexity. Mixed messages of purpose caused enthusiasts to oppose each other... which resulted in the quest to seek out a scapegoat.

Blaming me for the push to move on to that next chapter is a pointless as avoiding homework. Yet, that's exactly what we see with the negative votes. Pretend all is well still. Don't listen to the message. Shot the messenger.

It's really sad. The local plug-in owners group doesn't have any problems like those here. We focus on the building up of infrastructure, helping businesses & individuals setup charging stations. We get together to show our variety of plug-in vehicles. We share as much information as possible about strengths & weaknesses of each of the choices.

There is no conflict. There's a shared common goal. None of the faster & further nonsense even comes up in discussions. We strive to learn as much as possible with open exchanges, striving to find ways of overcoming the true competition: traditional vehicles.

The greenwash attempts each month to spin stories about sales has to stop. There are examples in this thread of generalizations & omissions which confirm that behavior. Look forward, not back. What should be done next?

- 4-15-2017 Repeating Mistakes.** A fundamental flaw with the approach for Volt from enthusiasts was ignoring the past, just like executives in GM did. When Prius hit mainstream sales levels, then exceeded them... without any tax-credit help ...it was GM who mocked, belittled, and dismissed what had been accomplished. They said a much better solution would be delivered by GM instead. That turned into a disaster. Remember Two-Mode? What a mess. The reliance on overkill vehicles for profit blinded them from actually addressing need. They followed want instead. Sound familiar? That's exactly the mistake repeated with Volt... twice! Far more speed & range was delivered than required. Now, it's Bolt. Same mistake, yet again. In the meantime, there's a growing obsession with Trucks & SUVs. That's what helped GM delay bankruptcy. Now, there's Toyota, Volkswagen, Hyundai & Kia, along with Tesla all putting new pressure on GM. There's also the struggle by Ford to keep in mind. How many GM customers are really interested in a hatchback like Volt or a wagon like Bolt? Seriously. That is not GM's market. Virtually none of their own loyal buyers want that type of vehicle. It's the very reason I kept asking "*Who is the market for Volt?*" Over and over and over again, all I heard about was conquest sales. Volt was only attracted outside buyers. Many jumped on the opportunity to lease a plug-in hybrid, dirt cheap. When the lease expired, they abandoned GM for some other automaker. All those tax-credits squandered... wasted... lost. Now, GM is shifting focus over to Bolt... and it isn't going well. We keep seeing articles about how much investors prefer the concise message of purpose from Tesla. They don't have a clue what GM intends to do next. Looking at Toyota, we see the same thing emerging. The initial reception to Prime is very encouraging. It's a very nice balance of priorities with clear steps forward. In other words, GM is in trouble. We are watching the problems unfold. Efforts to electrify are unraveling. No investment in infrastructure. Little interest in high-speed recharging. No message of change with their existing product-line.
- 4-15-2017 Prius One.** Toyota rolled out the newest generation with the model numbers starting at "*two*". No one really questioned why there wasn't a "*one*". Today, we found out there would indeed be a more basic model. It will be priced \$1,210 lower, subtracting a few amenities, but not losing any of the new safety features. It simply doesn't include a spare tire or a rear wiper and the interior of the door panels are different. The reason for this move stated by reputable sources is that this prepares Toyota to compete with Hyundai. The fake news out determined to undermine Prius claim it's an act of desperation to keep Toyota from having to discontinue production. I know, that's totally absurd... especially with other automakers selling far fewer hybrids... but that's what they claim. Realistically, the move to price aggressively is a natural one. You want the market to grow. So, this is very much expected. How many will be produced & sold is unknown. But the effort to test consumer interest is a normal part of long-term business.
- 4-16-2017 Automatic High-Beams.** I finally had an opportunity to really try them out. There was a long drive required on a country road with lots of turns. Late at night, I had to watch for deer. Use of high-beams was essential. A steady but staggered flow of on-coming traffic meant turning them on & off a lot was necessary. They worked great. I was surprised how quick & accurate they were. There was a bit of skepticism that all the little nuances would get picked up by the sensors. It was very easy to see why Toyota made this a standard safety feature. Sweet!

- 4-17-2017** **56 & 55 MPG.** The drive to & from the coffeeshop today was entirely without plugged-supplied electricity. I was quite curious how the efficiency would play out, especially when warming up the engine in temperatures just above freezing. Turns out, the system is remarkably adapt at dealing with the in-between conditions. With it being neither really cold, nor all that warm, it's hard to even approximate. I obviously hoped for a large improvement, but expecting too much isn't wise. That was realistic though... based upon reports from gen-4 Prius owner reports. Why would the hybrid mode for the plug-in model be any different. True, it has a battery-warmer. But then again, the temperature wasn't well below freezing. So, there shouldn't be a noticeable difference. Fortunately, it was easy to draw a conclusion on just that small sample, since it matched what others had stated so well. I can't wait for when those ideal temperatures do finally arrive.
- 4-17-2017** **Lane-Keep Assist.** The gentle nudge back into the lane when the system detects that you've drifted over a line is really nice. That warning-beep and visual-depiction on the screen sure makes it obvious what's about to happen too. I really like this safety feature. During the test-drive, there wasn't a good opportunity to try it. I had to much going on at the time. Now that I have my own Prime, there are better conditions to experiment too. Weaving from side to side in traffic with only a minimal hold on the wheel isn't recommended. But I wanted to witness firsthand what would happen. Like with the automatic high-beams, Toyota did a really good job of studying driving conditions. We got to try this in the rain at night. Despite the difficult lighting, with abundant reflection & distortion challenges, it caught much more than expected. It could see lines on the road fairly well. This obviously isn't any type of autonomous driving feature, but it sure could come in handy for those moments when your attention briefly wanders.

4-17-2017 Boom. Some recognize this disaster in the making: "*One can't help but worry, that the end of the tax break is a ticking time bomb for GM, and Nissan, the front runners of the plug-in market, and will reward those automakers who lagged behind.*" Witnessing such significant history unfold right before our eyes is fascinating. I feel the relief of vindication, a breath of aspiration following long, drawn out battles where the enthusiasts just plain did not care. It was attack at all costs. Now, we can see the end. The final ticks on the clock are becoming easy to recognize. The advancement of time will bring a end... with a boom:

GM rested on its laurels. That's what all the "*too little, too slowly*" concern was about. They had an opportunity, a huge lead over the rest of the industry, but chose not to use it. GM should have been taking advantage of the tax-credits to penetrate their own customer base, to stir interest in GM dealer showrooms. Instead, focus was only on conquest sales, no change among GM loyal buyers. Building their demand never happened. Interest simply faded away. So much time... wasted.

The failure of gen-2 Volt to make up for the loss made that bad situation worse. GM ended up abandoning their long-time position of being anti-EV in favor of starting over with a push for Bolt. All that effort to promote "*range anxiety*" as a plug-in selling-point turned into more wasted time.

Meanwhile, we see the other automakers... who supposedly "*lagged behind*" ...as now having a huge advantage. They have many more tax-credits still available. Most importantly though, they stayed true to priorities. Toyota never lost sight of the affordable goal. Ironically, it was GM who had coined the "*nicely under \$30,000*" slogan, which has become an industry target. Nissan has wisely held off with the reveal of their gen-2 upgrade, watching how things play out with GM as it continues to use up precious tax-credits.

Remember, the goal of that subsidy was to help establish & improve high-volume profitable sales... not to break speed & distance records. That's why still not getting a clear message of intent from GM is becoming more and more of a concern. The blind defense of enthusiasts (vote down what you don't like to read) is making this growing worse situation a ticking time bomb.

The suggested "*lite*" version of Volt, a second model targeted at GM's own loyal customers, never came to be. Ironically, that very offering is basically what Toyota delivered with Prime. The reward will come to automakers who paid close attention to priorities... delivering a configuration capable of high-volume profitable sales prior to expiration of the tax-credits.

Time is almost up.

- 4-18-2017 Automatic Wipers.** A new feature with my Prime I hadn't ever observed was how automatic wipers work. Without any basis of comparison, it was all new to me. The switch was in the AUTO position. I'm not sure if my actions inadvertently did that or if it was intentional but forgotten. Whatever the case, rain today engaged them. Seeing the windshield get wiped didn't phase me... at first. Then it hit me that I hadn't turned the wipers on. Cool. That made me wonder how the car knew there was rain. Drops got heavier. Wiping got faster. Eh? It finally dawned on me that the camera in front monitoring the road must have detected visual interference... which would indicate something is on the windshield. That makes sense. It's anecdotal, a plausible theory. The automatic feature obviously works, pretty well too.
- 4-18-2017 Diesel Disaster.** VW now has about half of the close to 400,000 diesels here in the United States violating emission levels bought back or modified. Among them, there are 11,000 which were never owned. They were trapped in the supply-chain when the scandal was uncovered. Those are now being made available for purchase. I jumped into the discussion about that today with: How will they be priced? MPG is no longer a selling point for diesel. What's the draw? Whirring along with electricity is far more appealing than the clutter of a compression engine.
- 4-18-2017 Better Buy.** To further stress the state of change, we now have an official recommendation from Kelley Blue Book for Prime over Volt. It's only a matter of time. Priority for keeping cost in check will pay off. It's great to electrify, but trading off an affordable price (that's profit) for a vehicle that goes faster & further simply isn't worth it. Balance is what middle-market seeks, not bragging rights. Enthusiasts have niche interests, making them quite willing to pay a premium. That certainly isn't the attitude ordinary consumers share. Their purchases are what sustain business. So what if mainstream vehicles aren't as exciting. My results certainly exceed what they are accustomed to, as I pointed out in the comments to an article featuring this latest recommendation: 999.9 MPG for my commute and 157.6 MPG for my first tank average. That result from my Prime speaks for itself. The \$27,100 base MSRP, which includes Toyota's safety package, seals the deal. Volt is going to become an extremely difficult sell when the \$7,500 tax-credit expires.
- 4-18-2017 Trophy Mentality.** It emerged in the manner expected: "*Pfffft! Is that all? Currently doing 349mpg in my Gen2 Volt.*" To see that bragging & belittling emerge again is incredible. Nothing was learned by enthusiasts. They are repeating the same mistakes again. Complete disregard for production-cost and cherry-picked data is exactly what we saw in the past. I was somewhat amazed by such disregard for being constructive. There's a same group of owners who just plain do not care. I responded to the nonsense with: Huge mistake if you think that will impress ordinary consumers. Understand who the audience is. KBB does. Ordinary customers will see 150 MPG and 350 MPG, then ask what the price difference is. Paying such a substantial premium for the extra 200 MPG simply won't be worth it. That is no different than horsepower, acceleration, or towing capacity. They simply don't see the value at some point.

- 4-18-2017** **Fallout.** It's getting messy. This new chapter is clearly not understood by commenter, many of which don't have the background. See, starting a new chapter means a new audience joins into discussions. We've seen that with each new generation of Prius. This fallout of Volt is bringing about the same type of participation shift. I attempted to provide some of that missing background: Not all offerings help speed up adoption though. Look at the differences with the automakers. I see GM racing toward a cliff with no solution going forward. Volt is too expensive to stir interest from GM's own showroom shoppers, even with the \$7,500 tax-credit. Seeing Toyota strive for a balance of traits makes it the winner. The much lower MSRP has a much greater potential of not only drawing attention, it can result in significant market growth. Toyota has a large base of Camry, Corolla, and Prius buyers to entice with a Prime. GM has small base of Malibu & Impala buyers who simply won't be interested in a hatchback with cramped seating in back. GM now offers a hatchback Cruze too, making the significant price premium for Volt a major challenge to over come. So yes, they are on the same side by offering plug-in vehicles, but their competition is not. Adoption comes from each automaker's own customers choosing something with a plug instead of another traditional option.
- 4-19-2017** **Vastly Superior.** Exactly as anticipated, news of the KBB recommendation made it to the old Volt blog, where just a few days ago they made it overwhelmingly clear that constructive discussion is not welcome. Immediately, the posts came claiming Volt was vastly superior and that the premium price is totally worth it... without any regard for production-cost. That's the same old nonsense all over again. No concern whatsoever for the well-being of the business. More battery is better, period. The fact that the EV range delivered pushes price higher is a complete non-issue. An expensive configuration is necessary in their mind, settle for nothing less... regardless of consequence... as this so eloquently states: *"Where are all of the inbred, political TV educated, lowlife scumbags screaming that Toyota must be losing money on every Prius sold? Odd, I don't hear them. The human trash certainly were loud and obnoxious when it came to the Volt. Not since the smear job against Tucker Motor Company has the automobile industry seen such a malicious and destructive propaganda campaign."* From the perspective of the enthusiast, they truly believe a great product is being undermined. Being too costly to actually compete with the rest of GM's own product-line is rubbish, an utter impossibility. It's a game of blame the scapegoat. So naturally, I've become the antitheist in this situation. Ugh. I never thought Volt would fall apart so abruptly like this. But then again, diesel did in a similar fashion. Enthusiasts became so desperate, their methods of defense had little merit. Anyone taking the time to think about what was presented would notice shortcomings with their logic.

- 4-19-2017** **Disregarding Facts.** Reading through the comments posted so far this morning, this particular one stood out: "*The Volt is simply a better EV in every measurable way.*" When you post a fact enthusiasts don't like, they'll negative vote it to make that post disappear once it hits a count of 10. When a publication publishes a fact enthusiasts don't like, all they can do is disregard it. Pretending that fact doesn't exist is their only means of conveying their distorted view of reality. In other words, that's a common method used for greenwashing. They mislead by omitting information. In this case, all you have to do is look up the actual EV rating for each vehicle. 31 kWh/100mi is the value stated for Volt. 25 kWh/100mi is the value stated for Prius Prime. That measurable way makes it absolutely clear that Volt requires an additional 6 kWh of electricity to travel the same 100 miles. Efficiency is the point of the plug-in vehicles. Prius Prime is undeniably better EV in that respect. Yet, enthusiasts continue to disregard that fact.
- 4-19-2017** **Back to Basics.** This summed it up nicely: "...*the company is out of touch with reality and public want.*" It was the start of a rant that ended with: "*Shame on you Toyota.*" We are clearly back to basics again. Enthusiasts cannot tell the difference between want and need. Toyota is an automaker that focuses heavily on need, which is why they are so often criticized as having such boring cars. That's also the reason why so many of those cars are purchased in great numbers. That's a reality enthusiasts don't like. They prefer a focus on want, which is why GM is their preferred automaker. Volt delivered exactly what they desired. A vehicle exceeding necessity is quite a challenge to sell though... since most of middle-market is boring. They seek out well-balanced offerings... not something catering to a maximum. The reason why is easy to understand too. More ability means more money from the buyer. Paying extra is not what mainstream consumers are willing to do. Shaming Toyota for delivering a vehicle to match purchase priorities of ordinary shoppers is absurd. But then again, not being able to tell the difference between want and need is too.
- 4-19-2017** **Dual-Wave Window.** There was a hard, steady rain yesterday. It brought about a surprise I was hoping to experience again today. Sadly, the rain was much lighter. But the impression of what I witnessed sure won't be forgotten. Too bad the next time I likely won't be in an area where filming while I drive would be so convenient. Oh well. What I saw in my rear-view mirror was quite different from all my previous Prius hatchbacks. Rather than the bubble of air keeping rain from hitting the window, there was a very obvious air-stream pushing the rain down through the channel the dual-wave window. I hadn't expected that aerodynamic characteristic. I had hoped there would be something like that with snow, but the thought of rain drops being swept away hadn't crossed my mind. Sweet!
- 4-19-2017** **Charge-Mode.** Today was the day I tried it for the first time... in my own Prius Prime anyway, under controlled conditions. It recharged the battery 22% in just 10 minutes. I knew the mode was aggressive, but didn't realize by how much. That explains reports of lower than expected efficiency. If you are choosing to use it, you are continuously choosing the trade. That works fine for me. I know when EV can be effective. I don't use it just for the sake of using it. There can be times when having the engine stay off is a better choice. Anywho, the temperature outside was 46°F and the speed I was traveling was 100 km/h (62 mph). The observed efficiency displayed was 35 MPG.

- 4-20-2017** **Guzzler Plug-In.** Who the heck would buy a vehicle that guzzles electricity? GM believes some will be interested in their Cadillac which does exactly that. 62 MPGe was the rating revealed today. That's low, really low. The 62 MPG rating was too, especially when using a 31-mile EV capacity to achieve it. From an electricity perspective, the 54 kWh/100 mile rating is mind boggling. Prius Prime only uses 25. In comparison, Volt uses 31... quite efficient when compared to the Cadillac. It's the disinterest for delivering something to the masses which continues to be the source of frustration. True, there is a BMW and Mercedes-Benz with similar designs, but those are both luxury brands... without any middle-market consumers. Neglect for such a large audience by GM, especially when promised that wouldn't happen, continues to be a problem. Where the heck is a choice for ordinary people?
- 4-21-2017** **Moderator Correction.** Repeat the same lie over and over again, until no one realizes the original source anymore. They grow use to hearing it. Some greenwashing efforts in the past have been surprisingly successful. Usually, there's a misconception emerging from an assumption which an antagonist exploits. Other times, there's an extreme repeatedly sighted as if it is a common experience. In this case, it was a total fabrication. An unknown "source" was claimed to be a person of authority who leaked the information. Referring back to that as if some credibility had been confirmed later on gave the impression of that entire exchange being genuine. Since people almost never research, taking linked articles at face value, repeating the same reference over and over adds to the believability. I was annoyed. The claim was Toyota was rolling out the next plug-in Prius with a 35-mile EV range. That most definitely never happened. Yet, that claim got posted again today. Fortunately, the blog moderator wasn't about to allow that nonsense to persist. It was an obvious effort to deceive. He pointed out the situation with: *"As for carmakers over promising and under delivering on range estimates, that has been true in many cases. More recently after the Prius Prime was unveiled in NY, Toyota put out press releases saying "22" miles range. It later announced EPA said 25, so that was a case of under promising, over delivering."* I was delighted to read that.
- 4-21-2017** **As Much As Possible.** We get this on a regular basis: *"I want to be in hybrid mode but avoid the engine turning on as much as possible, my understanding is this is how the Prius/Prime/Hybrids in general increase mpg's."* It's a misconception based on assumption. Most newbies fall into that logic trap. They fail to recognize the importance of overall efficiency by fixating on a particular segment of driving. Oh well, all we can do is provide coaching: That is the formula for poor MPG. Following instinct, rather than what the system was designed for, is exactly what not to do. JUST DRIVE IT has been the advice since the first Prius and continues to be for Prime. Here's a simple guide... Plug in whenever you can. EV mode for city & suburb driving. HV mode when out on the open road. CHARGE mode when you know you won't be able to plug in.

4-22-2017 Charge-Mode Data. Having the opportunity to do a full test of charge-mode on Earth Day worked out really nice. This comment about it was brought up yesterday and I've been wanting to try it firsthand anyway: "*The charge-mode uses more gas than you will gain from EV. Just HV should get you 60+ mpg.*" It was perfect timing for an observation of the process from end to end. So, I did, reporting these results:

I drove from Northern Minnesota back to the Twin Cities today. Here's some real-world data from that...

charge-mode = **40.0** miles

charge-mode = **37.8** MPG

It took 38 minutes at 66 mph with an outside temperature of 64°F and a light crosswind to recharge the battery-pack from 0 to 80%. I took advantage of that recharged 25 miles of EV (estimated) to keep the engine off while making our two stops along the way and when getting trapped in weekend traffic at a major highway junction. These were the final results...

overall = **153.7** miles

overall = **60.4** MPG

In other words, just charge it. If you'd like engine-generated electricity for use later, go ahead. There does not appear to be any penalty for doing so.

4-23-2017 Charge-Mode Details. As anticipated, my posted results ended up stirring some discussion. This was the quote which stood out: *"The additional 25 EV miles resulted from the forced charge were not achieved at 66 mph but, as I understand, mostly at city driving."* That provided a good basis for providing some detail. So, that's what I did:

First, keep in mind that "city" is a term that's very misleading. Some people think of it as slow speed with lots of stoplights. Other people think of it as anything goes suburb travel... not highway. They are labeled the same, yet the two yield very different results. They really should be separate categories, like the rating system in the UK.

Second, the use of the term "highway" is even worse. It spans any speed from 55 to 80, which vary drastically for efficiency results. It also includes hard-accelerations for some people's measure and is only cruising for others. Whether or not you are steady cruising or passing vehicles makes a difference too.

With all that said, my particular test yesterday included the variety of "highway" driving with charge-mode generated EV miles. I took advantage of that electricity elsewhere (scenarios thought of as non-highway) but did still include 2 hard-accelerations onto the highway and some electric-only cruising at high-speed. The goal was to collect data from an ordinary trip... which in my case was extremely realistic, since I was traveling in tandem with 2 other vehicles.

Long story short, this served as an example of diminishing returns. You can indeed squeeze out greater efficiency if you so desire, but there isn't much of a point. Once you achieve 60 MPG fueled by only gas, you can consume the resulting power as you desire. The sizeable gain has already been achieved. The next big step is simply plugging in when you can.

4-23-2017 Teaching Moments. The discussions are changing in this new chapter. The history of Volt cannot be changed. Antagonists of Prius now have the choice to join into the team of those pushing electrification efforts or disappear with a loss from their own personal "*vastly superior*" effort having failed. I prefer finding a way to welcome them. We can take advantage of "*teaching moments*" to help bridge the transition. Exchanging detail about each others plug-in vehicle is a gain for everyone involved. The catch is, you have to accept whatever is learned. Facts cannot just be dismissed, as we had to deal with in the past. Following a thoughtful post of one former foe about dealing efficiency impacts, I provided detail specific to Winter driving:

Prius Prime has a Winter advantage over Volt with it's more efficient heater. In fact, the vapor-injected heat-pump Toyota provides is currently the industry leading tech for dealing EV range reduction due to cabin warming. Another handy cold-temp feature Toyota has delivered is the ability to direct air-flow. If there are not passengers in back, it doesn't blow warmed air back there.

Prius Prime also comes with standard heated-seats and the ability to program the timer to pre-condition the cabin prior to driving. Getting warmth directly from electricity while plugging in is a handy feature all the automakers offers. It's really nice. I believe many offer battery-warming too, as Toyota now does. Using a warmed battery overcomes the added electrical resistance lithium-based batteries have to deal with when temperatures are below freezing.

Lastly, there's the heated steering-wheel in the advanced model. That certainly isn't necessary, but it sure is nice. Another advanced feature is being able to control the heater, front-defroster, and rear-defroster remotely (from your phone) while still plugged in.

In addition to all that, though it hasn't been cold enough for me to try it yet, is the possibility of taking advantage of added engine load from charge-mode to provide engine-generated heat more efficiently. It will obviously take some work to determine if the resulting EV from the higher RPM is truly a better use of gas. But one certainty is that will provide engine-generated heat faster, since Toyota provided that with the first generation plug-in using defrost-mode.

- 4-24-2017** **Not Free.** Attempting constructive discussion with Volt enthusiasts became a waste of time years ago. They simply aren't interested. The endeavor wasn't futile though. That old daily blog served as an effective venue for bouncing ideas around. The nature of instant criticism meant anything seemingly anti-GM would be called out with uncertainty right away. What didn't emerge as an intolerance problem clued me into what the larger audience would actually be interested in. Being dead set on being "*vastly superior*" blinds you to opportunity. I took full advantage of that, to the point of exploiting their blindness. Ironically, it was the Volt supporters who I'd bring my findings too. They have been very receptive to my constructive findings. In other words, I was using that daily blog for research. It was a treasure trove of material to work with, which they gladly provided... unknowingly, of course. Realistically, there is simply no excuse to be that naive still, after so many years of being informed what to look for. Oh well. It used that to solicit feedback. Today, there was a discussion about charging for the use of chargers. I jumped into the series of comments being posted with: We've found it helpful for all provider types to charge a small fee. That way, it no longer is an entitlement/obligation for owner or business and ICE blocks are reduced knowing they are preventing a monetary exchange (which translates greater likelihood of enforcement). The problem though is finding out what that fee should be. Basic L2 fees are all over the place. Some charge per session, some per kWh, some per time. I have even seen minimum fees on top of the time/kWh quantity. And that's the simple setup. It gets especially complicated when high-speed kW rates can be delivered. Any suggestions?
- 4-25-2017** **Prius PHV.** It's a strange experience to see your own vehicle drive away. After 5 years of enjoyment, that's exactly what happened today. I really liked driving that generation of vehicle. The 2010 was a nice improvement over the prior two Prius that I had owned. But when I had the opportunity to upgrade within that generation to a model with a larger battery-pack, giving it more electric power and much further electric-only range, I jumped on it. That 2012 served me well for all that time to follow. I plugged in a work, taking advantage of electricity whenever realistic. Unlike with the Prime, it was a blend of plugged-supplied benefit. You could clearly see the gain from it too. The resulting MPG made that obvious. So, I know the new owner will enjoy driving it for many years to come. It still was odd though to witness it pulling out of the driveway for the very last time. The final distance recorded was 92,012 miles. I refilled the tank to get lifetime efficiency data. That ended up calculating to 71.1 MPG.
- 4-25-2017** **Heads-Up Surprise.** While toggling through the HUD options (pushing the button on the dashboard repeatedly), I discovered the lane-keep assist will be displayed on the windshield when triggered... which happened at that moment... since I had caught myself off-guard by noticing something new. That was sweet! That feature wasn't anything I had even considered. It's like when the navigation system is being used. You really don't expect to see the arrow & distance to show up there. But when you think about what the heads-up display is for, it makes perfect sense. Duh! I wonder what other goodies I'll discover along the way. Taking ownership of a next-generation vehicle shortly into its life-cycle, there are things to stumble across. We expect that of Toyota. They provide extras for owners to find on their own, stuff reviewers aren't informed of. It adds to the participation feeling. Not everything is revealed right away. You can become part of the group experiencing firsts.

4-26-2017

Bigger Picture. I was rather flabbergasted to stumble across this comment in a GM press release: "*Chevrolet reported today that 3,492 Bolt EV owners in the United States have driven a cumulative 4,570,300 miles as of April 2, 2017 since the vehicle went on sale in December 2016. These all-electric miles have resulted in more than 175,000 gallons of fuel saved based on the average EPA-estimated 26 mpg for 2017 vehicles in the United States.*" Seeing history repeat in such a concise & predictable manner is quite surprising. They just keep trying the same thing. Rather than learn from previous mistakes, some acts are repeated with hope of a different outcome. We've seen thing before. The same old "*gallons saved*" approach fell apart with Volt. Simply pointing out how much more was saved by Prius made that an embarrassing situation. That's why taking a look at the entire product-line becomes such a huge disappointment. The audience is quite diverse. Taking such a tiny sample and bragging about those results isn't constructive perspective. That's why the push for spreading the technology was so important. GM shoppers don't want a compact hatchback. They don't want a compact wagon either. They are truck & SUV buyers. That's why Volt & Bolt sales are conquests. They attract those who wouldn't otherwise consider a GM purchase. Little to no change of GM's own loyal customers is a recipe for disaster. The precious few tax-credits available will be wasted. Volt enthusiasts are finally starting to realize that disastrous situation too. Ironically, they had argued Toyota was resting in its laurels with hybrids. Turns out, they were thoughtfully designing a plug-in hybrid for mass appeal, hoping to capitalize on the opportunity. Now looking at GM, turns out they were the ones resting. Rather than rollout a profound new Volt to attract GM showroom shoppers, they simply upgraded Volt to appeal even more to enthusiasts. Ordinary mainstream consumers simply aren't interested... and the enthusiasts now see that. I took advantage of this newest promotion attempt to point out that lack of progress: Looking at the bigger picture, it's easy to see the same being achieved by other means. Data from those Bolt owners was compared to owners of 26 MPG vehicles. Comparing the same to twice as many 52 MPG hybrid owners, you get the same gallons saved. That reveals, hybrids like Fusion & Prius are already saving far more gas, since they are selling at much larger volume... and without the benefit of a generous tax-credit subsidy. In other words, the use of "*gallons saved*" isn't a meaningful advertising approach.

- 4-26-2017** **Real Numbers.** You could feel the instant the anger boiled over. I had exposed the deception. Fans wanted something to celebrate. With both supply & demand falling well short of expectations, there was a desperate need to find a victory in that mess. I was correct again. That same old "*too little, too slowly*" concern applied. Shortcomings were being revealed and each attempt at damage control was only making the bad situation even worse. What surprised me was how easy it had been to find other numbers, something to provide a basis of comparison. Right away, I was worried about cherry-picked data. Not seeing anything whatsoever to provide perspective was a red-flag. Be warned whenever a seemingly large number is posted without any reference of any kind. That was definitely the case in this situation... and the enthusiasts new the effort to mislead was being called out... and I had caught them attempting to greenwash by spreading the misleading information. People often assume the entire story is being told. They don't take the time to research for omissions. I do. Pointing out what had been excluded to portray a different take on events was especially redeeming this time too: Looking at the bigger picture, it's easy to see 175,000 gallons really isn't that much. 143,370,000,000 gallons (yes, 143 billion) is how much gas we consumed in the United States last year. 391,730,000 gallons is what that averages to per day, which makes that 4-month total for Bolt a rather trivial quantity in comparison. Always consider the bigger picture.
- 4-26-2017** **More Discoveries.** I was playing with the buttons, scrolling through settings looking for new things. To my delight, I found another surprise. I had heard about "split" screen, but didn't actually know what it meant. Turns out, the extra large area for the speedometer can actually be shared with a choice of 3 different efficiency meters... one showing the battery-charge level... one showing the energy level... one showing the kWh/mile efficiency for electric-mode then MPG for hybrid-mode. That's quite handy. They obviously did their homework with this upgrade. In the past, I've seen how my Toyota studied driver usage. In fact, that's what the first-generation offering was all about. They rolled out to a decent sampling size, they stopped. Growing any further wouldn't have accomplished any more. The diverse spread, enough to really get an understanding of the market, was achieved by reaching out to those initial 15 states. Obviously, they took into account all the stuff we were posting online too. The forum & video knowledge sharing is a win for everyone. Complex things in the past, like finding out what the actual state-of-charge level was rather than only getting an estimated distance value, is now just simple choice on a menu. You get all kinds of detail display options. It's really sweet. Today's uncover of the "split" was really rewarding to stumble across. I wonder how many other owners take the time to look. Hmm? I'll create a new user-guide over time to point out goodies like this. In the meantime though, they'll be buried in the blog achieve... like this very entry.

4-27-2017 **Nice Try.** It's quite odd how you can see an end approaching. That's what all the blogging about a chapter closing has been. Signs of conclusion looking like this are posted: "*Consumers will look at the aggregate number and extrapolate to themselves, not the country as a whole, just as they do when they vote. But nice try.*" That's so generic, so vague, it could mean anything. The attempt to divert attention away from the bigger picture is what makes it obvious. As important as individual votes are, they don't matter if enough aren't cast for the candidate you choose. The race to win is that of plug-in vehicles verses traditional vehicles. No matter how compelling arguments in favor of EV are made, those electric-only vehicles don't have a large enough audience. This is actually was regular hybrids alone weren't enough either. The market-share they captured was struggling to grow. That aspect of growth is absolutely vital... hence the constant reminder of audience... Who? That comment with the "*nice try*" was a desperate effort to press the reset button. Hope of starting fresh and not having to deal with any aspect of the past is not realistic. I was happy to point it out too: What about Volt, Prime, Ford Fusion Energi, Hyundai Ioniq, Honda Clarity, BMW i3 and the other plug-in hybrids? How do they fit into the bigger picture? Remember, the inevitable phaseout of tax-credits will be reached mid-cycle for most all of the plug-in vehicles. Consumers will most definitely take the loss of generous subsidies into account.

4-27-2017 **What Happened?** Today was when I watched it all fall apart completely. That problem of purity, which Volt enthusiasts based their entire premise on, ended up causing it to become fundamental contradiction. This final comment snippet in the final argumentative post summed it up: "*...on a GM fan site to explain why a car using no gas is inferior to one that does.*" Remember how no matter how much I struggled to get them to focus only on GM's own product-line, they'd inevitably shift discussion over to Toyota and Prius? Diverting attention away from their own struggle was all they had left. I was now just waiting for closure. Exactly like with Two-Mode, the second year of sales would bring about conclusions. Remember how it fell apart? Supporters moved on to the next thing. In that case, it was gen-1 of Volt. Of course, when that fell apart, they moved on to gen-2. But now that gen-2 is struggling... focus has shifted to Bolt. That recent sign of change (this chapter in history having come to a close) was attempts to switch the topic away from GM failing. I was on a GM fan site discussing GM's own offerings, commenting about GM's own customers. Not a mention of my own plug-in hybrid irritated them to an extreme. I wouldn't bite any of the bait they were dropping. Remaining on topic and speaking of the audience the blog addressed meant I was behaving and they were not. My purpose was obvious too. I even asked: "*What happened to Volt?*" When that contradiction came about, nothing more needed to be said. It was over. They had backed themselves into their own corner. Bolt was what they wanted all along, not Volt... and it was only just then that they realized the predicament. The desire for purity was fulfilled by Bolt, not Volt. I noticed the pattern early on, how much they resented the gas engine running. All those insults to Prius also applied to Volt. They simply hadn't understood the precedent they were establishing until it was well solidified... long after they couldn't do any damage control... too late. That's why simply asking what happened is all that was necessary. They knew. Message received. Problem understood. Huge mistake.

4-28-2017 **C-HR Rollout.** My wife and I were at the dealership yesterday, visiting with my salesperson. When you know someone that long, you check in from time to time to exchange information. She really wanted an update, to find out what I had learned about my new Prime over the past few weeks. She also wanted to see the new receiver-hitch I had installed. We wanted to find out more about the market for Prime. Rollout to the Midwest has been very slow. With deliveries going to Japan, Europe, and the United States all at the same time, inventory is quite limited. That's a heck of a debut effort. Anywho, while we were swapping stories, a vehicle drove by and caught my eye. I ended up making a scene... yelling out that it was the brand new C-HR... a new vehicle type for Toyota not expected until this Fall. What was it doing here already? Maybe I had mixed up the rollout schedule with the hybrid model. No, this was a 208 vehicle and it is still only April. Huh? Needless to say, I got the attention of everyone nearby. They too were intrigued by the hints of a new vehicle driving by. I got up. Walked over. Someone immediately grabbed the FOB and handed it to me. I guess that type of enthusiasm gets rewarded. I got to take it for a short drive before any of the salespeople. Whoa! So, I did. It was nice... for a non-Prius offering. The hybrid model won't be anywhere near as efficient, but it most definitely will attract a new audience. And you know me, I'm all about market growth. I look forward to the stir this will bring... or better put, a continue of the excitement I started. It is nice being married to someone supportive of such excitement. She actually jumped in the driver's seat for a spin right after me.

4-29-2017 **Hypocrites.** It ended in a tangled web of hypocritical posts. The short-sighted approach of Volt enthusiasts was their downfall. It's what made them stand apart from Volt supporters. That fundamental differences is why the one group would celebrate any victory it could and the other would carefully weigh the benefits of alienating future allies. It was obvious from the beginning that their trophy-mentality was huge risk. Yet, it was one post after another declaring Volt was "*vastly superior*" to Prius, even if Prius or Toyota was never mentioned. That sounds a lot like our new president. Rather than actually work for progress, there's a never-ending battle to paint a positive picture. The other thing in common we seeing coming from the new administration is an effort to suppress information. When I point out a hypocritical claim, it immediately resulted in negative votes to hide the post. Make it go away by not being visible anymore. I was flabbergasted by the foolhardiness of such a move. What a senseless waste. Ignore the problem, don't actually deal with it. As time went on, the nature of their hypocritical behavior became obvious... the obsession for purity was causing blindness to logic. Bolt was described repeatedly as superior to anything that consumed gas. I couldn't believe the never-ending stupidity. These were die-hard Volt enthusiasts so hell-bent on the mission to "*leap frog*" Prius that they embraced technology in a self-deprecating manner... and never noticed. Bolt has become their weapon for victory. Using it meant destroying Volt in the process. None of those brainless buffoons were smart enough to realize the problem they had created for themselves. It became a fascination for me to witness their own destruction. I had no idea the madness would end with a self-inflicted wound. But then again, that is a similar manner of death the die-hard diesel enthusiasts suffered. They became so fixated on one particular battle, they ended up losing the war in a spectacular way. Watch what happens in the next few months with Prime. That balance Toyota carefully strived for will really pay off, the very trait enthusiasts poo-poo'd over and over and over again.

- 4-29-2017** **Closure.** It sure feels nice that's all is truly concluded. It's finally over. Phew! We did indeed see Volt as a "*game changer*" vehicle in the end. It triggered a paradigm shift; ironically, the outcome was the opposite of what had been hoped for though. Rather than delivering a technology resulting in strong mainstream sales, it delivered a configuration demonstrating what to avoid with that technology. Too much emphasis was placed on making it go faster & further. That sacrificed cost & appeal. GM's own customers simply have not been interested... even with the generous \$7,500 tax-credit. Some ordinary consumers were drawn, but conquest sales from enthusiasts are not a solid business model to follow. In fact, that's how the end was brought about. They were revealed to be the "*low hanging fruit*" of the industry. Running out of them has resulted in market saturation... the very "*too little, too slowly*" concern I warned about for years is now an undeniable consequence of such complacency. Enthusiasts allowed it to happen, gambling that a dramatic shake up of the industry (the tree) would result in more customers (falling fruit). That didn't happen. The risk never made any sense. They hoped battery-cost would drop so much, Volt would quickly become competitive. The catch is, there was no understanding of who the competition was. They assumed other plug-in hybrids would be competing for buyers. Turns out, the reduction of battery-cost ushered in affordable electric-only offerings... killing off any chance of attracting more sales to a cramped compact hatchback with much smaller EV capacity. Bolt replaced Volt. It became the "*range anxiety*" solution, leaving GM with an uncompetitive plug-in hybrid. Prime's capacity had been relentlessly mocked, belittled, and insulted by them... until recently, having discovered Toyota not making the same sacrifices means a much greater change of appealing to the masses. Prime is a configuration capable of drawing mainstream interest, even without tax-credit subsidies. Its balance of power & efficiency will triumph. That's a very painful lesson for those who refused to learn from the past. Oh well. Their loss.
- 4-30-2017** **Flexibility.** Don't undersell Toyota's ability to take advantage of the flexibility their design offers; other automakers are simply stuck when the market changes. That was all I needed to say. There's so much spin about what happened in the past, it's easy to overlook what should be obvious. We've seen HSD adapted to a variety of different platforms, each proving some type of claim false. Yet, there are some who still don't see it. Perhaps now seeing how easily a plug was added and how much that provided in return will finally get the point across. It never ceases to bewilder & flabbergast how a fundamental, like flexibility, doesn't get considered important. Of course, there is that tendency in our nature to prefer absolutes. The ability to adapt counters that stance, which forces actual thinking rather than the simplicity of yes or no. Oh well. You don't have to understand design decisions to benefit from what gets delivered.

4-30-2017 **Selling Safety.** We're seeing this topic pop up a lot, especially when it comes to Hyundai. More attention pushes GM further out of consideration. I'm intrigued how that will play out. The absolute of Toyota being the enemy is all messed up when a serious contender joins the mix. This is what provoked my response: *"Active safety system should be standard, just like the Toyota safety sense in Prius Prime. Volt sales going down."* There's no way to resist such a lead in. So, I didn't:

Yup.

- Dynamic Radar Cruise
- Pre-Collision Braking
- Lane-Departure Detect with Assist
- Automatic High-Beams

Those are all standard safety features that come with all Prius, including the Prime models. That's what will attract ordinary consumers. The nonsense of wanting more range & acceleration is just enthusiast banter, something mainstream buyers simply won't be interested in paying extra to get.

4-30-2017 **EV Efficiency Measure.** It's so refreshing to finally have constructive discussion. Today, it was about measuring EV efficiency. That got me excited, as you could easily predict: *miles/kWh* is a means of measuring efficiency for electric propulsion. *kWh/100mi* is another, for electricity. *gal/100mi* is the appropriate measure for gasoline, not *MPG*... which is highly misleading and often used to greenwash. Seeing that result of 5.1 is reason to celebrate. That's great. Many plug-in vehicles, aren't anywhere near that efficient. In fact, some actually guzzle electricity. That's why the new way to indicate usage is so prominently displayed in Prime. Results that nice are something to be proud of. Keep in mind that Prime offers roughly 6 kWh of usable electricity from the 8.8 kWh battery-pack. Multiple that 5.1 by that 6, you get over 30 miles of estimated EV range.

5-01-2017 **Prime Shines.** In Japan, sales came to 2,781 last month, bringing the total so far there to 6,011. Sweet! Unfortunately, there's still quite a bit of pushback here... much of which in the form of visual appeal. You know, how the owners of plain-looking SUVs give cars grief for actually having some style. Ugh. I find it amazing how so many people prefer plain, that anything which stands out is given some level of *"ugly"* factor... until it's been out for awhile. Then, attitudes change. Each Prius generation has seen that. Know your audience. Those buyers don't want ordinary. 60 MPG following depletion of the battery will help draw interest after awhile too. Seeing that on the few long trips I've taken so far is another great selling point. Lastly, there is a charge-mode available... which has proven useful on the long trip where I didn't have an opportunity to plug in. It took me 38 minutes to go from 0 to 80% charge. That was 40 miles of highway travel at 66 mph. The tradeoff was 37.8 MPG while that surprisingly aggressive recharge was taking place. In other words, using that EV wisely afterward will yield an overall benefit.

- 5-02-2017** **So What?** It needed to be asked after reading this: *"Anyone who sees the Volt for what it is realizes how great of a car it is."* We've heard the same thing since the day it was rolled out 6.5 years ago. It hasn't made much of any difference. Conquests sales are what resulted, not a measurable change to the status quo. GM customers continued to purchase traditional vehicles. There wasn't a shift to plugging in. Notice how even GM's new hybrid has barely even made a peep? I bet you didn't even realize there was a Malibu hybrid. It was supposed to squash the Fusion & Camry hybrids. That didn't happen. Gen-2 Volt didn't result in a stir either. I fired back: So what if Volt goes faster & further? It's too expensive to sell in large numbers even with the generous \$7,500 tax-credit. Prius Prime starts at \$27,100 MSRP and is loaded with safety features (Dynamic Radar Cruise, Pre-Collision Braking, Lane-Departure Detect with Assist, Automatic High-Beams). Toyota clearly positioned Prius Prime to compete directly with the actual competition, traditional vehicles.
- 5-02-2017** **Misconceptions You Thought Were Dead.** This was quite a surprise to encounter: *"Using the engine to charge the battery is never a benefit unless the charge is absolutely needed for a specific reason (ie climbing a very steep grade)."* Toyota knew there would be issues with charging up using the engine. That's why charge-mode is discretely hidden. The subtle nature of that extra feature makes the learning process more of a teaching opportunity, rather than a stumble-across-then-guess situation. Antagonists like to exploit misunderstandings, spreading them widely & often to create a misconception. People like me try our best to overcome that. This is my short & sweet response to today's effort: That misconception was proven false way back in 1997 by the first Prius. Hybrids have been doing it ever since, showing undeniable benefit. Yet, 20 years later, some still believe that's not the case. Ugh.
- 5-02-2017** **Understanding Hybrids.** Sometimes, an argument comes from assumptions. In this case, it was clear the person didn't actually read what had been posted... assuming it was a lack of knowing that energy cannot be perpetual. He didn't bother to see that conservation was the topic. I was annoyed by the snarky attitude. Not taking the time and turning on the poster is what scares away those genuinely trying to learn. That's sad. Oh well. All I can do is jump in with some type of helpful information, as with this attempt: The situation is a matter of using energy more efficiently. No part of that is *"free"*. Nothing is 100% efficient. In fact, there are EV guzzlers. Some are far better at conversion & transfer than others. Using more electricity to travel the same distance is a problem too. Just like with hybrids, it's a matter of seeking out efficiency opportunities. Used wisely, there can be a gain... put another way, a prevention of greater losses... which is exactly what charge-mode can offer, used wisely. The gas engine can be taken advantage of to control overall energy usage in favor of a better return by reducing waste.

- 5-02-2017** **Inventory.** Change is upon us: *"Although all totals aren't in yet, the major players have reported so I think it's safe to say April 2017 will be the first month the Prime leads all plug-in sales. It was only by 12 units but a win is a win!"* I couldn't resist jumping in with additional information: A quick look at inventory makes solid prediction for more wins... 4,683 Bolt. 4,288 Volt. 1,014 Prime. Prime is basically not available anywhere in the Midwest yet. Some people who placed orders there last year are still waiting for delivery. Word of mouth about how it actually performs is only beginning to spread just now. So, it's a very safe bet we'll see demand grow nicely.
- 5-03-2017** **Ironie Greenwashing.** Perceived obsolescence could be a problem: *"Look at how long Toyota has breathed life into its legacy hybrid synergy drive and how far behind it is today."* That same old brain-dead mindset persists. People are led to believe that EV range is the measure for progress. More indicates being further along. In reality, that's hogwash. Other factors are far more important, like reliability & cost. Simply having connected more cells together achieves greater range, but there very much is a tradeoff for such simplicity. That's why things like Tesla's effort to improve energy-density and reduce packing also come into play. It's complicated. Those who claim *"behind"* without anything other than an implication of short-range EV are clearly not helpful. They just contribute to the confusion most consumers struggle with. Repeated often enough, it becomes greenwashing. Intentional or not, it does cause harm. I find it ironic how that long-term investment is spun to sound like an effort to milk outdated technology. In reality, we are only now seeing hints of just how wise that continuous effort to upgrade really was.
- 5-03-2017** **Please Hurry.** Whoa! Reality set in surprisingly quick. The ultimate expression of acknowledgement emerged: *"Please hurry."* It was from a long-time Volt enthusiast who antagonized about Prius to an extreme. The same disappointment from gen-1 Volt sales is clearly repeating with gen-2 Volt sales. He sees the next step clearly as getting that technology into a vehicle format actually wanted by GM customers... a small SUV. I asked him the *"Who?"* question so many times, it was making him crazy. He just plain did not want to admit Volt wasn't appealing to an audience beyond conquest purchases. Those buyers are in no way representative of ordinary GM shoppers... which is why I fought him from well before rollout began. To make matters even more stressful, I pointed out the next-step problem by expressing the *"too little, too slowly"* concern over and over again. He finally gets it! Phew! The nightmare of endless disappointment may finally come to a close. Either that plug-in hybrid technology gets abandoned in favor of EV offerings or it finally gets put in a vehicle type GM shoppers will actually buy. His desperate plea would seem to favor the latter.

- 5-04-2017** **April Sales.** Things are getting interesting. I posted this on a green blog dedicated to open discussion for all types of participants: Anyone who still thinks faster & further is what will attract the consumers doesn't understand mainstream purchase priorities. High-Volume sales are the result of a nice balance of features & price. These safety features are standard, available on all models of Prius: Dynamic Radar Cruise, Pre-Collision Braking, Lane-Departure Detect with Assist, Automatic High-Beams. Things like that are what ordinary buyers want included. Volt is still lacking with respect to balance. Volt's efficiency following depletion isn't enough to attract interest. Little headroom in the rear and the legless middle seat doesn't help either. That's why a majority of the sales were the conquest type, attracting buyers who otherwise wouldn't have purchased a GM vehicle. Toyota configured Prime to appeal to their own customers. That's true change. They are striving to alter their product-line to become more electrified. That balance of features & price will allow Prime to survive the expiration of tax-credits. It's a genuine effort to replace traditional vehicles.
- 5-04-2017** **Yup.** Getting agreement on priorities is virtually impossible sometimes. With the case of Volt, that denial situation dragged on for years... throughout the entire first generation and well into the second. Now, we get this, starting with: "*It's simple...*" That was followed by this presented-as-if-it-was-new wisdom: "*MPG/Size/Brand/Price/Standard features are all more important than EV range...*" To those enthusiasts deep in denial, I could see that as a revelation to them. Even though that's what I have been saying for an entire decade, it's good to hear. Their hate for the messenger was so intense, taking the time to actually read & understand the message itself was clearly not of any importance to that. Any validation for the "*too little, too slowly*" concern was met with an emotionally overwhelming response. They'd lash out, negative voting to hide what had been posted. Such a childish head-in-the-sand response was remarkable to witness... until learning how many people live their lives that way. The presidential election was overwhelmed by a mindless need-for-change attitude. A shockingly high number of people voted for change just for the sake of change. It didn't matter what the consequences were. It didn't matter how unlikely it was that promised would be fulfilled. They just didn't want to deal with any more of the same... even though that stability and slow growth was exactly what was needed. A nice balance of priorities isn't exciting. The thrill of possibly finding a "*tremendous*" new outcome by taking an extreme risk was totally worth it, in their minds. We're finding out how terrible of an idea that really was... just like Volt enthusiasts finally seeing the same thing people like me saw right from the very beginning. What a waste. But at least there is still a dim glimmer of hope. Remember how I asked about goals? Agreement to them is a good start... all more important than EV range.

- 5-04-2017** **Pulsing.** The system in Prime automatically pulses. You can see the MPG go up & down even when driving at a steady speed on flat highway. I believe it was Hyundai who experimented with automation of that behavior, taking advantage of engine & motor interplay to squeeze out more efficiency by exaggerating it. Toyota obviously nailed it. The effect is so subtle, you wouldn't even know it was happening without a gauge to see what was happening. When that was first tried with Prius by owners all those years ago, it was an impairment to traffic and required a great deal of concentration. That's how the "*Just Drive It*" came about. I refused to endorse what ultimately ended up getting the term "hypermiling" coined to it. That distracted & annoying behavior simply wasn't worth it. That is no longer of any value anymore either. The system is more capable than human interaction. It doesn't take much to come to understand how a computer can be quicker and have more refined actions.
- 5-05-2017** **Potential.** Reality is setting in: "*Don't get me wrong I think the Volt is a fine automobile but I think its doomed to fail.*" There isn't much to say about the situation anymore. Arguing with those who won't ever accept defeat is pointless too. So, it's a short & sweet response: Phaseout of the tax-credit will be mid-cycle. Volume with the subsidy is too low to survive the loss of such significant financial help. There won't be anything to help it compete. Volt is a nice vehicle with a limited audience. Prime reaches out to middle-market buyers. There's a great deal of potential... and we are only just seeing it begin. Toyota will achieve what GM continues to struggle with... appealing to its own customers.
- 5-05-2017** **80 MPH with A/C.** Upon embarking on my long-distance, high-speed voyage, I was not expecting impressive efficiency. Instead, I'd be watching my lifetime average plummet. Going from heavy use of electricity to only gas with a massive amount of aerodynamic resistance, it's reasonable to set outcome expectations low. There's simply too much drag on the vehicle when traveling at 80 mph and passing at even faster speeds. To make matters worse, it was uncomfortably warm outside. That meant also running the A/C. With both those demands, I was delighted to see 41 MPG for the average. The long trek across South Dakota, from Minnesota to Wyoming wasn't as bad as I had anticipated. Nice.
- 5-05-2017** **Amazing Lights.** We finished dinner. It was a beautiful evening. There was a little over an hour available to drive from where we were in Rapid City up to Mount Rushmore. With the amazing lights on the Prime, why not see what climbing up a secluded mountain in the dark is like? The curves, the elevation, the possibility of encountering an animal all added to the thrill of seeing the monument lit up in the dark and having very few people to share the view with. We could even get a chance along the way to stop on what would normally be a busy road to enjoy the sight. Turns out, we were all alone, on the drive up and when we got there. A park ranger welcomed us to indulge, since we had the entire place to ourselves. The drive up was a pleasure and the journey down would recharge a large portion of the battery-pack. But to have that moment, in that place, all to ourselves. Wow!

- 5-06-2017 Reality.** The real problem revealed: *"Most of the comments I read from Volt owners is how they are able to stay on pure electric for their full commute and not really wanting to use the ICE."* It's a self-deprecating position enthusiasts have taken since the very beginning. They've pushed the idea of EV purity since way back when Volt was still being developed. Volt ended up a hybrid though, not the *"range extender"* it was intended to be. Now we have BMW i3, which truly is a range-extended design, and Bolt EV. The very weak marketing for Volt has all but vanished as a result. EV range is too short. EV efficiency is too low. EV charging is too slow. So, competing with an EV is unrealistic. HV efficiency simply cannot compare to Toyota or Hyundai. So, competing with the gen-2 PHEV market isn't realistic either. Pressure from competition, along with the reality of tax-credits running out soon, has brought about a reality shock. Volt is without a large audience and the enthusiasts have nothing left compelling to promote as a draw. Significant rapid growth is required and Volt is still dealing with flat sales.
- 5-07-2017 Precedent Set.** The world of plugging in seems somewhat divided, at first glance. Over time though, that impression fades away. It's not a matter of having an engine not having one. It always comes down to how much gas is consumed. Virtually none of the plug-in supporters actually mention how much electricity is used. I pushed for quite awhile when Prius PHV first rolled out to get people to post KWH values. There was a lot of resistance. Now, it's next to impossible to get that information... upon the revelation that some plug-in vehicles use electricity far less efficiently than others. And yes, Volt is among the worse offenders. You could see that coming. From the very beginning, I knew the trophy obsession, that primal need for faster & further, would create a blindness toward waste. As long as the energy source was electricity, they couldn't care less how much was actually consumed. That's sad and still quite true, even today: *"Thank You!! – and very well said. I also have a gen 2 volt, and in 18 months and about 21K miles have only used about 55 gallons of gas. It gets old getting negativity from the EV crowd."* Notice how solidified the precedent has been set. All we ever get for data is how much gallons were consumed. Knowing that would continue to be a problem for years to come, that's what Toyota now reports as a primary gauge for efficiency. You can of course look up the Miles/kWh data and see impact climate settings have. But it ultimately comes down to showing MPG, since that's what the others insisted upon for an overall summary. They did it. Actions of enthusiasts had a much greater influence than they will probably ever come to realize. To think they argued it was impossible to get an automaker to listen to requests, that all they could do was hope for the best. Ugh.
- 5-08-2017 Necessary Step.** It was interesting to see the message of influence finally sinking in. This was encouraging to see emerge from that: *"Maybe GM will finally take the hint now..."* I don't expect a moment of sanity amongst the chaos to make any difference right away, but I do suspect the pattern of painfully slow growth for Volt & Bolt along side strong demand for Prime to be a wake-up call. Eventually they'll notice the struggle to progress and figure out why. It's really sad that the solution was provided long before the problem manifested, but late is still better than never. Not liking it was the issue. They'd have to compromise on principal to reach the goal. Enthusiasts hoped that somehow wouldn't be necessary. They were wrong. It is necessary. I chimed in with: *Faster & Further* became GM's obsession with Volt a full decade ago. Their own *"nicely under \$30,000"* price target was abandoned in favor of pleasing enthusiasts. It's a simple matter of not wanting to take the necessary step to attract mainstream buyers.

- 5-08-2017** **Hypermile?** This request didn't make sense: "*We still would like to know the hypermile value average.*" Even if that was truly constructive to provide, what would it actually tell an ordinary person? I've never been in favor of sighting extremes. Most of the time, that's due to data being cherry-picked when attempting to mislead. But even if it wasn't, how does that set a proper expectation? I ended up rather annoyed trying to figure out the benefit, so I went with: What does "*hypermile*" mean now? That term was coined in a post arguing with me about how hybrids weren't up to the chore, a very long time ago. Over the years to follow, the definition changes quite a few times. Now, it doesn't make any sense. There is no interplay of power sources available to squeeze out greater efficiency. You just drive it. The only thing I can think of that could qualify now is taking advantage of charge-mode, forcing the engine to produce electricity for EV use later.
- 5-08-2017** **Camera Obscured.** While quietly enjoying the 80 mph cruising, the sound of an alarm broke the mode. It was an audible alert followed by a message on the screen, informing me the visibility for the camera had been obscured so cruise was disabled. It hadn't occurred to me at that very moment that the Dynamic Radar Cruise also used the camera. Observing lines on the road is a standard part of that. It requires a clean windshield, specifically that small area in front of the mirror... which had just be struck by a bug. Squash! Fortunately, there just happened to be a ramp close by. Unfortunately, I wasn't able to grab my camera fast enough. Coming to a stop for a thorough window squirting & wiping was all it took for the "Radar Ready" notice to pop back up. It's amazing how sophisticated the system actually is and how much effort Toyota expends to keep the interaction simple. That unexpected message that appeared on the screen (which sadly, I wasn't able to get a photo of) informed me of exactly what the situation was... something I need not be burdened with, unless necessary. That's much more like a computer than the generic problem like we all grew up with in vehicles. It reduces the learning curve significantly. You don't have to know everything to be able to drive now. Smarter vehicles, like Prius, having the flexibility of provided detail as in comes up due to having those 2 dashboard screens, in addition to the bigger one. Long story short, I squashed a bug. Eww!
- 5-08-2017** **80 MPH with Heat.** The return trip home, crossing all of South Dakota at very high speed, was cooler than on the way out to celebrate two birthdays with family. We ended up using the heater. What a contrast to using A/C a few days either. Heat would be more efficient, since waste energy from the engine can be used for warming, rather than having to generate it specifically for cooling. It meant that engine-only travel would be better. Turns out, there was a fairly strong wind blowing in a favorable direction too. It was somewhat pushing the back driver corner of the car. Not a tail wind, but it's still an improvement. Crosswinds are what we normally see along that horribly long stretch. Those are nasty in the Winter, causing surprise gusts and patches of ice. Anywho, the resulting average was a little over 50 MPG for that 80 mph travel. Sweet!

- 5-08-2017** **Charge On Highway.** I had a chance to play with Charge-Mode again. Cruising along at 80 mph, on that long highway stretch across South Dakota, turns out to be a great opportunity to replenish EV miles. I wondered if there would be a power penalty or a big efficiency hit. Nope. The charging process just goes about its business without any interruption to the driving experience. It's really impressive how refined the hybrid system has become. I was hoping for that type of response. There's nothing like flying down the highway witnessing it firsthand too. That's a good time for it, when maximum horsepower isn't needed. There's excess available, which can be optimized by balancing load. Remember how dynamic the power-split approach really is. The flow of energy adjusts constantly to take advantage of efficiency opportunities. That included sending some electricity to the battery-pack anyway. Switching to a more aggressive recharge mode isn't too much of a stretch to imagine. It's basically just refinements to the existing system. In this case, it worked very well.
- 5-09-2017** **Stale Gas.** There are many, many reports from Volt owners who clearly purchased the wrong type of vehicle. They point out how a single tank of gas has lasted nearly an entire year for them. Rarely ever traveling beyond that battery-pack's capacity is a clearly indication an EV with a larger one would have been a better choice. That's why the gen-1 Leaf is still selling so well. It's 107-mile range makes more sense than lugging around a system with have the range and an engine almost never used. This is why GM has moved on to Bolt. Proving the EV is quite capable with 238 miles of range makes selling one with a smaller capacity easy. Why bother with Volt, as a car anyway. In SUV form, that's a different matter. Volt forces a maintenance-mode, running the engine from time to time to use old gas. Letting it get stale can be a problem. That's far less of an issue for Prime, so much so, I doubt we'll ever here much owners. When the engine in Prime runs, it much more efficient than Volt. So, it's not as big of a deal. So of us actually travel too. Of course, some Volt households have old traditional vehicles for that. With a Prime, no need. I just proved that last weekend, in fact. The trip was 1,711 miles. So, no concern about gas from me. 80 mph for a bulk of that travel. Faster passing at times. 103 mph briefly, because resistance was futile. 50.1 MPG overall average displayed, without any recharging. It was totally worth it. Celebrating the twins first birthday isn't something you'd want to miss.
- 5-09-2017** **Missing The Point.** Wow! Talking about completely missing the point: "*Most Prime buyers are previous Prius or Toyota owners. Not the same for Volt buyers.*" It's somewhat bizarre trying to have a constructive discussion with a person who doesn't understand purpose. Sadly, that's quite common. Our terrible self-centered nature makes that far too easy. Fortunately, not everyone is that blind to what should be obvious. The goal of high-efficiency choices from automakers is to find a suitable replacement to their traditional offerings. Sadly, many get caught up with conquest, forgetting about change for the rest. Anywho, rather annoyed, I responded to that with: That fundamental shortcoming of Volt not appealing to GM's own customers was supposed to be dealt with by gen-2. That didn't happen. GM continues to struggle. Toyota halted gen-1 Prius plug-in, limiting it to just the initial 15 states after having recognized was the market truly wanted. Gen-2 stayed true to being affordable while delivering upon need to appeal to their own showroom shoppers. The goal is to replace traditional product-lines with high-efficiency choices, not conquest sales.

5-10-2017 **34.3 Miles of EV.** I'm watching the range estimate for EV driving as the temperature rises. No longer dealing with freezing levels, the system runs more efficiency. Even the battery itself works better (reduced internal resistance). There is obviously no need to run the electric heater anymore either. 6.4 miles per kWh was the resulting average from my commute to work this morning. That provided an estimated return of 34.3 total miles from EV driving. I don't know if that's what I'll actually experience upon returning home, but seeing 52 percent of the capacity remaining for that trip is encouraging. Unfortunately, traffic doesn't flow as well that time of day and hills are less in my favor. Of course, even if it just comes close, that's really encouraging. It means next month the entire trip could be without recharging at work. But then again, so little gas is used when the engine actually runs, does it matter? There is a certain thrill from witnessing MPG well above the low 50's estimate. It's much like the battery being rated for 25 miles, but returning actually EV miles well above that. It is the "*under promise, over deliver*" we get from Toyota. Yeah!

5-11-2017 **Why Indeed?** I was intrigued by the possible response answering this question could result in: "*Why can't GM offer a Bolt with electric adjustable seats, as one example?*" So, I jumped into the discussion with:

On Tuesday, we had a gathering of the local plug-in owners... Tesla, Nissan, BMW, Ford, Toyota, and of course GM were all represented. There are only 4 known Bolt owners in Minnesota so far. The one there I got to chat with for quite awhile had made her purchase in California and had the vehicle trucked home.

That comment about lack of content came up a lot. GM's effort to make an affordable EV offering faced the same type of tradeoffs as Toyota with PHEV. The catch is, Prime's design allows it to have a much lower production cost.

So, I got to show off the 11.6-inch screen (which is really sweet when you enable the multi-split feature and bring up info, like live weather radar), the color HUD (heads up display), and power seats which Bolt EV simply doesn't offer. There is the carbon-fiber hatch and dual-wave window as standout features. Other nice offerings, like heated steering-wheel, are often overlooked or not thought of at the time of purchase.

The complaint we heard quite a bit from Volt supporters about GM was the lack of advertising. There simply wasn't anything done by the automaker to draw interest. Toyota learned from that and has capitalized on that opportunity by making safety something to stir attention. All of the following are now being heavily promoted as standard in all Prime offerings, even the base model:

- Dynamic Radar Cruise
- Pre-Collision Braking
- Lane-Departure Detect with Assist
- Automatic High-Beams

That's something GM needs to do too. Their focus on conquest sales now has that obvious weakness. Safety is a strong selling point. New tech features like that are exactly what plug-in buyers seek.

Perhaps the 2018 model will have some package changes to make Bolt more balanced. Focus on EV and practical seating/cargo is not enough. There's more to purchase priorities for ordinary consumers.

5-11-2017 **Promoting Safety.** This topic comes up a lot now. Thankfully, it actually has substance. Remember 15 years ago when "*bigger is better*" was the approach for safety? Rather than avoid having an accident, as we see the desire for now, it was figuring out how to survive the impact. Ugh. People were gullible. Fear was a powerful motivator. Concern for those you squish with your vehicle was absent. People didn't care. I sure am glad we are past that ugly stage in automotive history. Phew! This is what I have to say about the situation now: Safety is a good way to promote the automaker's advancement. People end up noticing subtle aspects of the technology that really impress. That builds reputation. For example Toyotas' DRC isn't actually just radar. Over the weekend, I smashed into a bug while using it. At 80 mph, it's nice to find out how intelligent the system is. A warning popped up and cruise disengaged, informing me the camera had been obscured (direct hit by the bug) resulting in a safety compromise. I pulled off at a nearby ramp, squirted the windshield and wiped a few times, then resumed my cruise on the highway. Most people don't give much thought about what's actually needed to deliver tech like that. That bug smash was a great example highlighting of what was delivered.

5-12-2017 **Who? How?** Determining if progress is actually being made can be a challenge. Today's was how to interpret a response asking what "*NPNS*" meant. That was an antagonist chant of the past, now a very real problem for some. Saying too much reveals the hypocritical nature of their stance. Rather than having focused on goals, they belittled & mocked only later to find out those would become self-deprecating actions. Oops! It's too bad some get desperate to prove "*vastly superior*" at the expense of burning bridges. Oh well. This was the start of the response: "*No Plug No Sale. It was used a lot when new hybrids were being announced...*" Shortcomings of what has been stated were too plentiful to choose from, so I kept it to an overview:

Many things were said back then, but have since changed. In fact, some of the quotes above are out of context without knowledge how they were used, which confuses their meaning & intent. The situation now is that we are into gen-2 rollouts, putting some previous stances at odds with what the market has evolved into.

Toyota's latest delivery is what the "*lite*" Volt had been hoped to become... more affordable, more efficient, and more roomy. We still await that from GM. We also still wait for the first high-efficiency SUV offering. That's why there's such emotion stirred in some posts.

As the plug-in hybrid market expand & evolves, we are seeing similar advancement with EV offerings. That puts GM in an awkward position, having built Volt upon a "*range anxiety*" concern which no longer exists. What will they promote to sway their own customers to consider a plug?

This is why there are continued attempts push for a consideration of the bigger picture... asking who & how. The obvious example is public charging-stations. After all these years, there is still no clear message of intent. Who should be using them? How should they be used?

Another motto often quoted was this is not a One-Size-Fits-All situation. Notice the 11 reasons listed to buy an EV also apply to plug-in hybrids replacing traditional vehicles?

- 5-12-2017** **Charge-Mode.** I took advantage of charge-mode on my 1,700-mile road trip last weekend. To my delight, the impact to MPG from charging while going 80 mph was barely noticeable. There wasn't even a performance hit. The system is clearly configured seek out optimum operating efficiency to extract electricity. Those resulting EV miles came in handy later, when running around for dinner later in the evening after arriving at our destination and settling in at the hotel. It was also nice when driving to a coffeeshop in town for beverages before heading back out on the highway.
- 5-13-2017** **Beyond Desperate.** I stumbled across an article today comparing Prime to Jetta. Why such a bizarre pairing? I didn't take much reading to encounter the first outright lie, a dead giveaway this was a bias article written intentionally to undermine Toyota's effort: "*The high-tech Prius Prime Premium has an manufacturer's suggested retail price of \$30,060.*" Where the heck did that come from? Premium's MSRP is \$28,800. Advance's MSRP is \$33,100. Neither made any sense to compare to the Jetta anyway... since the writer put it up against a 5-speed manual. How is that even the slightest bit comparable? Plus's MSRP is \$27,100 and it is much nicer equipped than the \$21,715 Jetta in the comparison... which you are required to shift gears yourself. Ugh. Coming from a Tennessee publication and reviewed by someone with them for over 20 years, I just don't understand how such blatant greenwashing continues. That is a sign of being beyond desperate to impede change. On the opposite extreme, there was the less obvious, quite subtle "*no-nonsense body lines*" description of Jetta's look. That's the spin version of making "*plain*" sound appealing, very much an effort to retain the status quo. The really standout part of the article though was the fact that nothing was said about a test drive or any data presented related to results. Not a peep about actually driving the vehicle is good reason to be suspicious of intent.

5-13-2017 **Know Your Audience.** I keep pushing that message, over and over again. This time, it was to "*Awful awful design.*" That was the conclusion of a terse statement exclaiming disappointment for the acceleration times of Prime. That brain-dead belief of faster being an absolute necessity is what has blinded Volt enthusiasts from becoming supporters for an entire decade. The consequences of such unwillingness to accept want over need are becoming apparent now. Growth of sales is basically non-existent. Loyal GM buyers aren't interested. Sales are still stuck on the conquest type. The status quo has not been influenced. That alerts to upcoming trouble, especially with the tax-credit phaseout approaching. I pushed, yet again:

Comments here will have no influence on showroom shoppers, the target audience. They'll never see them, nor would they even care what an enthusiast has to say. They'll make their own decision by taking a test drive.

That was the secret of success for Toyota with Prius. It was available for the curious to try. They were aware of the reputation and saw it could be purchased for a reasonable price. No pressure, no doubt, no concern... just go for a test drive.

Prime builds upon that. Base model MSRP is competitive, even without tax-credit help. An ordinary 120-volt household outlet is all it takes to recharge too. That's a major challenge for EV offerings to overcome and a barrier other automakers strive to finally reach for plug-in hybrids.

In other words, look at why the reasons for purchasing electric are deemed important. Notice how nothing related to power is listed? That's because need has been exceeded and more simply doesn't achieve sales growth. It's not what buyers are looking for.

Know your audience.

5-13-2017 **Hooray!** A friend of mine picked up her Prime this morning. A few hours later, we got together for a brain-dump. I shared as much as I could based upon the type of queries she had. Not knowing what a new owner doesn't know is a challenge. Her willingness to let me bounce stuff off of her for User-Guide material was great. The experience ended up being quite a treat for the both of us. Parking in the 2 charging spots at the nearby grocery-store, we explored the screens in my Prime. All the while, we watched people walk by and check out her Prime. The charging-cord was quite visible the way she parked, so it was obvious that shiny new vehicle was something special. I'd pause my comments to point out yet another passerby stopping to admire. 2 people ended up taking photos. I was fun to witness. I got a lot of great feedback from that opportunity. I provided a bit of uncomfortable how-to information as well. To get that spot for her, I had to loudly say: "*She would like to plug in.*" A woman in a minivan parked in that spot, hoping no one would need the charger. The moment she realized her actions had been called out, she very politely vacated... and even said "*Thank you.*" That kind of polite response isn't what you'd expect. But then again, why did she attempt to park there in the first place? Needless to say, there is much about the ownership experience to share. Later when more charging spots are added to parking lots, they will be further back. Up in front for the first few is to promote their existence. You have to start somewhere... much like the one-on-one effort to share information today. Having great technology is a large step in the right direction, but far from the end goal of replacing traditional vehicles. Today's events contributed to that better future.

5-14-2017 **Claims of Sabotage.** I brought up that quote again: "*Why can't GM offer...*" That's what started a constructive exchange on the thread, so why not use it to conclude too? After all, there was a mix of responses... some not so friendly, others were a clear effort to move on to more intelligent discussion. So, I summed up with:

Enthusiasts absolutely insisted they had no way to influence GM, that we'd all have to be patient and wait for whatever the automaker determines to be important. Ironically, it was their own obsession with faster & further which sent a clear message to GM of priorities, never realizing those statements of preference in online posts would become the source of that determination.

Yet another example of Toyota's careful study of audience is the new venting system in Prime. If no one is detected in the rear seats, blowers back there are not used. Lack of weight in those seats cause the vents to automatically shut. In the front, if there isn't a passenger in that seat, that vent shuts too and all blowing is directed only to the driver. When a front passenger joins, the front vent automatically opens for them.

That automatic adjustment of climate control provides an efficiency gain. Energy for A/C & Heating is not wasted on unoccupied seats.

There's no reason GM couldn't offer that too. Unfortunately, priority was given to going faster & further instead. Nice amenities like that weren't considered important... because GM mostly just heard about a need to make Volt faster & further for gen-2 to appeal to a wider audience. Those enthusiasts screwed up their own fate. Growth is now struggling as a result, despite the generous \$7,500 tax-credit.

It's really sad that the message of balance was dismissed with claims sabotage, rather than the reasons for concern they actually were.

5-14-2017 **Higher Emissions.** Reports from first-drives of the new Hyundai Ioniq hybrid are revealing interesting results. MPG is indeed competitive with Prius; however, emissions are not. Measurements taken by an independent party confirmed the usual concern, that particulate & CO emissions are higher. Toyota's priority of keeping emissions as low as possible, even if it means sacrificing a little efficiency, are appearing to be something not shared with Hyundai. That's the very same problem we had with VW. Questions of how the MPG was achieved were drowned out by efforts to undermine Prius. I sure hope that nonsense doesn't happen again. You can easily see most people simply not caring, saying emissions are clean enough. That does echo similar concerns of the "*clean diesel*" campaign. It will be interesting to see how the MPG situation plays out. It may be a non-issue, if Hyundai didn't take into account the brutal impact Winter can have. Toyota has 20 years of experience with that. Will we see that level of sophistication from Ioniq owner reports? Reviewers rarely ever provide detail to properly portray what ordinary people see firsthand when leaving work after the car having been parked in temperatures well below freezing for over 8 hours. We'll find out in 9 months.

- 5-15-2017** **Charge Now.** It's the little things that get overlooked. I'm scrambling the best I can to find & document them. Today, it was emphasis on the "Charge Now" option. Toyota made the timer much easier to setup. You can now schedule repeatable events. The most obvious is morning departure. A time can be set, complete with climate-prep (running the electric Heater or A/C) prior to leaving. You don't need to do anything beyond just plug in when you get home. The system will figure out the charging & preparation time needs for you, then execute automatically... regardless of how much charge (if any) you ended with. It's quite handy. Unfortunately, the first few times with that, you'll probably forget about immediate needs... like plugging in to recharge while stopped for groceries. I did that today. Annoyed about getting 0 kWh while inside, I looked for a convenience option. Going through the menu is cumbersome, though sensible for scheduling. Where was a quick option? Yeah! I finally noticed. Rather than on the usual dashboard screen, there was a pop-up on the big touch screen. There's a simple "Charge Now" button which automatically displays when you shut down. I hadn't thought of looking there. Duh! I knew Toyota would have studied behavior and provided a convenience feature. Sure enough. There is was.
- 5-16-2017** **Hatchbacks & Minivans.** All those bold & meritless statements coming from GM on a regular basis is why that automaker gets blogged about so often. Bolt sales not meet hype expectations has resulted in a shift of focus over to profitability. GM wants to be the first to make a profit from selling EV. We know that they are currently losing money on each and that the \$7,500 tax-credit is absolutely essential for its rollout. Looking beyond that is a becoming more and more of a problem. Plugging in isn't discussed anymore on the big GM forum. Members simply aren't interested in small cars. A thread about Cruze hatchback barely stirring any customer interest highlighted concern. GM customers want Trucks & SUVs. That's why Volt never made any sense. That's the same reason why Chrysler's new Pacifica hybrid is already becoming an issue raiser. How many people are willing to pay that much for it? Being a high-efficiency people & cargo mover is great, but there simply aren't that many who is could appeal to. The importance of being affordable cannot be stressed enough. We need real efforts, not token gestures. Toyota has had a hybrid minivan for over a decade, but recognized the lack of potential here in this market. So, they tried a wagon and a SUV hybrid for diversification. When will GM finally try something else? How long will it take Chrysler? What about Ford? What about the others?

- 5-17-2017** **EVSE Shopping.** I have been doing some serious research lately. The goal is to purchase two level-2 chargers for home in the not-too-distant future. I held off even discussing the matter until getting my Prime. Waiting meant getting the latest & greatest. Not having Wi-Fi to monitor & collect information wasn't something I was willing to sacrifice. It's quite common to find 240-volt chargers with plugs now, rather than having to hard-wire them. Cords are much longer too. I wanted something waterproof as well, not just water-resistant. Waiting also means getting much higher capacity for the same price. Of course, the system in Prime won't be able to take advantage of that. But in years to come, you never know. It's very likely I'll have friends with plug-in vehicles visit. They'll be able to recharge while visiting. My particular situation is very nice. When hunting for a new house 2 years ago, I made sure adding lines would be easy. In this case, it will be remarkably easy. The 200-amp box is in the garage and the wall that would accommodate wires is completely open. Both lines can be run across the tops of the garage door and an outlet installed each side. We really got lucky with such a nice layout. Turns out, our electricity supplier (the local co-op) offers \$500 per line setup too. So, that effort will likely be entirely without cost. Sweet! Purchase of the two chargers (EVSE, which stands for "Electric Vehicle Supply Equipment") will be covered entirely by the rebate coming from my credit-card. I've been saving up that money for years to redeem toward the purchase of my next Prius. Needless to say, I'm quite excited about the upgrade opportunity. Though in no way necessary, the faster recharging could come in handy. But more importantly, the new lines will be setup for discounted service. They will be on a Time-Of-Use plan, which offers lower cost electricity when your use is during overnight hours and on weekends & holidays.
- 5-18-2017** **29.5 Miles.** EV range is increasing in my Prime as the temperature rises. I got 29.5 miles today from mixed highway/suburb driving, with it in the 50's. I can't wait until no jacket weather finally arrives. Warmer makes quite a difference. Of course, I do look forward to the return of Winter here in Minnesota, but not for awhile. The benefit of that vapor-injected heat-pump, battery warmer, seat warmer, and heated steering-wheel can wait. The remote climate and charging-prep can be used in Summer too. Both warming & cooling are full electric. What will make more of a difference... Heater or A/C ? Being able to run both from the charger prior to using the car will be interesting... and beneficial to EV range. I do really like driving with the windows open though. The next few months will be exciting. I really enjoy the discoveries made by owners about Toyota's upgrades during the first rollout year. This one, I managed to capture with my phone... [photo album 206](#)

- 5-19-2017** **Style.** Attacks on Toyota taking a risk by helping lead the way out of the bland styling rut automakers have fallen into continue. Ironically, it's with a surprisingly smug attitude: "*Hey, where's the Prime on that list? LOL*" And you guessed it, that came from a Volt owner proud about being vastly superior. Ugh. I swung back with: Many people want a "*blend in*" vehicle. That's why GM leaned heavily toward a Honda influence for gen-2 Volt. It clearly resembles the previous generation Civic, which was a very popular design. Ironically, the new Civic went in the opposite direction, taking a "stand out" appearance... which is proving to be popular. Prime's look abandons the expectation of what Prius should look like, with all the LED lights in front and aggressive grille. The curve of the lights & glass is back is obvious break-away from the "plain" we see everywhere else. In other words, some people define "*best*" as a good fit for what's on the road currently. Others prefer something that won't look old in a few years and take their chance on what could end up being a trend setter. After all, the status-quo is really getting outdated at this point. Looking at the dual-wave in person, you quickly discover there's more opportunity to styling than just what the industry has stuck with in the past.
- 5-19-2017** **Denial.** The extent a few individuals will go to undermine never cease to amaze me. A complaint was raised by a Volt owner who also owns an Iconic Prius. His claim is that hybrid system is terribly dangerous. Yet, all these years later (it's a 2007), he still drives it. That doesn't make any sense. Of course, his reply to mine was rather ironic: "*Your answer makes no sense.*" I pointed out how worries of traction-control issues with bad tires was overcome long ago, with the rollout of gen-3 Prius in 2009. He just plain did not want to accept that answer. I know that he's kept the Prius due to the credibility it supposedly brings to his argument and by the money he's saving from such high reliability. I was frustrated by the obvious effort to mislead. This is how I chose to deal with it: That's because you don't want it to. I could just as easily say GM gave Volt mountain-mode because battery was needed to supplement an underpowered engine. We know it was really to give owners greater flexibility... just like Toyota has done with the many extras for Prime owners. For example, a charge-mode is available. It's not necessary, but particular situations offer a benefit.
- 5-19-2017** **Audience.** This was especially amusing to read: "*Toyota is doomed.*" That came in response to an article pointing out Toyota's CEO comments about the upcoming paradigm-shift. It's something people without a business background just plain don't understand. Seen from only an engineering stance, they don't see the importance of balance... the fundamental barrier some Volt enthusiasts still haven't learned to overcome. Oh well. All I can do is treat it as a teaching opportunity: Know your audience. How much are you looking forward to GM finally delivering a plug-in for its own customer base? Buyers of SUVs are going to continue to guzzler. Neither Volt, nor Bolt, appeal to them. With Toyota, we can see how the Prime approach naturally just transforms their product-line... one which is well known as being boring... yet sell in massive numbers anyway. It's very easy to see how realistic adding a plug to the RAV4 hybrid will be. They are preparing for that transition by offering non-appliance appeal in the meantime. Prime is loaded with conveniences and creature comforts, along with a collection of safety features. Yet, it is already affordable enough to survive the loss of tax-credits. Toyota knows its audience.

5-20-2017 Distortions & Leadership. Yesterday's desperate effort to mislead about Toyota's goals & approach started with this: "*Contrary to popular belief, Toyota is not a technology leader. U.S. car companies created hybrids before Toyota under the "Partnership for a New Generation of Vehicles" program which started in 1993. For example, the GM Precept was a diesel hybrid that got 80 MPG. So Toyota basically copied U.S. hybrid technology for the Prius.*" I was really surprised by such a dishonest statement. So much of that isn't true, I wasn't sure where to start. So, I waited until this morning to confront it with a fresh mind:

It's distortions of history like that which keep me intrigued.

Toyota's exclusion from the PNGV program, which working prototypes weren't even scheduled for demonstration until 2000, led to an industry shock in October 1997. It was then that Toyota revealed Prius, stating it was already production ready and that sales would begin in December... just 2 months later.

Detroit got sucker punched. Those supposed 80 MPG cars were still just nothing but crude prototypes in 2000. There was nothing to copy. The anti-hybrid campaigning then began as a result of the expansion of sales from Japan to the United States.

Many years later, after the fallout of EV1, Two-Mode, and BAS had left GM with a reputation for disinterest in high-efficiency vehicles, there was the reveal of a new design effort for a vehicle to be called "Volt". It was then that problems got out of hand. Enthusiasts completely disregarded any of that past history, claiming GM was being innovative.

In reality, GM had extensive battery, motor, and controller experience at that point. That had already produced & supported all that. They even had a heavily promoted fuel-cell development program. Yet, the enthusiasts of Volt insisted their vehicle didn't leverage any of that prior knowledge... which is quite bizarre. Why wouldn't you?

Needless to say, it didn't work out anyway and the attempts to distort history continued... but now we know why. Toyota never lost sight of affordability. Keeping cost low was always a top priority... the very problem GM continues to struggle with.

In other words, Toyota is leading in the correct direction.

- 5-20-2017** **Behind.** The antagonist strategy is now becoming an effort to build the impression that Toyota is far behind. They avoid detail, just leaving you to the assumption that battery-size is the only thing that matters. It's quite annoying... to not have a way of countering the obvious greenwashing. Their desperation is telling though. Coming up with an effective means to deal with it seems to be going well. Here's what I posted on that today: Those who claim Toyota is "*behind*" are not taking cost, efficiency, or scale into consideration. Notice how GM's offerings are so expensive that they will be faced with a major challenge to overcome when their tax-credits expire next year? Notice how both Nissan & Ford have held off ramping up production for that very reason? Toyota is taking the leadership route that's slower, attempting to attract a much larger audience by offering a well balanced design. The obsession with faster & further is incomplete. It is only leadership to the first & second milestone in a long race. If the price is too high, its wasteful with the use of electricity, or only a small number are available, sales will be low. The ultimate goal of change won't be achieved until the shift away from traditional vehicles becomes the dominant sight on roads in ordinary traffic. Expect to be reminded of those other needs every time someone claims being behind.
- 5-20-2017** **Investments.** Some are so blinded by Toyota's fuel-cell investment, they simply assume EV offering could have been better off had the money not been split like that. It's a sad statement of our society. That one-size-fits-all view is so prominent, people are aware of the fact that they are not seeing outside the box. It's yet another example of not seeing the forest beyond the tree immediately in the foreground. Ugh. I fired back with: What are you claiming Toyota hasn't invested in? The chemistry & design required to propel Prime at 135 km/h (84 mph) without air-cooling was a serious investment. They found a way to make it cost-effective by augmenting the hybrid system too. So what if they invest profit into product diversification. That's ultimately more important than paying large dividends. And it's not like the electrical system in fuel-cell vehicles doesn't share some technology with plug-in vehicles. Optimization of motor production & efficiency is a benefit to both. Higher efficiency of Heater & A/C operation is a benefit to both. Lower cost and higher density of batteries is a benefit to both. Again, claims of falling behind simply don't have merit. The technology advancements are obvious. Toyota is clearly striving to deliver a profitable plug-in for the masses.
- 5-20-2017** **Terrible.** I was baffled by the lack of substance in the reply I got. It was just a ramble that Toyota could have developed more. There was literally nothing to work with. The claim was void of any merit. Yet, I responded anyway. This gave me ample opportunity to point out actual deliverables: Development of what? The lack of any detail whatsoever indicates it is not "*absolutely fair*" to make that "*falling behind*" claim. Vague doesn't cut it. All the components for EV propulsion are entering high-volume production. Prime is being rolled out to Japan, Europe, and the United States all at once. I'm tired of the statements without any supporting information. Ignoring other innovation isn't fair either. Why aren't you giving Toyota credit for embracing carbon-fiber, by delivering a hatch for Prime made from it rather than metal? Why aren't you giving Toyota credit for advancing curved glass technology, by delivering a dual-wave window for Prime to improve aerodynamics and introduce some style rather than just settle for plain?

- 5-20-2017** **Wrong Vehicle.** How do you point out buyer's remorse to an owner who doesn't realize yet they will end up having it? This statement pops up surprisingly often: "*Most people that drive PHEVs would prefer to drive them in EV mode for 100% of the time.*" I routinely hear from Volt owners gloating about how little gas they use, going 6 months or more without having to refill. Some of whom make that statement simply didn't have any other choice available. So, they bought a Volt. Why not when combined with the great incentives? The major price slash and generous lease discounts made that decision easy... back then. Now, things are rapidly changing. Prius Prime is more efficient in both EV and HV operation. It's also better loaded, even on the affordable base model. But if you still cringe from the idea of using gas, why not consider the choice of only having a plug? It's a fundamental question that abruptly ends arguments, as I witnessed firsthand upon posting this: That extreme would be an indication of having purchased the wrong type of vehicle. It makes no sense paying so much for an engine and hybrid system, then trying to avoid ever using it. What a waste. Just buy an EV instead.
- 5-21-2017** **VW Diesels.** Approval of fixes for the larger TDI vehicles and sales of the fixed 2015 inventory have stirred interest lately. VW diesels are the last of the dieselgate legacy. That intentional deception across the industry has really left an impression. Why bother? The MPG from plug-in hybrids is so much better, what's the point? Emissions are obviously cleaner too. It simply makes no sense. How will people be drawn to such an outdated & crude technology. The fuel itself is more expensive here as well. It's nice to finally see the status quo broken. Oddly, GM is still planning to push both Equinox and Cruze hatchback with diesel as an option. Thankfully, VW is focusing on plug offerings instead. They are investing in charging infrastructure... in the form of environmental damage payments, but that still counts as movement in the right direction. They are embracing the mandated change too. So, after all that nonsense hybrids owners had to deal with, at least things finally worked out. What a waste though. Imagined if none of the "*clean diesel*" deception had never taken place. Defeat in an honorable manner would have been interesting. Sadly, we know that the opposition almost always prefers to go down fighting instead.

- 5-22-2017 Ford CEO.** Very little has happened in the past few years from Ford. Remember the MPG scandal? There was a huge marketing campaign giving the impression C-Max was larger and more efficient than Prius V (the large wagon model). Neither was true. People didn't actually bother to compare though. We just got advertisement after advertisement. It was a "*halo effect*" approach that ended up resulting in sales of the vehicle itself... until it was discovered that MPG had been misstated. Oops! That resulted in a sales drop and payments to owners who had be misled. No only was the hybrid hurt, the misleading included the plug-in offerings. Neither Energi vehicle actually delivered as many EV miles as the rating claimed. Oops, again! Making matters worse was the complete disinterest in selling Focus EV, which ironically wasn't a problem with Toyota attackers. Those supporting plug-in vehicles weren't happy though. Producing so few made the purchase of one nearly impossible. Complaints about no inventory were common. Anywho, all that contributed to disappointment among my colleagues. From the point of view for stockholders, the entire market has been shrinking. Pushing the status quo with Pickups & SUVs has become a sign of worry... so much so, the CEO is leaving. We don't know if he quit or got asked. Whatever the case, this has become a sign of hope. With electrification a new source of opportunity in the saturated guzzler market, we needed some good news.
- 5-22-2017 Warm-Up Misunderstanding.** We are now getting deep into new ownership, where fundamentals are getting asked about. It's like starting all over again. I really feel like we are reliving the Classic rollout. That same sense of discovery & potential is easy to recognize. Examples are plentiful, like: "*As soon as the EV range hit 0.0, I could feel the ICE go on -- it did not stay in EV range pulling from the hybrid buffer of the battery. The green EV MODE light immediately went off and the ICE came on right away.*" Statements just like that is what I thrived on all those years ago. There was a group of us who handled the teaching moments. We'd provide information to empower, seeing that not doing anything would contribute to the growth of misconceptions. Those who found value in what was shared became the next teachers. It was quite nice watching them take over like that. Anywho, it's happening again. My contribution today was: That is a misunderstanding of how warm-up takes place. With an aftermarket gauge, you'll see that RPM of the engine is held back by using HV capacity. The battery is used as a buffer to keep emissions lower until waste heat for cleansing is available. Once warm-up is complete, that HV capacity is restored by the engine running to recharge as part of the usual hybrid operation.
- 5-23-2017 Whoa!** There's a photo of me taking a photo of my Blue Magnetism with a sunset in Wyoming as a backdrop speaks for itself. In fact, I didn't need to say anything. My sister-in-law on the other hand screamed out: "*Don't move, I'm getting my camera!*" I didn't realize how amazing the entire scene looked from the on-looker perspective. I'm quite thankful to her for capturing such a unique photo moment. It be added to my homepage, eventually. There's quite a collection of photos growing. Lots to learn & document. So little time.

- 5-23-2017** **Fake News.** We're not seeing that as often for Prius now. It certainly hasn't went away though. Today, it was an article about "*massive failure*" of the latest generation. As expected, I was annoyed. There was no data whatsoever. All we got was a series of comparison adjectives... *faster, nicer, biggest* ...along with vague measures... *big, more, better*. That complete absence of detail is how the misleading continues. Those sources attract readers who aren't interested in facts, they just want validation. It's the same nonsense many of the blog comments do. People just latch on to what they want to follow and ignore anything that reveals contradiction or hypocrisy. Antagonists do that too. Think about how effective that was in the previous election. Was unbiased news sought out or were some just following a feed automatically providing "*you might like*" content? It's a dangerous trap to fall into that many had no idea could happen. Being naive is dangerous and there are those who intentionally exploit weaknesses of that nature. Watch for it. That type of activity is common. It's a similar problem to those who enable. They don't even realize their own participation serves as validation & support. Oops!
- 5-23-2017** **Last Diesels.** It's rather bizarre to hear about attempts to sell the last remaining diesel cars from VW. Their vehicles with TDI were sold with the "*fun to drive*" trait as the primary purchase incentive, followed by great efficiency. That aspect of performance has been lost, due to the pollution-control measures needed to be taken for reducing emissions. That leaves MPG as the big appeal. 33 is terrible though. Yet, that's what the automatic delivers. The value is derived from 40 highway and 29 city. Neither of which is impressive either. Prius unquestionably delivers better. The manual transmission only increases the combined to 34 MPG. Such a tiny bump for the requirement of having to shift yourself is a joke. I see 54 MPG combined without any effort whatsoever, not even plugging in. Thank goodness the nightmare of diesel deception is finally coming to an end. No more new diesels will be sold in the United States after those last 2015 models are gone.
- 5-24-2017** **First Data Photo.** Lots of data collection taking place. Organization for sharing isn't exactly coming along smoothly. Eventually, I will get caught up. This initial ownership experience is always a challenge. It certainly is fun though. There's lots to discover. Toyota upgrades are always quite comprehensive. That means lots of anecdotal observation, looking for patterns until you recognize something to further research. That's where the photos come in handy. You can look back later to confirm what you think you found. I'm only on my first. Much to go still. It's a start. Each of the previous 4 Prius have been rewarding to document... while doing everything else still. Wish me luck.

5-25-2017 **Great News?** I questioned this claim: "*Great news that PHEVs already outsell gas hybrids in CA. That's the real reason Mr. Toyota is scared of EVs.*" The attempt to change what was actually said to instead project a sense of fear isn't something I'm willing to tolerate. Antagonists did that years ago with what Toyota had stated about lithium batteries. The automaker said cost was the issue. Rhetoric changed that to fear by claiming Toyota was afraid of fire risk. It was greenwashing, just like this attempt today. So, I fired back:

That's called anecdotal reasoning. It is actually that gas prices are very low and plug-in hybrid choices are growing. There's also the reality of first-year surge combined with the rapid approach of tax-credit expiration. That's also a distortion of what was actually stated. The comment was "*boring and expensive*", not scared. It was for good reason too.

Notice how GM is keeping quiet about Bolt sales expectations? They is uncertainty about the market. Staying quiet about it is their choice, especially since a compact wagon doesn't target their own customer base of SUV and Truck buyers. Ford has been almost completely out of the picture too. What about them?

The true situation is the industry is approaching a tipping point. Notice how Volt doesn't have an audience anymore? If you want to drive as much EV as possible, just buy an EV. Why sacrifice EV range for the sake of having an HV system you try hard to avoid ever using?

Prime is the first of the affordable plug-in hybrids offering a clear path away from both traditional vehicles and hybrids without a plug. Its MSRP for the base model is so low, the tax-credit isn't even required to reasonably justify the purchase.

None of the current EV offerings can hold their own without the \$7,500 subsidy. In a few years, that situation will hopefully change. That's what Toyota is planning to capitalize on, as are other automakers. In the meantime, there is battery-production and charging-infrastructure to focus on.

5-25-2017 **More Diesel Trouble.** What an unexpected turn of events. A class-action lawsuit was filed today, claiming GM also cheated on diesel emissions. The scope of this is over 705,000 trucks. Supposedly, the diesel Duramax offering from 2011 to 2016 exceeded regulation levels too. These aren't smaller cars either, like Jetta. These are giants, guzzlers even when using diesel. That potentially could result in a fine from the EPA greater than that for VW. It will be interesting to find out what our government agencies do. CARB will obviously get involved at some point. It depends upon the data. GM's response has been flat out denial. You can imagine how defensive they'll be to protect high-profit vehicles like that, even if they didn't do anything wrong. VW lost their case when the actual software coding revealed intentional deception. If the same is found with GM, there doesn't seem to be any way to save diesel. Their abandonment of Two-Mode was always highly suspicious. Refining that gas hybrid to deliver greater efficiency than diesel made sense. Seeing that Toyota continued to push with Highlander hybrid's efficiency and towing-capacity should have provided incentive, especially since large SUVs continue to be so popular. Oh well. We'll find out how this next chapter in diesel trouble plays out soon enough.

5-25-2017 **Hypocrites.** I really get a kick out of how some people back themselves into a corner. When Toyota ceased rollout expansion of Prius PHV due to the trouble it observed GM having with Volt, the spin turned ugly. I knew real-world data collection in the markets already reached was more than enough to properly determine what the next generation design should deliver. Knowing requirements is vital. Setting goals confirms that consumer interests are being pursued. The ending of Prius PHV indicated to me that Toyota had indeed taken that step. Antagonists went nuts though, exploiting the opportunity to mislead. Quite a number of their claims are now a regrettable chapter in history. Reminding them of what they stated calls them out as hypocrites, knowing there's not a thing they can say to recover from such a wrong assumption. They didn't want to accept what had been learned. Fortunately, that feeling of having made such an obvious mistake actually passes. Phew! Looking forward is possible if you give them a sense of hope. In the most recent example, it's stating the impressive technology used by Toyota in Prime will benefit the entire industry... rather than pointing out the shortcomings of others. I kept it simple with, but included a reminder of the past: The more important matter is to consider all those posts that claimed Toyota wasn't investing in EV advancement only to now discover they've delivered the automotive industry's most efficient electric heating solution.

5-25-2017 **Obsolescence.** I'm on the offensive now. There's no reason to tolerate antagonism anymore. Enough real-world data is now available to fight back. Claims of being not he defense don't work when you are calling the shots. This is what caused me to pull the trigger today: *"The rapid pace of development makes obsolescence a factor in declining EV values. Remember, the first LEAF and Volt appeared just 6 years ago. At 235 miles the Bolt's range represents a more than 160% improvement over an original LEAF's 70 miles..."* I took the time to put Volt enthusiasts in their place, along side other plug-in hybrid supporters. No more of the "vastly superior" nonsense. They need to learn to focus on goals. It felt good to post this:

What does obsolescence mean? Lower EV range? If so, that disregards the fundamental problem many have struggled with for years... understanding diminishing returns. At some point, range doesn't matter. When a plateau is reached, people focus on other priorities, like affordability.

For example, Volt reached it with gen-1. GM chose to increase EV range for gen-2 anyway. Why? It directly contradicted their own studies of how much was needed and made the sacrifice of not being affordable in return. What is the point of having an engine if owners do all they can to avoid ever using it? Just buy a Bolt instead. 235 miles is profoundly more than 53. That's an improvement of 443%.

Watch what happens with Prime. There isn't any reason to extend range beyond GM's original goal of 40 miles. Owners routinely see 30 miles already. Improvements from battery advancements will materialize in the form of increased profit for dealers, a vital factor in sales growth. That rise in demand will keep resale values from plummeting. Prime also delivers a very high return when the engine is used, keeping it competitive with even the most efficient hybrids. You're getting more than just a "range extender". It doesn't feel like a penalty either. MPG is impressive under all circumstances.

In other words, obsolescence is defined as those vehicles unable to co-exist with EV offerings. We'll see other priorities playing a strong role in the next few years. That will weed out the choices which struggle to be competitive without tax-credits... making them obsolete.

- 5-25-2017** **Terrible, continued.** We've had a series of posts claiming he isn't "*bashing*" Prime, yet it continues to anyway. Bashing is stating a negative stance without providing anything constructive. That absence of any type of detail is the problem. What are we supposed to do when nothing is shared to respond to? With Volt, I point out aspects like price and time with specific values. That clearly declares expectations. Heck, even those complaining about acceleration-speed state the desired measure. For that matter, we get that all the time for EV distance too. This was the latest from him, wondering why some people are so defensive: "*The *Prime Boys Club* all hate me. Maybe it's because I expressed an opinion that the car is overpriced.*" At least criteria was included this time, but still... no value. Ugh. I posted this in return: Nope. It came from making such a vague generalization. We see a lot of cherry-picking and data omission. But to not include anything at all, there was no way to respond to a complete absence of information. To get useful feedback, provide some type of detail to work with. Also, keep in mind that being "defensive" turns after being provoked repeatedly. It's an invitation to play offense, armed with a wealth of real-world experiences to share.
- 5-26-2017** **Chargers & Meters.** The 7-year anniversary of having upgraded from my Iconic Prius was to arrive with high expectations. Not only would that potentially be the same day my wife could have her Prime arrive at the dealer, it was also when her first aftermarket accessory for it would be delivered... the fancy floormats. We were also expected delivery of upgrades. For the 2 plug-in vehicles to be parked in our garage, we'd be getting high-speed chargers. Since those aren't necessary, I never bothered for my Prius PHV. Waiting for a newer charger model offering more power than necessary and Wi-Fi connectively, all for a price lower than in recent years was good reason. The delay would result in both of us upgrading at the same time. Today was that day. 2 boxes arrived at our doorstep. Each could draw 40 amps of electricity at a rate of 10 kW. That's far more than what Prime will utilize, but forward-compatibility is nice and friends visiting with newer recharge systems someday would be able to recharge while parked in the driveway. The other delivery today was 2 meter-boxes. Both would get have a Time-Of-Use meter to control pricing for the 240-volt connection they'd each have a dedicated line for. This is a new approach for my service provider. That co-op hadn't dealt with the request for 2 in the same garage before. That's interesting situation, which shouldn't be a big deal... since they already know I'll be helping to promote what they offer, my reputation for leading was already common knowledge. In fact, I had already chatted with that main contact about my plans back at a plug-in owners group a few months ago. Little did either of us know I'd be requesting those services so soon afterward.

- 5-26-2017** **Average Buyer.** Sometimes, you get a response that actually shares your observations: *"For the average car buyer, this argument has just never gathered much steam. Up front cost is first and foremost in the mind of the typical buyer..."* Hanging out on hostile venues means that won't happen often. So, I was happy to see that. It's too bad the perspective of enthusiasts is so selective. They don't notice the average buyer. All they see is the expertise they share. Oh well. They are happy. They just don't understand why others wouldn't be too. I try to explain: That's why references to engineering have also fallen on deaf ears. It doesn't matter how favorable those other numbers are. They simply aren't interested in any presentation beyond up front cost. Heck, that's even the reason why there has always been a push for point-of-sale rebates rather than filing for a tax-credit for your purchase a year later. That up front payment is what sells the high-volume vehicles. Like it or not (and clearly some don't, hence the *"nicely under \$30,000"* issues), that's the way it is.
- 5-27-2017** **Mounting Chargers.** The units themselves are heavy & robust. Seeing how thick the cord was, placement for the charger took extra consideration. I had already called an electrician to get an estimate scheduled. For maximum flexibility, as well as saving some money, the plan was to do the mounting myself. I came up with a method of hanging oddly shaped items that weighed a lot in the garage already. It involved a 2-foot metal bracket, allowing the ability to drill into studs directly while still offering the ability to adjust placement. That's how the bike-rack was hung from the wall. It was proven an effective approach. There were slots every inch. I could bolt anything needed to attach anywhere it was needed. In this case, that was perfect for the aluminum hanger on the back of the 240-volt charging unit. That was really important, since location of the thick cords was a very big deal. Length of the one for the 14-50 outlets we'd be having install were only 12 inches. I wanted to maximum the reach & convenience of the other too. You'd be surprised how short 24 feet can be. Thank goodness I waited. Years ago, 16 feet was considered long. Thankfully, aftermarket builders have been able to offer more for less such a short span of time. And fortunate for us, our garage has a 200-amp service-box near by, close and without obstruction. In fact, both will be surprisingly easy to accommodate. That's something I looked for when we were house hunting, knowing years later that location would be a nice benefit years later when adding chargers. Some builders still don't take such a need into consideration. Having to drill through floors & walls isn't something many homeowners want to deal with. Anywho, I got both mounted today. The placement worked out great. We'll both be able to plug in without tripping over cords or having to spend much for the convenience.

- 5-27-2017** **Why 199.9 MPG?** That's a good question. It was stated as a comment this way in a post: "*Why Toyota changed to MPG reading on the car to max out at 199.9 is beyond me (even though it goes up to 999.9 MPG you just can't see it).*" We, that's people here in this United States, have been greenwashed into believing the larger the number, the better it is. In reality, efficiency consumption doesn't actually work that way. The results are non-linear... in other words, misleading. This is why most of the rest of the world doesn't use that type of measure; instead, results are stated in terms of distance/fuel units. When outcome of a drive is stated in those terms, you know exactly how much fuel was actually used. As telling as MPG may seem, incremental gains in efficiency aren't actually as telling. 1 MPG improvement on the lower end, when the vehicle only gets 30 MPG, is far more of a gain compared to a vehicle already getting 100 MPG. The math is simple too; unfortunately, most people don't bother. 1/30th is much more than 1/100th. Now compare 1/200th to 1/999th. That's 0.005 gallon compared to 0.001 gallon. The difference is tiny when you look back at the 30 MPG, which calculates to 0.033 gallon. It's a shame so many people fall for the greenwash. Success of that effort to misleading was so effective, the EPA's attempt to introduce distance/fuel unit of measure is still barely getting any attention. Thankfully, EV efficiency is measured in terms of miles/kWh. The hope is to avoid the same MPG from the start, not allowing the deception any chance of spreading to electric-only vehicles. We do still have to address the problem with plug-in hybrids. Here's how I stated Toyota's decision: Study of the market revealed an issue with diminishing returns. Customer understanding of the system overall showed little value reporting numbers higher than 200 MPG. Most people have no clue how the electricity & gas interplay. That's why Toyota only shows one electric motor on the display, even though there are actually two.
- 5-28-2017** **G-7 Summit.** The start of an article highlighting outcome stated it as: "*The other six members reaffirmed their commitment to swiftly implement the 2015 accord to limit greenhouse gas emissions.*" That situation was doomed anyway. We knew the other 194 nations participating wouldn't matter, since our new leader doesn't believe in cooperative efforts. Having to also listen to a close relative complain about the previous administration and claim that nothing good came out of Tesla was a harsh reminder of how poorly informed many people are. He also believed our new president's claim that efforts like this are job killers. That's more of that scare tactics we've seen countless times in the past. Ironically, in a twisted way, it's actually true. If we don't invest in the new technology, we'll miss out on great economic opportunity. He believes the opposite, if we move away from the tried & true, we'll end up losing what we've worked so hard to establish. Sadly, that backward mindset is quite common. We've become complacent... so much so, we now praise ourselves for accomplishments that don't actually achieve goals... hence why I've been so hard on Volt enthusiasts. Poor implementation of great potential is such a profound loss, which some still don't see. They make excuses & dismiss, just like this president is doing now. Rather than strive for a better future, it's a desperate effort to hold on to what we currently have. That's really going to cost us. It won't take long to come to the realization of having made such a huge mistake either.

5-28-2017 **Mistakes.** There are a few who still don't understand: "*And btw, GM's original research centered on 40 miles, not 25.*" That entitled me to return a BTW of my own, which I didn't hesitate to do:

That was what had been heavily promoted. It wasn't the actual focus of development though. Big difference. Think about how early that "*nicely under \$30,000*" target had been set and the hope for "*50 MPG*" following depletion.

Whenever I brought up how unrealistic that was for the 2010 rollout, it was enthusiasts who brought up the "*40 mile*" expectation. That wasn't GM. In fact, what we got from GM quickly became a disaster. Remember that terrible "*230 MPG*" campaign? That didn't bring up mention of EV range.

So, I continuously brought up the topic of heater use, pointing out how much of an impact that would have on Winter driving. That was always met with denial & dismissal, even after rollout when confirmed correct.

That's how the 25 came about. It was an effort to look beyond the gen-1 shortcomings, shifting focus to what would actually help sell Volt profitably at high-volume levels. Toyota took all that online banter seriously, adding it into the consideration factors for their gen-2 design. Combined with the wealth of real-world data they had collected from their own gen-1 experiences, there was a great deal of potential to tap into.

Prius Prime was the result. It delivers a "*25 mile*" rating, even with heater usage factored in. It also delivers upon the "*nicely under \$30,000*" target. And for the "*50 MPG*", that hope has been greatly exceeded. Owners routinely see much higher following depletion. In other words, it is the version of Volt enthusiasts had always hope for.

Too bad if that's not what you want to read about. It's not like GM doesn't have the ability to deliver something similar. They just don't want to. Like enthusiasts, they feel the word "*compromise*" has a stigma, rather than being an effort to deliver balance as it is actually defined. Having increased EV range to 53, rather than just leaving it at 38 was a mistake.

5-28-2017 **No Charge-Mode.** It has been interesting to read about gen-2 Volt owners use of Hold-Mode, how they keep wishing there as a Charge-Mode available instead. They'll use regen to push EV range beyond that of when they pushed their "*Hold*" button. It's what Prius PHV owners called "*stacking*". You could add to the EV capacity available, but only by reassigning electricity generated from braking. You couldn't actually just run the engine to recharge the battery-pack, as the system in Prius Prime offers. The reason GM avoided it was the MPG penalty is quite noticeable. Their HV operation isn't anyway near as efficient as Toyota's design... and enthusiasts hate when I make any reference to that reality. So, I tend to quietly just lurk when things like this are posted in those discussions: "*The Prius, 135 miles, 55 mpg, 2.45 gals used @ \$2.579/gal = \$6.31. The Volt, full charge 16 KWH, \$1.80 (all cost taxes, fees, delivery charge, everything) 65 miles on gas 1.24 gals @ 2.579 = \$3.20 + \$1.80 = \$5.00, savings of \$1.31 over the Prius.*" That caught my attention. The poster had avoided mention of Prime. Such an obvious exclusion is clear evidence of not being constructive. Looking closer at the data itself though concerned me. Notice how he didn't actually state MPG for Volt? Dividing that 65 by 1.24 gives you 52 MPG. How is that an attempt to be honest? The highway rating is 42 MPG. Of course, the 55 for Prius wasn't right either. I'm thinking his embellishment of one was used as a justification for the other, even though their values weren't realistic. What got me those was the 65 miles itself. To travel a total of 135 miles for that comparison, the Volt would have had to deliver 70 miles of EV on the highway. How is that even remotely correct? Was his hope that no one would actually do the math to check the figures that were posted? Grrr. I'm so sick of greenwashing like this. There's no excuse for such misleading efforts. Makes you wonder what they'll do when it becomes common knowledge about Prius Prime offering a charge-mode.

5-28-2017 **Understanding EV.** Now that we have Prime, the first Prius with a plug available nationwide, hope has been that understanding EV would be less of an issue. The larger pack offers more power, enhancing the design already part of the system. True, it was an augmentation with PHV. With the next-generation, that line is blurred, since the addition of a one-way clutch technically changes operation. Nonetheless, the perceived behavior is no different. It's just more power is delivered. Reaching mainstream consumers means finding a way of conveying benefit in terms you don't need any type of background for. If they can pick up on the basics quickly, the desire to find out more comes naturally. That's why the test-drive has been such a powerful tool for stirring interest... which some certain enthusiasts still don't grasp the importance of. Oh well. It's not like I've having been trying to convey that message. In this case today, it was on the big Prius forum to an owner wanting more information. I replied with: Electric-Only operation is based on kW draw from the battery. If demand is low, the top EV speed will be faster and automatically engaged. This is known as "*stealth*" mode, since it is an inherent part of the hybrid system. That EV button offers a mode you manually engage. It draws more from the battery, giving you more power but at the tradeoff of a slower speed maximum.

5-28-2017 **Signature Change.** How to display my real-world data at the conclusion of each post, in an automatic signature, was a problem with the switch from PHV to Prime. This is what my final entry was before the upgrade: "**91,355 miles 1,286 gallons 7,544 kWh 71.0 MPG**" With the precedent having been set about not reporting either gallons or kWh, I had to seriously consider the value of reporting MPG. Those terrible Volt enthusiasts who fought the effort to exclude gallons and kWh clearly didn't care about misleading. Just MPG was their focus. They'd tell you what it was and how many months between fill-ups. Actually fuel consumption of either type wasn't included. Heck, it was rare to even be told a distance. So, after all those years of their insistence to report that way, they have no choice but to deal with it is now coming from Prime owners too. The antagonist posts, always claiming vastly superior stance from their MPG number, was incredibly disruptive. Irony can provide ammunition though. I can fire back the very same thing now. Treating Prius as player on the same team was never acceptable. Too bad for them. If their goal really truly is to replace traditional vehicles, they have no choice but to accept another vehicle actually achieving that. So, to all who read my posts on the big Prius forum, they will now see real-world data in this format: "**2,075 miles so far, overall average: 100.5 MPG**"

5-28-2017 **EVSE Purchase & Installation in 2017.** I started a new thread on the big Prius forum:

Doing a search, you'll find a lot of outdated information. Too much has changed since plug-in rollouts began. So... let's start a new thread with facts relevant to 2017.

Since back in 2012, I have been recharging my Prius (originally a PHV, now a Prime) at home by plugging into a standard 120-volt outlet. In a few days, we will have 2 Primes in the household. That means capacity must be added to the garage so my wife and I can both recharge at the same time.

Taking advantage of faster recharging from 240-volt service and discounts from Time-Of-Use meters requires purchasing EVSE (Electric Vehicle Supply Equipment) chargers and running new power lines. The following documents what I have done so far...

We decided to get hardware as forward-compatible as possible. If we ever upgrade a vehicle in the future or a friend with an EV visit, we'll have a nice plug already available. We also get \$500 per vehicle setup from our local electricity provider. So, why not?

Prime has a maximum draw of 3.8 kW (as observed when plugging into a public station). The charger we found with a Wi-Fi interface is capable of delivering 10 kW. That's plenty good. With a 200-amp service-panel in the garage, feeding each 40-amp charger with the needed 125% capacity requirement wouldn't be too much of an effort for an electrician. #8 gauge wire and 3/4 inch conduit is more expensive though. Smaller chargers wouldn't need sizes that heavy or large.

The cord for the outlet plug is only 12 inches. But having a line put in specifically for the charger shouldn't make that an issue. It won't be hardwired either. So if removable is ever needed, no big deal. The cord for the car plug is 24 feet, so that will reach anywhere in the garage and parked outside in the driveway.

JuiceBox Pro 40 is the EVSE we purchased. \$599 each. I now have them mounted on the wall to confirm cord placement and internet connection are well suited for both of us prior to getting an estimate from the electrician. I also got meter boxes for each of the lines.

Progress updates & photos to follow.

Anyone else have a recent purchase & installation experience to share?

- 5-29-2017** **5,700 Available.** The anticipation for this month's sales results is becoming apparent. Threads in forums are popping up ahead of time. That's unusual, but May 2017 is expected to be rather significant. Last month, Prius Prime beat Volt for the first time, despite Midwest rollout having barely begun by the end of April. That heightened awareness of the struggle GM has had with sales growth... the very problem I emphasized as a major concern for gen-2. The biggest issue though is Bolt. GM chose the following states for inventory availability by May: CA, OR, MA, MD, VA, NY, NJ, WA, CT, ME, RI, VT, NH, CO. Ordering began for the last 6 in March. The others were stagger earlier, with the first 2 starting in October last year. Needless to say, if there was a waiting list, those would have been fulfilled by now. Having 5,700 listed as available is a lot. Dealers don't want the upcoming clearance markdowns (they usually start shortly after the 4th of July) to include first-year offerings. The next 2 states are FL and IL. Both have very small counts already. Is that the result of dealer orders or GM assignments? Needless to say, there's quite a bit of uncertainty... hence the lively discussions. My perspective is Bolt's resemblance to Fit & Versa and unfamiliar body type to GM customers spelled doom from the start... a pattern we recognize as a problem for Volt. With Tesla & Leaf arriving in the next few months, things aren't looking good. Remember, the phaseout of tax-credits will be yet another issue to deal with in the next year. Sales will become even more difficult then, especially with Hyundai entering the mainstream plug-in market.
- 5-30-2017** **Delivery Confirmed.** The holiday weekend didn't include a shiny new Hypersonic Red Prime. Oh well. It's worth the wait... which didn't turn out to be that much longer. My wife and I couldn't commute to work together today. Her commitment this evening meant I was on my own. So, I took a detour on the drive home and swung by the dealership. Sure enough. There in the back lot, delivery confirmed. What great timing. I was able to see it even before our salesperson. Sweet! That means tomorrow will be trading in the old car and driving home with another plug-in hybrid. Hooray! Of course, we only have one outlet to share in the garage. Thankfully, that won't be for long. And rather than just adding another 120-volt line, we'll be going all out with 240-volt for each. Yeah! What a rare opportunity. It's a bit of a cheat too. We just happened to be at exactly the right place at exactly the right time. The order wasn't actually ours. There was a customer who must have had financing or some other circumstance mess up plans for that purchase. We pounced on the chance to snap it up. So, rather than the usual painfully long wait other had to endure (which included me), my wife only had to wait a few weeks. That's amazing luck. We'll do our best to pay forward the blessing by helping out those seeking their own Prime purchase. Much can be shared about the purchase & ownership experience... which starts tomorrow for my wife. Yippee!

- 5-31-2017** **Prime Purchase.** It was a memorable experience. Neither of us had anticipated getting a second plug-in vehicle so soon. Things just fell into place though. There was that beautiful new Prime waiting for us to finish with the paperwork. That's takes awhile. There's some setup to complete in the meantime as well. Timing looked perfect though. Recharging of the battery would be done very close to when we'd be ready to drive home. Sweet! All went as hoped. No surprises. It was a beautiful evening too, quite a harsh contrast to the torrential downpour of rain when experienced when placing the order. Arriving at home sure was surreal. When the garage opened, there was my Prime. The red & blue would soon be together... sharing a single 120-volt outlet. What a rare experience. Fortunately, it will only be another week or two before the new 240-volt lines are added. Knowing we'll get \$500 for each vehicle from our electricity-provider for doing that sure made the decision to upgrade easy. We'll be set for many, many years to come. My wife and I now have Advanced model Primes. This sure is going to be interesting.
- 6-01-2017** **Huh?** I wasn't the only one confused upon reading this: "*However looking at the two vehicles, one screams appliance, the other statement.*" I think it was intended to be an insult to Toyota. But it was a comment emerging from a discussion of i3, which is definitely a unique looking vehicle. It doesn't look like anything else on the road. Prius is well known for being basic reliable transport from point A to B. The radical styling gen-4 welcomed broke that stereotype and Prime refined it. I was truly baffled what the poster actually meant. Others sound off to that affect as well. Confused and without a point made it too irresistible to pass up. So, I jumped into the discussion: BMW i3 compared to Prime. Huh? What statement? I constantly get compliments about the surprisingly sporty front and curved back. The array of headlights and that wavy glass certainly don't resemble any appliance. Prime... it's not your father's Prius.
- 6-01-2017** **Excuses.** Sales results for May brought out the spin, specifically GM defenders. Bolt inventory far outweighing purchases isn't a good sign. The supposed demand was expected to struggle with supply shortcomings. Instead, the hotspots have many available for immediate ownership. The lead ahead of Model 3 and the new Leaf isn't amounting to much. Volt is in a worse position. This is the second year for gen-2 and sales are flat. We saw between 1,600 and 1,700 monthly for a large portion of gen-1 availability. Seeing a balance of 1,800 is a clear sign of not having achieved growth. We do expect a growth in the outlash against Prime though. Enthusiasts won't be happy with the reality of Toyota having kept focus. I took the offense and fired off this before anyone could get a chance to attempt that type of attention: GM set a target of "*nicely under \$30,000*" for good reason. It's what the bulk of their car-buying customers would be willing to pay for a plug-in offering. The MSRP for both is simply too high. GM chose not to configure either vehicle for mainstream acceptance. The size of the packs and power of the EV impresses enthusiasts, but that doesn't compel their own showroom shoppers to purchase... even with the generous \$7,500 subsidy... which will be yet another barrier to deal with when phaseout begins mid-cycle. Toyota didn't make that same mistake. They kept focus of making what they offered something that could realistically result in high-volume profit sales, then rolled it out worldwide in the first year. No excuses anymore. It's not badging. It's not advertising. It's an unwillingness to accept their own pricing target by configuring a choice that's affordable for their own loyal customers... those who just choose to purchase a Cruze, Malibu, or Equinox instead.

6-01-2017 **Fallout Coming.** What a monumental day. It was the first having 2 plug-in hybrids at home... and only 1 outlet to plug into. Fortunately, we also had an electrician scheduled to estimate cost of running 240-volt lines for each Prime. We're not skimping on specifications either. Both will have excess capacity, so no need to upgrade years later. Good thing too, since the need to promote starts with understanding what is to come... and today just happened to bring the biggest newest **ever** in the history of environmental efforts. Hearing that the United States will not support measures to reduce carbon-emissions impacts every aspect of clean. Putting America first means turning our backs on allies. What a terrible thing to do. Regardless of climate impact, these were partners. You don't just walk away from people working with you like that. No support from the government means a lot of grassroots sweat those here. It will be up to us driving the affordable solutions to help influence change. Being part of that is great, but the necessity is unfortunate. Who knew our president would choose to do something so careless? In the name of saving jobs, he said we would withdraw from the Paris Climate Accord. That's so embarrassing. Not investing in the future is what causes job loss. We are literally abandoning opportunity. Rather than choosing to be part of the new manufacturing endeavors, he is guiding us to a dead end. Investing more in oil, natural gas, and coal is absolutely nuts. All are dirty and non-renewable. What an idiot. I can't imagine what those who voted for him will think when they realize the damage they contributed too. Of course, they may not ever find out. Their children will though. What a sad day in our history.

6-02-2017 **Spreading Electrification, push.** There will be some winners and some losers. The point is to continue pushing forward, not to celebrate flat sales. Yet, that denial of the true situation persists. Ugh. This was my push that started out the day on a thread highlighting May results: What compels a GM salesperson to convince a GM customer to choose Volt rather than Cruze with a much lower price? Take a look at Prime. The array of headlights in front, the dual-wave glass in back, and the distinct LED flare of the brakes, all make it difficult to label as an regular Toyota offering. Upon closer inspection, you'll notice the carbon-fiber hatch and the translucent grille. You wouldn't expect those as a mainstream choice either, especially with a MSRP of just \$27,100. That positions Prime well for standing a chance at attracting someone who would otherwise choose a Corolla. GM hasn't delivered anything like that. Volt as has suffered as a result. Bolt is in an even more difficult situation, with its higher price and the mindset challenge associated with not having an engine anymore. Rapid sales growth is required to overcome the approaching tax-credit expiration. GM is racing toward a cliff and there's celebrating that sales have or haven't fallen. That kind of denial is so harmful to the effort of spreading electrification. Much more is needed right away!!!

6-02-2017 **Spreading Electrification, draw.** Remember one of your first lessons taught in kindergarten? It was to not judge a book by its cover. That meant looking for substance within, rather than deciding worth upon visual appeal. It's important advice. Yet, that lack of substance is what enthusiasts continue to push. For example: "*After taking a look, I try to look away...*" That's becoming the universal response to anything related to how the system actually operates. So, it is somewhat of a futile endeavor to argue those points. Focus on other aspects of interest seem to really be gaining traction. That's how overcoming the obsession with faster & further will ultimately be won; otherwise, antagonists will just keep pushing the brainless acceleration & range arguments. I summed up the situation with this today: Customers want more than just a plug and the needed sales growth won't come from just EV driving. Toyota made an effort to think outside the box, offering some other features to draw interest. What did GM do to provide appeal from an aspect that has nothing to do with the propulsion system?

6-03-2017 **The Pebble.** Playing offense again is necessary. I went all out this morning to convey the message some continue to refuse to accept:

Prius has always been the protagonist in the story of plug-in hybrids.

Way back in 2003, we knew of the 100 km/h (62.1 mph) electric-only aspect of its design. Batteries simply weren't able to deliver that in either an affordable or a practical manner though. So, a prototype exploiting the inherent part of that design wasn't even revealed until 2009, which served as a demonstration of what could later be delivered.

The next generation Prius saw battery energy cost & density reach a tipping point, where small-market rollout became realistic. In 2012, we saw a mid-cycle offering to select locations to collection real-world data from ordinary consumers willing to purchase the predecessor to a future all-market design.

That generational upgrade to follow was indeed that design. It confirmed the original milestones GM had targeted for their gen-1 offering were reasonable for high-volume profitable sales. Ironically, those very milestones had become goals abandoned by GM for their gen-2 offering. The enthusiasts who set high hopes for those original targets ended up becoming antagonists, upset that Toyota had actually delivered.

Too bad if you find the messenger of that story a pebble in your shoe. Ignoring the message by hiding it doesn't make it go away. You know all too well what needs to be done. The enthusiasts hear once cheered for a "*lite*" version of Volt. So what if Toyota beat GM at its own game. Swallow your pride and finally get on board. Acknowledge the problem. Take your damn shoe off already. Geez!

The concern of "*too little, too slowly*" has overwhelmingly been confirmed. GM screwed up by not adhering to their original plan, so much opportunity wasted. Delivering a vehicle with a MSRP price "*nicely under \$30,000*" is even more important now than it was way back in 2007 when that target was first set. The upgrade of range & power for gen-2 has not proven an effective means of growing sales either; rollback to what gen-1 offered would help achieve that required cost reduction. It would also help improve depleted efficiency, to finally reach that original target of 50 MPG.

That pebble isn't going away. Change is necessary. It's time to accept what needs to be done.

6-03-2017 **Sales Fallout.** As anticipated, it has been quite intense. The rapid rise of Prime, despite limited availability, is emphasizing just how big of a problem GM has. The well-informed always had a fear GM would repeat mistakes of the past, causing the same fallout. Quite specifically, it was concern about how they soured the diesel market back in the 70's. What they delivered was so bad, it made all diesel offerings unappealing across the entire automotive market. That's why the push to make sure Prius was recognized as different has been so vital. Knowing the configuration of Volt was for conquest sales from enthusiasts, rather than something to draw ordinary middle-market consumer interest, was sign of trouble from the very start. It was obvious to those recognizing need. Those obsessed with want couldn't see it though. A reminder of that is quite clear to all... now that sales are reflecting the anticipated fallout: Prime is the result of Toyota carefully studying what their customers will actually purchase. That's what the limitation of the mid-cycle Prius PHV rollout was all about. They collected a massive amount of real-world data. Adhering to an affordable target was absolutely vital. They clearly delivered, making sure power & range did not exceed need, so profitable high-volume sales would be realistic without tax-credit dependency. GM messed up with both Volt & Bolt by giving in to the faster & further temptation. That delivered a very pleasing design for enthusiasts, but left their own showroom shoppers without a realistic choice.

6-03-2017 **Discounts Already?** I really liked reading this: "*Several reports suggest the prime has very low inventory. So it's strange they would offer a discount.*" That's a good sign. Rather than having to deal with rhetoric, there's some constructive discussion emerging. People are thinking through the factors influencing sales. Yeah! I jumped into that with: The multi-market rollout can contribute to confusion of overall intent. It turns out to be an effective means of measuring consumer response though. Why not test out promotional offers in isolated areas initially, prior to going nationwide all at once? It is unfortunate for those of us in the Midwest still waiting for delivery of orders, but it does set the stage for high-volume sales sooner. After all, the goal is to have inventory on the lots ready for purchase at appealing prices prior to the tax-credit expiration. Experimenting with potential long before that is a sensible move. Learning what is most effective early is a big benefit in an emerging market with lots of uncertainty.

6-04-2017 **Arguing Semantics.** That's how you know the antagonist has become desperate. It's their last resort. They have nothing left to argue. This morning, I woke up to: "*Since it has no AER... it is a hybrid at best, and should not be considered a true "EV".*" " Seeing that same old rhetoric return brought mixed feelings. True, was confirmation that they have nothing of any substance to fight with. However, they keep fighting anyway. I responded with: That's called an "oops". They made a mistake in the review, not realizing there was a difference between EV and EV-Auto mode. Putting the vehicle in the wrong one results in an incorrect conclusion. As for exploiting a classification label to mislead about how a system actually operates, that's called "greenwash". After having been informed of the situation, here's what actually happens from the words of an owner: PRIME FUNCTIONS AS AN EV FOR THE FIRST 25 MILES. The propulsion system provides pedal-to-the-floor acceleration with just electricity, allowing speed to be maintain up to 84 mph. Both the Heater & A/C are electric too. Use of the gas engine is for when you deplete the plug-supplied electricity, want to save that plug-supplied electricity later, or want to force-charge the battery while driving. The point is, the system delivers an EV driving experience. For me on my 19-mile commute. That is achieved entirely without using any gas. Though the absolute isn't necessary, it does prove driving in that variety of traffic (suburb & 70 mph highway) is totally realistic with only electricity.

6-04-2017 **Return of Smug: Failure.** You wouldn't think that level of cockiness would still emerge, after so much attention to that attitude was given over the years. Yet, there it is. Some of it is surprisingly entertaining too. The same old mindless roar & chest-beating does draw interesting reaction. Ultimately though, it is an effort to counter progress. They do all they can to undermine progress. Claiming superiority is how you impede the advancement of a better solution. That's why real-world data can have such a powerful effect, given the opportunity. Nonetheless, I do expend a little effort to make sure lurkers understand the facts. In today's example, it was an attempt to label Prius PHV rollout as a "*failure*". That's easy to do, long after people are no longer of the goals it set out to achieve. Antagonists simply state they were something different. That's why I pushed so hard on the Volt enthusiasts to state goals... knowing the written record of what they claimed would come back to haunt them later. That's why they continue to be vague and evade the questions whenever possible. Anywho, this was my reply to the "*failure*" claim: Toyota delivered a plug-in hybrid, by far the most efficient blended offering of that time. The fact that their design & approach was flexible, allowing them to adjust to the changing market, has clearly paid off too. We see that success in the sales now. Consider how "*failure*" is defined. It made no sense whatsoever to squander tax-credit opportunity by rushing to market like GM did with Volt. Yet, somehow that is still regarded at the better strategy. Ugh.

- 6-04-2017** **Online Battles.** Purpose of engaging in them often gets questioned. Revelations like this speak for themselves, the antagonists unwillingly provide debate material and practice to go along with it... which prepares us well for dealing with their rhetoric: Looking closer at the EPA sticker information, there's an interesting observation to make. That range stated for all-electric miles is a subtle indication of the system's efficiency design advantage. Prime offers a higher rating for both EV and HV driving. 25 kWh/100mi for Prime is quite a bit more efficient than the 31 kWh/100mi for Volt. In fact, that makes Volt appear to be an electricity guzzler in comparison. As for gas consumption, there's no contest that Prime uses less. 1.9 gal/100mi is far more efficient than 2.4 gal/100mi. Focus on labels of "AER" or "EV" only distract from what's actually important. Those numbers tell the true story of efficiency, the very purpose of EPA rating values.
- 6-04-2017** **No Replacement.** The denial and damage-control has become so bad, having to respond to claims like this make you wonder: *"More Volts are sold per month in the US than half of all other car models. We say that IS mainstream."* Do they really have a clue just how desperate that sounds? It should be obvious. The numbers certainly make it easy to understand. The situation is bad, really bad. Oh well. All I can do is point what has happened: The purpose of Volt was to lead the replacement of traditional vehicles, not to be trivia statistic. The counts for May reveal the obvious sales growth problem: 20,908=Equinox; 20,718=Malibu; 17,120=Cruze; 7,841=Camaro; 3,269=Impala; 2,535=Corvette; 2,143=Sonic; 1,817=Volt. The cold hard reality of the situation is that even with a \$7,500 subsidy and a generational upgrade, attracting buyers is still a major struggle. Sales are falling well short of replacing GM's own traditional offerings. No vastly superior. No leap frog. No replacement.

- 6-04-2017** **Misplaced Anger.** Blaming the scapegoat is their plan, but what happens when that planned effort gets exposed? *"We have a group who wants to learn about and discuss the Volt and Bolt. The idea of continually bringing up the Peeus (for years and years now) just boggles the mind."* That was a post to me, implying I was the source of the problem. Whether he was confused about who was actually starting the problem each time or was intentionally trying to make me a scapegoat didn't matter. It was clear I couldn't be labeled as a troll, since posts were very clearly about the thread's topic. Sticking to that prevents antagonists from turning the table on you. It also always me to state my case on them: They have indeed been bringing up Prius for years. The reason why is simple. It's to get focus off of GM. Haven't you noticed the stir caused with each month's end report? I'd bring up the concern of too little, too slowly. Sales results overwhelmingly confirm there is indeed reason for concern. The needed growth simply isn't happening. Between discounts & upgrades, all we have seen is the average climb from 1,600/1,700 sales per month to 1,800/1,900. That is so far below the required 5,000 monthly level required for profitable sustainability, it's a very real problem. And once the tax-credit phaseout begins, it will become even more difficult to achieve that growth. To complicate matters, the very premise of Volt has been cancelled out by Bolt. How come I'm the only one who seems to see the hypocrisy an anti-EV automaker, who heavily pushed the *"range anxiety"* fear to promote Volt, is now selling an electric-only solution called Bolt? Everyone avoids the topic whenever it is brought up. Ironically, the distraction brought up for years by others has become the protagonist in the quest to deliver a plug-in hybrid for the masses. Ask them why the suggestion of a *"lite"* model of Volt keeps getting dismissed. They'll do everything they can to deny saying that proposed configuration is what will attract ordinary GM showroom shoppers... because it now resembles what Toyota delivered... which has been selling very well.
- 6-05-2017** **Looking Beyond.** The reply of misplaced anger included this opening: *"The rest of us have enough of a brain to realize that EV's, even with longer ranges still have public charging issues."* Not seeing further than what's immediately in front of them is a common problem, the cliché of seeing the tree instead of the forest applies well to this. I was happy to point out what is still being missed: Looking beyond that barrier, you'll discover there are even more issues with household charging. Many homes are limited to 15 or 20 amp connections in their garage, if they are lucky. That makes any type of higher draw a very real problem... both logistically & financially. For my household, you'd think a home less than 10 years old would not only avoid that issue, but it would also be able to support more without challenges. Nope, it even has some. We're the very first customer for that electricity provider to request adding more than one 240-volt high-amp line for charging in the garage. They haven't ever supported two lines to deliver 10 kW each and both be on Time-Of-Use meters. Fortunately, all that should be setup next Monday. It won't be cheap though, despite having the service-panel right there in the garage. How many customers do you think will be well enough informed to do the same, in addition to being able to afford it? For that matter, being able to just get one 40-amp charger for daily use? Don't forget how intimidating all that is for most people either. It's the reason why a VOLT LITE has a great deal of potential.

6-05-2017 **Approach.** You can feel the regret. Virtually all feeling of superiority has melted away. The reality of needing to become a player in the plug-in hybrid market, rather than being king of the hill has sunk in. Finally! This is right on schedule, exactly as predicted. The second year of the second generation has ended arguments. Facts confirm goals were not achieved. I stressed that with this summary & reminder: GM's approach hasn't paid off for high-volume sales so far. To go faster & further, there was a design tradeoff resulting in a challenging price-point, lower electric efficiency, and lower hybrid efficiency. The struggle for sales growth will become even more difficult when tax-credit phaseout begins next year. The mistake GM made of trying to fulfill enthusiast requests for gen-1 of Volt was repeated for gen-2. Sales have barely grown, falling well short of expectations. Their own traditional vehicle buyers simply haven't been interested. Toyota's choice not to follow that approach is looking good so far. Hyundai & Chrysler are planning to take alternate paths too. Odds are, we'll see that from Ford as well. Not sure about Honda or VW yet. The goal of getting large quantities of plug-in vehicles on the road, at a profit, requires careful consideration of what is really needed... not what is wanted. Approach to fulfilling that is vital.

6-06-2017 **Prius History.** What once had been the daily blog for Volt has become a venue for terse exchanges of emotion toward competition in the plug-in hybrid market. Only thing is, I don't take the bait. So, today's article posted exclusively about Prius was not welcome to them. I wasn't willing to play along. Their antagonism doesn't work. Instead, my response was to post this recall of Prius history:

The natural progress from hybrid to plug-in hybrid is playing out. Toyota's plan from the very beginning was to increase battery power & capacity as cost would allow, keeping the design affordable along the way.

That first generation back in 1997 used D-cell batteries and had a plug, in Japan. The plug was dropped right away. Introduction of prismatic format batteries came with the rollout to the United States in 2000. Power from the gas engine was increased too. Diversifying the platform by creating a detuned version of the vehicle, giving it a less expensive interior & exterior, allowed the first profit to be made. (That's how Echo came about.)

The next generation to follow in 2003 included the ability to travel at speeds up to 100 km/h (62.1 mph) using only electricity. Unfortunately, battery capacity simply wasn't dense enough to power any benefit from including a plug; cost was far too high too. Despite being unrealistic, a plug-in demonstration model was revealed in 2009. This was to solicit feedback, as well as acknowledge the very expensive aftermarket upgrades some owners had endorsed.

The generation to follow in 2009, which replaced what had now become the iconic hybrid, was loaded with improvements. It laid down the foundation for offering a plug, including a redesign of the system which added a second power-split device for two-speed operation. Only a larger battery was needed. The design already included all that was needed to provide the significant MPG boost owners had requested.

Mid-Cycle rollout in 2012 delivered that larger battery, switching from NiMH to Lithium at the same time. Unfortunately, it was still too expensive and the market had become very uncertain. Volt was struggling to attract sales and Leaf had stirred expectations. So, Toyota changed national rollout plans to be for the next generation instead. After all, they knew what that upgrade would deliver, could continue collecting real-world data in the meantime, and wouldn't have much legacy to deal with since rollout had been limited to just 15 states.

4th Generation introduced a new design architecture in 2015, one with heavy emphasis on cost reduction. At the same time, the body had been stiffened significantly and the rear suspension got a major upgrade. Use of lithium battery chemistry had proven effective in the previous plug-in model and the 7-seat wagon model, so it became standard for 4 of the 5 regular Prius package offerings. Styling was changed to a dramatic standout appearance, a clear effort to break the prior stereotype and to distinguish it from the upcoming plug-in model.

The following year brought reveal & rollout of the first worldwide available plug-in model of Prius. That meant simultaneous delivery to Japan, Europe, Canada, and the United States. The result has been strong demand and limited supply. As of June 2017,

first deliveries in Canada are still being waited for and early orders in the Midwest are finally being delivered. That approach of keeping the design affordable, along with the careful balance of purchase priorities, is proving to be a wise choice.

Popularity of the plug-in model of Prius is growing at the rate necessary to achieve a sustainable high-volume level, enough to continue with profitable sales even as the tax-credit is phased out... an absolutely essential step in that natural progress toward making a plug the common choice.

- 6-07-2017 First Sighting.** My wife gets the prize. We couldn't commute together today. So naturally, so encountered another Prime. It was the Blue Magnetism, just like mine. As far as I'm aware, that was the first to be reported. With so few of us so far, it's easy to keep track of each other online. We knew of other deliveries, but hadn't actually heard of any sightings yet. I wouldn't have expected that color to be the first either. Lots of deliveries of the ordinary choices took place elsewhere. Everyone had to wait for models having that unique color. It's not shared with anything else. Being Prime only is nice. Of course, I'm not sure what other vehicle could support a blue like that. Anywho, I posted a comment about that. No one was aware of who that could have been. Cool. I wonder how long it will be until sightings become common. They certainly are rare still, even in areas with more deliveries. But here in the Midwest, there are only a few so far.
- 6-07-2017 200 MPG.** Watching the pattern repeat enough times is a good incentive to push really hard. Breaking the cycle was utmost on my mind. What new element could be introduced? One of the long-time antagonists who claimed it was the messenger, not the message, was doing his usual enabled. Rather than actually confront those intentionally spreading misinformation, he was going out of his way to provide a means of them being more effective. Ugh. To intentionally promote dishonest posting... it still boggles the mind how that is believed to be unnoticed. I see exactly what's going on. So when that predictable series of posts come, it was always the same old choice of how to respond... until today. The moment of epiphany finally came. I had been able to end the "catch up" rhetoric, but had nothing effective to move forward with. Then it hit me: "NPNS" That had been included at the end of countless posts for years. It stood for "No Plug, No Sale". That was a motto chanted so often, few ever really took the time to realize how vague it was. That was like saying "hybrid", so generic the seemingly useful slogan really didn't amount to anything... which is why it died. The idea caught me though. Diminishing returns has proven the greatest source of frustration for the antagonists. That particular pattern was easy to see. I could ramp up its impact by stating a specific value. What to use for that step away from the shortcomings of generalization was obvious too. Toyota had already done that research. Prime gauges top out at 199.9 MPG. You can actually see beyond that maximum with the Advanced model using the phone-app. But all that did was provide data confirming 200 MPG was the correct value to stop at. Gallons & Kilowatts never made any impression. MPG will though. So, that's what I will begin promoting. "200 MPG" will become how I conclude posts. Stressing its importance will reduce the influence of the talking-points the enthusiasts of Volt had exploited, without actually reaching ordinary consumers. They were so preoccupied with conquest, they hadn't noticed the ineffectiveness. It makes you wonder what would have happened had GM stuck to their original "230 MPG" campaign. Hmm?

6-07-2017 **Commute Distance.** The argument for years has focused entirely on commute distance. I found a study that used 2011 census data to analysis 96 metro areas. The results were surprising. Most people drove distances less than 12 miles. When you think about that, it makes sense. But from a talking-point perspective, most people obviously had not. That's why when I posted the entire collection of data, it freaked out the antagonist. That much detail is difficult to dispute. So, he didn't. The tactic of changing-focus was tried instead: "*People drive more in a day than just to/from work. You have lunch-time travel, work time travel, trips after work, etc. And why are you cherry picking metro areas?*" I anticipated that. It's a predictable outcome. Being cornered is nothing new. We've seen that quite a few times in the past. This is yet another example: Metro area means not rural. It includes the suburbs. Many people don't actually drive to the downtown area. They work locally, which is why those real-world numbers are lower than you expected. Driving destinations other than work tend to be quite a bit closer than work too. Their grocery, retail, and other stops are close by. That's why 25 miles covers a majority. Watch for the video I filmed last night. I drove to my favorite coffeeshop with the Prime, that very same drive I did a few months ago with the Prius PHV. Round-trip is 15 miles. It's a nice mix of suburb driving, varying between 30 and 55 mph with a few stops here and there. I did the drive twice to use the entire supply of electricity available. 30.6 miles of EV before it switched over to HV. More is nice, but clearly not necessary. That's why this particular configuration has great potential for high-volume sales. Prime is that natural progress from hybrid to plug-in hybrid playing out. No amount of negative votes can hide that. 200 MPG.

6-08-2017 **Flooring It.** In a traditional vehicle, that usually means requesting maximum RPM from the engine. People instinctively avoid that, unless absolutely necessary. With a hybrid, the maximum is artificially limited. That RPM is much lower as a result. It means you can be generous with the pedal, yet still get rapid acceleration. The reason is simple, there is also a motor & battery contributing propulsion power. That makes up the difference. It was concept easy to understand... until recently: "*Flooring the pedal and pushing through the click switches on the 1.5-liter 4-cylinder engine...*" That comment came from a first-look report of the upcoming new hybrid from Honda. That's exactly what you'd expect, right? Not necessary. From a hybrid with a plug, some respond that way, others don't. Knowing which would had been a simple matter of checking how big the motor was. Very small meant the engine would need to supplement power. The new plug-in hybrid Clarity will have a very large motor, but will still offer the ability to fire up the engine using the pedal. That means flooring it simulates an engine response familiar to traditional drivers. With Volt and Prime, that behavior is intentionally excluded. Drivers want to avoid that from happening via a pedal drop; instead, you push a button to request engine-assist. You confused yet? If not, consider how difficult it will be keeping track of which offerings behave in a certain way. For that matter, think about which depend on the pedal and which a button. Needless to say, those of us trying to be constructive have our work cut out for us. Here's my attempt to exchange knowledge and solicit feedback: Note that Prime will remain in EV mode, even when maximum acceleration is requested. There has been a lot of confusion lately from older reviews who unknowingly reported the engine starting, when they were actually in EV-AUTO mode instead, which is configured to allow the engine to start. Finding out that Honda Clarity will behave similar to Hyundai Ioniq and Chrysler Pacifica should make us wonder how mainstream consumers will interpret the plug-in hybrid choices. Since Prime & Volt deliver an "always" mode for EV, what influence will that have on the purchase decision? The simple question of how the heater works will likely become a bigger issue. Prime's vapor-injected heat-pump is much more efficient than Volt's resistance heater. Both use only electricity though. Ioniq must run its engine for heat.

6-08-2017 **Drawing Conclusions.** It's in our nature to do so, even with little information available. In this case, there basically isn't anything yet. Nonetheless, people are drawing conclusions about the plug-in market already. Rollout of a technology can be fairly rapid to those well informed. That's why enthusiasts get so excited. They know. They understand. Education simply isn't needed. That most definitely isn't the case for ordinary consumers though. Willingness to invest is far more involved. That's why this can't be taken seriously: "*Most ordinary consumers don't buy anything with plug anyway...*" How could that possibly be known? The choice to do so is almost non-existent. Having to place an order for a vehicle, then wait months for delivery is so far removed for the usual purchase experience, that alone is a deterrent. People move on to the next choice even when the technology is well understood, simply from not having to wait. In the case of a plug-in vehicle, there's a wait for the tax-credit in your returns the following year too. Needless to say, I wasn't about to let that comment slip by: Most ordinary consumers don't even know about them yet. So, there's no possible way such a generalization can be claimed. Even a number of readers here haven't learned about how the newest plug-in offerings work. Saying a bulk of the population won't be interested cannot be done some data from those new offerings to analyze either. Prime is barely just rolling out in the Midwest. We're waiting for Chrysler, Hyundai, Honda, Tesla, and Nissan to all make debuts this year. Heck, we may even hear something from Mitsubishi and Ford too. There's also VW to consider. That means anything related to purchase decisions is far to premature.

6-08-2017 **Launching Attacks.** Out of the blue, on a thread discussing Prime's rapid rise in interest, this came from a Volt owner: "*I am going to raise the old topic of "EREV" again! Volt deserves the special designation of EREV compared with the rest of PHEVs! ...there are still NO PHEV out there to even match the EV range of gen 1 Volt. That is 7 years already!*" He has been ever since we first crossed paths a few months ago. His very first post replying to me was an attack claiming something to the effect that I was protecting the oil industry. That gave the impression he was an EV supporter against all engine use. Finding out later he owned a plug-in hybrid was quite a surprise... though, the attitude wasn't. The bizarre need to label Volt differently than all the other automaker plug-in hybrid offerings is that same old trophy-mentality. It impairs progress and makes cooperation nearly impossible. That means having to deal with each random attack. Those claims of superiority sure are annoying. I guess he realizes winning the war alone is impossible, so he's settling for victories in small battles instead. I wonder how this will be taken: EV range is the only original criteria remaining, and that was only vaguely important. The rest of how EREV had been defined has eroded away entirely. Other offerings have joined in with competitive design. Prime offers both more efficient EV and more efficient HV. Prime also delivered the industry's most efficient electric heater. Prime is also the lowest priced plug-in hybrid. Saying Volt is somehow special simply doesn't hold any water. It's a plug-in hybrid, since it has a gas engine. What's wrong with that?

6-08-2017 **New Greenwashing. Old Techniques.** An article is published from either a poorly informed writer or from a source with the intent to mislead. It's really difficult to tell the difference sometimes. If your response is timid or vague, there will be antagonist to exploit it or an innocent reader to spread it. That too is very difficult to differentiate. For example: "*Many thought the Prius Prime might function like a Volt, but were disappointed to find out it still worked like a traditional hybrid...*" How do you address that with no context or references to work with? I have encountered that situation countless times in the past. It never gets any easier. Those same old techniques carry over to new greenwashing. Ugh. I tried my best to deal with that one this way: Sounds like you are unaware that Prius Prime is an upgrade just recently rolled out, a next-generation successor to the Prius PHV you describe. The incorrect assumption is understandable. Early orders of Prime are still being delivered. It is very, very new. That older offering used plug-supplied electricity to boost MPG, not to deliver an EV driving experience. Back when it was introduced, that's what the market wanted. Preference changed over time, as added battery-capacity became affordable. Driving for the first 25 to 30 miles is all EV, only electricity. Function is very much like Volt. The only resemblance to a traditional hybrid is after the battery has been depleted, delivering MPG much higher than Volt.

6-09-2017 **Price Matters.** There is some deep resentment among a select few Volt enthusiasts, because I kept pushing so hard for an affordable choice. That meant compromise, agreeing upon a balance of configuration rather than trying to justify an extreme. Having proven my concern was valid and not simply an attempt to undermine Volt, a few have given in to the idea... finally. Of course, it isn't without a little remaining animosity: "*If John the Prius addict has any leg to stand on (he really doesn't), it would be his point about Prime showing that price matters.*" Being so outspoken about making plug-in choices for the masses is very much a bittersweet situation. I can contribute a great deal toward the replacement of traditional vehicles, but that requires a partnership rather than superiority. Agreeing upon goals is how that's done... not getting so tied to principal that change is nearly impossible. That status quo is very difficult to overcome and their naive assumptions really hampered the effort. Oh well, too little too slowly is better than nothing ever. I hit back with, making sure to end with that simple perspective reminder: Nicely under \$30,000. The reason you associate my efforts to promote affordable plug-in vehicles with Prius is that Toyota was the first to actually deliver. Don't be pretending I haven't pointed out the need for VOLT LITE countless times in the past. Eventually, GM will figure out that target which they set is vital for mainstream acceptance. Perhaps even some here will finally recognize that's what I have been pushing right from the very beginning. That's why I was never impressed by the desire to go faster & further. It was always a matter of seeing how much you could deliver for that target... which has always been nicely under \$30,000. And when a model of Volt is rolled out that actually meets that affordability criteria, we can all breathe a sigh of relief... and less polluted air. 200 MPG

- 6-10-2017** **Video - 30 Miles of EV.** I setup the cameras to capture my drive to the further of my favorite coffeeshops. This time, it would be with my new Prius Prime. A few months ago, that drive was with the Prius PHV it just replaced. This is a route I'd like to capture throughout a year, to show how well the system handles each of the seasons. Watch for new videos. Turns out, the nice summer evening was great for just driving around. Upon finishing what I intended to share, I realized the situation would be ideal to show how far a Prius Prime can actually go on a single charge in ordinary driving conditions just like that. So, I did. At that point, you can see the 15 miles EV traveled and the estimated 16.6 miles of electric-only capacity remaining with the cabin blower on. That was clearly enough to repeat the trip. When I returned, 30 miles of EV had been traveled and the estimate showed 0.9 mile remaining. I continued on, repeating that route again. At 30.6 miles total, the EV capacity had been totally depleted and the engine started up, switching from EV to HV mode. That's well above the 25-mile EV rating listed on the window-sticker, achieved without doing anything special at all. I was simply driving along with traffic on those suburb roads. Speed ranged from 30 to 55 mph, with a few stops along the way. Here it is: [Prius Prime - 30 Miles of EV](#)
- 6-10-2017** **PHV to Prime.** There's growing excitement emerging from the prospects of Prime. It seems obvious that Prime has more to offer, but PHV really wasn't well understood. So, I am now getting asked questions like this: "*Since you driven the previous Prius PHV for so long, how does the driving feel compare do you say?*" That was the first comment posted on that new video I just shared. It's nice having context already, a thorough background viewers are already aware of. That made this reply an easy one: Figuring out how & what to film took awhile, but that gave me a decent chance to play with the system in the meantime. There's much more EV power available now. Between the larger battery to supply electricity and the one-way clutch added to allow the second motor to contribute to propulsion, the only needed reply is to suggest a test-drive. You'll see for yourself how much potential Prime has for interest from ordinary consumers. The system itself is more efficient. That final 4.8 miles/kWh result tells us a lot about how refined the design has become. HV performance is routinely above 60 MPG too. I love it! Even the trip my wife and I took across South Dakota at 80 mph was amazing, with the A/C running. It handles well and is efficient no matter how you drive.

6-10-2017 **Divergence.** The opportunity to discuss big picture issues emerged today. That came about from a thread with posts about Hyundai. Having another prominent automaker take a chance at competing directly with Prius is stirring interest... promoting questions of purpose & motive. Far too often, assumptions are made with respect to automaker intent. It is nice being able to look at what's really involved. I obviously have much to say in that respect:

We are about to see a divergence, just like the computer industry went through once upon a time... so long ago, many are unaware of that history.

CPU speed indicated how the computer package was configured in the retail world. Faster meant more memory and larger hard-drive. It was elegantly simple, making the sale of them to newbies far less of a challenge. That worked great. It helped establish the industry, making their product a household device. Eventually, the device became personal & portable, taking on traits well beyond the original concept.

The idea of an EV fulfilling all roles of transport was a good means of proving the technology worthy. That isn't ultimately how to sell it though. Households with multiple vehicles could easily exploit the abilities of a lower-capacity EV. Who cares? All you're running around for errands and short commutes could be done with a vehicle like that. What if you're retired and don't need to travel long distances? For that matter, same could be true for a student.

We need to take a serious look at the problem "*faster & further*" is causing. That mindset is not helpful when attempting to attract the masses. Some simply see that as overkill, an expense they are unable or unwilling to accept. Also, think about how long it would take to fully recharge a large battery for a person who is limited using to a 120-volt outlet.

Take a look at "*computers*" now. We see far more than just desktops of the past. There are notebooks, tablets, and phones. All have a common purpose. All provide computing in their own way though. All get the job done. Yet, prices & configurations varying tremendously.

6-11-2017 **Only Facts.** The nature of hypocrisy boils down to comments like this: "*If they were only facts instead of slams against Volt and GM we'd let it slide.*" They certainly don't react that way when the situation is reversed. Ironically, that's how the slams came about in the first place. Had only facts been considered, no reason would have emerged for bringing attention to source. I try to avoid getting the last word in, since giving the perception of defeat is an effective means of concluded pointless arguments. But in this case, since the facts themselves were disregarded, it was worth it. They chose messenger, rather than message. So, I responded. After all, there was a look of undermining in the past that took advantage of facts not being available. I posted: We know that isn't true. Facts alone get voted down too. And why not call out GM to prevent repetition of the same mistakes? That's how progress is made. You learn and adjust accordingly. We also know that facts are exploited by the omission of context. In fact, that's how the videos came about. Some here would make vague claims. Showing detail debunked those efforts to mislead.

- 6-11-2017** **Executive Ranks.** We hear a lot of rhetoric from the top. A friend of mine started a thread today suggesting: "*Do the job; deliver the product, and; move on.*" That's good advice. With the automakers, it has been an ongoing problem. I jumped into that with: That's quite unlike the hype machine we know as GM. Their ever-changing story, along with many examples of "*over promise, under deliver*", has staged the market in favor of Toyota's quiet advance. How Tesla fit into the big picture had been a head-scratcher for mainstream consumers. There was never any way that amazing vehicle simply referred to as Model S could become mainstream in that form. We (the well-informed pursuing electrification) knew from the start it was only a stage toward reaching the mass-market goal. Model 3 is what will bring Tesla a very big step forward. There are many steps to go still though. Seemingly simple efforts, like home recharging, end up being rather complicated for more reasons than we care to admit. That's where I see Toyota contributing heavily to the quest Tesla is on. With such a wide & diverse market, we need to hit every aspect the consumer will have to deal with. Toyota can help greatly with the transition from hybrid to plug through Prime. They have a massive Prius owner base to leverage. They have also configured Prime in a way that will stir some interest from those wanting a Toyota but were not interested in Prius or any other hybrid. In other words, Toyota is working on bringing up the base at the same time Tesla is establishing the target. It's a win-win situation. We do wonder how other legacy automakers will handle the transition. GM will run out of tax-credits sometime next year, triggering a phaseout which will result in profit loss. The current high MSRP and low sales doesn't cast the situation in an appealing light... hence things like that rant.
- 6-12-2017** **Recognizing Change.** When a former foe says this, take notice: "*Really comes down to cost, range is just one attribute, we have the remember the Prime which has less than half the range of the Volt already is outselling it...*" Why some continue to insist upon one particular path is beyond me. Thankfully, he saw the light. Heck, Toyota did too. Taking notice of market change is how Prius PHV rollout ended up stopping. The recognized how more could be offered without impacting cost... hence multiple attributes. The catch is finding balance. Volt's range is too much, since it pushed price too high. Prime seems to have hit much closer to the mark. We'll find out as the year progresses just how close. I've said all along there are different purchase priorities for mainstream consumers than there are for enthusiasts. The response was for the enthusiast to quote me out of context, making it seem as though I was in support of only one aspect. It as an ironic approach, especially when their own favor was the very thing they highlighted. Accuse your foe of the very thing you are guilty of. Those days aren't over. But what was said today does provide an aspect of hope. Change can be slow & painful for some. Progress is still progress though.

6-12-2017 **Charging At Home.** Our 2 new lines for high-speed charging at home were setup today. The install was for 2 standard 14-50 outlets to feed 240-volt chargers. We had 6-gauge wires run through new conduit across the ceiling in the garage. Each had its own individual 40-amp line out of the house's 200-amp service-box. Each will have its own time-of-use meter installed in a "can" on the outside of the garage. That's what will follow today's service, which established the lines themselves. That contractor will arrange to have the city-inspector come over to approve the work that was done today. (They also submitted paperwork for the permit and configured the design.) The result is a sticker showing approval, which allows the power-supplier to come over and swap out the hard-connection with a measuring device. In our case, we'll be the very first customers of the local CO-OP to have 2 of those meters. More than one is something many people need yet. That required some extra work, since the software programming & billing for both must be setup to monitor kWh draw during each of the time-categories. For us, there are 3 of those categories. Each has its own pricing. The one for overnight charging offers a significant discount, hence the effort to install equipment to take advantage of the opportunity. Also in our case, the service-provider will not be charging a service-fee. It's just a one-time hardware investment. I was delighted to find out how well the bracket I had fabricated to hold the chargers & outlets worked. It's a great looking approach that put both exactly where they needed to be. Location of the cord for inside & outside garage use, in addition to keeping them safe while still maintaining a strong Wi-Fi connection, was a very big deal. Think about your garage layout. How would you achieve maximum return for 2 cars plugging in? For that matter, wouldn't it be nice to offer a recharge opportunity when friends come over with their plug-in vehicle? Needless to say, there is reason to celebrate. Both are now active. Rather than taking 5.5 hours to recharge, we can do it in just 2 hours. We can also take advantage of grid power for heating & cooling before leaving the garage. Think about how great that will be in the dead of Winter, here in Minnesota. This is very exciting! Imagine getting into a pre-warmed vehicle in the comfort of your garage on those freaky cold days. The rapid recharge is obviously nice too.

6-13-2017 **Air Cooling.** There has been an on-going effort to misrepresent Nissan's gen-1 approach with Leaf as an industry-wide standard. They attempt to portray the choice of using passive cooling with air, rather than active cooling with air, as the same thing. In other words, Nissan has a sealed system. That contributed to batteries aging prematurely from getting overly hot. Toyota didn't do that; instead, it had an open system that forced air through it with fans. Circulating comfortable A/C cabin temperatures through the pack is a huge difference, one they go to great lengths to evade recognition of. It's always glossed over in a way to make efforts to reveal detail the work of a troll. Comments like this is how they attempt to bring that to a close: "*Enjoy your ever slowly-degrading Prime battery with its air cooling!*" That oh, so familiar vague & misleading type response. It's a clear sign of concern. Bringing up a topic on a regular basis without any actual data to support it is how I know. The chemistry upgrade Nissan rolled out a few years later ended reports of heat issues. Trying to get me to stop reporting that is quite difficult. The plug-in owners group here is very well informed and we address topics like that on a regular basis. Sharing among that group is easy. They don't let pride get in the way. Here's one thing related to that I learned... which got the enthusiasts very upset: Liquid cooling is beneficial for rapid charging. That just plain isn't necessary for a smaller battery, like that in Prime. There simply isn't a need to receive electricity from the charger that fast.

- 6-15-2017** **Perspective.** With the reach of Prime rapidly spreading, it's good to provide a reminder of perspective. That is so easy to forget... especially now with every automaker striving to deliver something with a plug. Getting caught up in a muscle-flexing demonstration happens on a regular basis. Online exchanges make that a common occurrence. The voice of ordinary consumers gets drowned out by the volume of fans loyal to an automaker, unwilling to consider what's best overall in favor of willing a particular battle. Ugh. That's such a waste. Oh well. All you can do is keep providing those reminders: Mainstream consumers don't care what enthusiasts have to say. There's 17 years of Prius history overwhelmingly confirming that. Toyota designed a vehicle for the masses, balancing the configuration with what their own buyers would be willing to pay. Think about what owners of their high-volume profitable vehicles have shown interest in. Camry & Corolla are often labeled as appliances... affordable & reliable.
- 6-15-2017** **Reality.** Hearing reports from Prime owners. Seeing reports of Prime sales. Witnessing the shift of attention to Prime. Reality is setting in, bringing the message to antagonists by means I haven't been able to express. Conveying how this change will impact that market hasn't been easy. Understanding how it will react is though. Having been such an active participant in Prius history, recognizing the potential Prime holds is very exciting. I'm really looking forward to it. In the meantime though, there's more message to deliver: Over 200 MPG with the latest tank on my Prime. I have no idea what the actual MPG will end up calculating to. It takes forever to use up the gas. There's still a 1/4 of the tank remaining. It has been over a month. MPG has been pegged at 199.9 the entire time. Do you really think ordinary showroom shoppers at Toyota are going to care if some other plug-in offers more EV miles? That impressively competitive MSRP of just \$27,100 makes Prime a serious consideration for someone interested in purchasing a Toyota. GM had it's chance with Volt, but instead just let opportunity pass by. Now gen-2 is struggling with sales growth and it must share the few remaining tax-credits with Bolt. Sales are primarily just conquest type too. GM's own loyal customers simply aren't interested.
- 6-15-2017** **Repetition.** How many times have you heard the nonsense? Thank goodness it is so easy to see change coming. Phew! It is only a matter of time now. They will finally learn the answer to that long time question: Same old spin we've read about for years. Because Volt offers more EV range and more power, it will appeal more to ordinary car buyers. Even with a \$7,500 subsidy being offered, that's clearly not working out. We're watching GM shoppers continue to purchase Cruze, Malibu, and Equinox in high numbers while Volt gen-2 is struggling with monthly counts only slightly higher than gen-1... despite much wider acceptance of plug-in vehicles now. Prime is an example of striving to attract those interested in purchasing a Toyota. That audience wanders into the showroom, then takes what they find for a test-drive. It's a simple & informative process. They discover claims of being slow were just automotive rhetoric and the low MSRP finalizes the purchase decision. Loaded with an array of safety options, standard, it's easy to see the effort to deliver a well-balanced vehicle. That is understanding audience. Toyota is working to raise the bar, not to deliver a halo. Prime offers enough to entice those who may otherwise choose a Corolla & Camry. Who is the market for Volt?

- 6-15-2017** **The Wait.** It seems to be taking forever. Thankfully, change is near. I look forward to blog entries changing and no longer having to listen to the brainless faster & further arguments. Patience is a fundamental component of Prius, as is with change. It's a matter of understanding when. Like who, knowing the target is vital. They don't. Those senseless posts of rhetoric are void of thought. Though, some of the spin does at least show effort. Unfortunately, it is to undermine, rather than promote change. Oh well, all I can do is point out what the wait is for: Spinning comments is part of the wait. They attempt to draw conclusions prematurely. We have seen a lot of hypocritical behavior and even more superiority declarations lately too. Simply letting them get all of it out of their system so we can move on to constructive discussion is the logic step forward. The article nicely lays out the variety of shopping criteria for someone in the now, without any particular brand preference, someone specifically looking for a plug-in hybrid. That's a very limited audience, as is the current choice of vehicles. One year from now, the market will be quite different. Prime will finally have first-year owners reporting enough real-world data to draw interest (remember the importance of winter driving & heating). Currently, numbers are so few, there is almost nothing to work with. My average for the month right now is at 196 MPG. It's taking forever just to use up the tank I filled 5 weeks ago.
- 6-16-2017** **Wrong Question.** I found this annoying: "*The best way for a potential buyer to answer this question is to take test drives.*" It meant the audience is still not understood. Ugh. Oh well, it's not like I haven't pointed out the importance of "*who*" countless times... and will continue to: The question only applies to those who cross shop. There is a large chunk of the population who don't. They shop within a brand. So, the comparison is a moot point. That's how Prime really shines. Toyota configured it to not only appeal to those looking to replace their aging Prius, but also those considering a Camry or Corolla. That's why the standout features... like the array of headlights, the large touch-screen, and the dual-wave glass are exclusive to Prime. That is also why there isn't a middle seat. Being unlike the other choices with a "*step up*" appeal, yet not compromising on price, is key. \$27,100 for a MSRP of the base, with safety options that Volt doesn't include, gives it great potential. There is no dependency on tax-credit subsidies. It is carefully configured to compete with the true competition... traditional cars choices, not other brands.

6-17-2017 **What's your point?** Every possible avenue of opportunity has been completely exploited. They've run out of excuses. Prime sales are tapping into the potential Volt strived to achieve, but wasn't ever targeted for that... which made this so appropriate in response to be asked that question...

To ask this question: What's the point?

Failure to achieve mainstream sales volume, despite the gen-2 upgrade, has pushed Volt even further into a niche. Denial of the inability to draw interest from GM's own loyal customers went on for years with gen-1. We are witnessing the same problem repeat with gen-2. Notice how GM has shifted focus over to Bolt and enthusiasts of Volt are back to saying the same old things they did back when gen-1 sales struggling to grow?

The goal has been to replace traditional vehicles. No amount of spin or excuses will change the fact that needed growth has not happened. Believing that the act of belittling Prime will somehow help Volt is disillusioned. Not understanding the appeal of Prius has always been a fundamental problem for Volt enthusiasts. They attempt to apply the criteria they find important to the purchase decision, never coming to realize that mainstream consumers have very different priorities.

Toyota knows the EV experience delivered by Prime combined with a nice balance of features and the affordable price will draw interest from their own loyal customers. They'll achieve growth by appealing to a variety of buyers, their own shoppers looking for an upgrade to replace their aging Toyota. Some will be owners of older hybrids. Some will be new to hybrid consideration. That's the point of Prime.

Growth is not about conquest. Growth is not about delivering the most distance or power. Growth comes from offering something better, an improvement upon choices of the past.

6-17-2017 **Growth.** Reading post after post of attacks from Volt owners on Prime has been overwhelming evidence of change. Prior to the recent sales growth, there were attempts on many fronts. They'd attempt to undermine any way they could. Now, it's just claiming Prime's acceleration is too slow and electric-only range is too short. Exactly as anticipated, the mindset of "*faster & further*" has become the theme. Returning to the trophy-mentality problem confirms they have nothing left. Phew! What a massive waste. All those tax-credits squandered on conquest. When leases expired, many Volt owners moved on to something else with a plug. The status quo remains intact. What was the point? Remember that huge anti-Prius campaign back when gen-2 sales raced past mainstream minimum? Annual totals exceeded 100,000 here in the United States, without any tax-credit. Volt hasn't come even remotely close to that, with a very generous federal subsidy. Much needed growth hasn't happened. The enthusiasts were so wrong about cost, complexity, and timing... It is so much of a mess, the fact that Prime has emerged from the ashes is amazing... and they can't stand it... hence all the attacks. Having to endure all that was quite a challenge. What was learned from this experience has proven priceless though. That was my point.

6-17-2017 Dishonest Spin. It's annoying when the very message you've been conveying for years gets parroted back. But when they are dishonest and it is easy to prove that's what they are doing, you have to wonder: *"We've been telling you for years about 200+ mpg, and you never got it! Instead, you stayed with your 47 mpg hybrid. Now somehow, just because you can get that in a Toyota, it's incredible!"* Where the heck did that 47 MPG come from? I have been posting about diminishing returns and the upcoming next-gen PHV for years. There are countless posts I could refer back to. How could anyone believe they wouldn't get called out for such false claims? Oh well. That does provide me with the opportunity to point out some history: M's campaign to promote "230 MPG" had such a huge backlash, enthusiasts of Volt did everything they possibly could to distance themselves from MPG references. In fact, the fallout is how that *"gallons saved"* advertising came about. Focus shifted to EV purity instead. Mid-Cycle rollout of Prius PHV focused on MPG boosting. The resulting average was around 75 MPG and there was a clear expectation that the first full-cycle offering would increase battery capacity, which would result in more power being available. 20 km was the original offering. It was large enough to differentiate the plug-in model Prius from the regular model without making the price too terribly expensive. Unfortunately, lithium cost hadn't come down fast enough and there was a clear problem developing with the acceptance of plug-in vehicles in general. Double the capacity was the expectation for that next-gen rollout. Turns out, 40 km is exactly what got delivered. The bigger battery did indeed bring about more power too. It was now realistic to offer an affordable choice, something able to compete directly against traditional vehicles. Spinning of history won't change any of that outcome, nor will it support the claim of 200+ MPG. There is nothing from GM able to compete directly with traditional vehicles either. The faster & further obsession has made the choice of Volt too expensive. Prime makes more sense.

6-18-2017 **Stating Goals.** That's how you avoid trouble. That's also how you gauge lack of progress. Understanding effective measure is very important. Remember the "*5,000 per month*" sales goal from back when Volt was still being developed? The reason for quite clear. It was the minimum required to have a sustainable seller that was both high-volume and profitable. Maintaining that level meant the goal had been met. It was how the progress of Prius was measured by others... which is how GM ended up adopting it too. Remember the timing of that for Volt? It was to be reached by the end of the second year of sales. When that didn't happen for gen-1, things got ugly. Everyone could see the count fell well short of expectations and all excuses had already been exhausted. Sound familiar? We are approaching that same significant timing milestone with gen-2. Only this time, Toyota already has a strong alternative in the market. Backlash from it is truly bizarre too. Avoidance of any goal that had been stated in the past is so obvious; the enthusiasts of Volt simply declare victory. No facts to that affect are offered. There are only claims of superiority. Denial of the situation is so deep, you know a turning point is about to be reached. That should be easy to see too. Not only is Prius Prime extremely well positioned for mainstream growth, there's also the new EV rollouts to contribute to the progress forward. Both Tesla's Model 3 and Nissan's next-gen Leaf are about to push the market. Both are expected to be affordable for their intended audience. Enthusiasts of Volt avoided answering the question of "Who?" knowing they'd be held accountable later, just like with the sales goal. It's an ugly situation. Not all attempts to move forward are successful. Toyota put a hold on Prius PHV, then ended up stopping it as the changing market showed new priorities. Low MSRP is what the market with this particular timing has placed high importance for. That leaves Volt in a very difficult position. Ironically, that vindicates the "*nicely under \$30,000*" goal for pricing... which has absolutely infuriated enthusiasts. They are very, very upset and the lashing out at me as a result has been quite pronounced. They think having a scapegoat will somehow makes things better. See why I put so much more emphasis on "*too little, too slowly*" when I saw how stating goals wasn't working?

6-18-2017 **No Growth.** He saw the opportunity to twist my words. It was a push to spin intent and misplace context to a point I hadn't expected. Rather than just ignore with the hope all mention will vanish, it was this provoke: "*So the Prime's 25 mile AER is perfect and there is no need for Toyota to release at vehicle with more?*" What a great setup for me to explain how diminishing returns actually works. I had a feeling references in the past fell on deaf ears due to them not understanding the concept. Now, I could provide detail. So, I did... making sure it could not be ignored:

That's not how "*diminishing returns*" works.

The measure of what you'll get as a result of your investment for that product-cycle shows there is a drop in effectiveness. Spending a lot more for little in return doesn't make sense. That's why study of the numbers is so important. That is also why it is a moving target. Each generation will have a new higher level, especially when it comes to battery advancements. You find a level where more doesn't accomplish much, then stop before exceeding it. Pushed too far, more can actually have a negative impact, causing a loss instead.

Remember that "*5,000 per month*" goal? Look at annual sales of Volt, excluding 2011 due to rollout and ramp-up inventory limitations:

2012 = 23,461

2013 = 23,094

2014 = 18,805

2015 = 15,393

2016 = 24,739

2017 = 22,049 (annualized using results thru May 2017)

Where's the improvement? You'd think with the growing popularity of plug-in vehicles, there would be a noticeable increase. The design choices for gen-2 of Volt kept MSRP too high. Offering more power & range had the consequence of higher cost without any resulting increase of sales in return. GM's gamble doesn't make sense for this market at this time.

6-19-2017 **Makes More Sense.** When you want to really make a point, quote yourself: "*Tax-Credits will run out before something able to compete with Cruze, Malibu, and Equinox is securely in place.*" That was especially useful in this case. One of the regulars on the Volt blog wasn't able to participate in the attack on the "*makes more sense*" thread. Comparing Volt to Prime was an exciting topic for the others. He felt like he totally missed out. I took advantage of the opportunity to summarize & remind: There has been quite a bit of spin attempting to misrepresent my stance. That has been it all along... with GM, with Ford, with Toyota. Each of the automakers need to offer something actually able to compete with the true competition: traditional vehicles. Toyota carefully considered configuration to ensure it was up to the chore. GM did not. That's why Prime makes more sense.

- 6-20-2017** **Prime in the Wild.** Unfortunately, my commute home wasn't filmed. I wanted to, since I time that day and the weather was quite pleasant. Work was rather demanding though, so I just wasn't up to setting up cameras. My postponement to some other day was actually rewarded. The delay would have prevented spotting my first Prime in the wild. While waiting for the light to turn green, it appeared right in front of the path I was about to drive. Making a left with the driver starring directly in my path, I flashed the lights, waved a hand out the window, then switched to honking. There no way he could have missed me... especially since he also owned a standout color... Blue Magnetism. Sweet! I was a bit bummed that moment wasn't digital documented. But the location meant it could happen again. It was just a few blocks from my house. The odds of another encounter someday is entirely realistic. Of course, nothing is as impressionable as actually seeing them for sale on a dealer's lot. I remember when that first happened with the Classic Prius. Painfully long delivery waits for orders transformed to ordinary shopping experiences. Being able to see one, take it for a test-drive, then draw up purchase papers all within a single visit to the dealer is a noteworthy turning point for a new technology. Hopefully, that time isn't too far off with Prime. But then again, demand so high that supply remains a challenge isn't necessarily a bad thing.
- 6-20-2017** **How Far?** I was quite curious how far 200 MPG would actually take you. After EV capacity is depleted, the engine running in HV mode isn't apparent. In fact, it takes a surprisingly long time for the MPG to finally drop below the 199.9 maximum. With the gauge topped out like that, most owners will get use to seeing that number. Who doesn't? How much driving does it take with that single charge used up before 200 MPG no longer applies? Remember, this is the value antagonists had been arguing about for a very long time. They assumed it was so high, that would only apply to Volt drivers. The thought of Prime being able to deliver it too hadn't crossed their minds. I participate on the hostile websites to stir feedback. It doesn't take much either. They are happy to shovel as much crap as I can handle. Trouble is, every now and then they accidentally throw something valuable my way. In this case, it was that "200 MPG" coming back to bite them. I kept driving, past my house on the commute home. I figured the coffeeshop would be a perfect destination, something I very realistically could do anyway. So, I did. It wasn't until I was about a third of the way home when EV depletion. The engine fired up. Distance was 50.7 miles. Cool. That was further than anticipated. Arguing 25 miles of EV wasn't enough is more difficult to argue now. Having a plug-in hybrid isn't about exclusive electric-only driving. If you want that, it makes no sense carrying around a large engine too. That's why BMW's i3 actually delivers on the EREV promise and Volt still comes up short. (1398 cc is more than twice as large as 647 cc.) That's also why the 54 MPG rating for Prime is so rewarding. When you use it, no big deal. The real-world outcome I witnessed today confirmed it too. I found out how far. I can't wait to share that information.

- 6-21-2017** **Looking Back.** It certainly was insightful to look back at the attacks last week. They know their last remaining card has been played and there's no chance of winning that game... so, they attempted to change it... desperately tried. I was rather shocked how dishonest some were, making claims that were blatantly false. That's how you know. There was some spite too, where they simply want to go down with a fight. That's the problem with progress. Not every attempt is successful. You keep trying and go with what works. I summed up the situation like this, for a latecomer who felt like he missed it all: Their spin is interesting, they take time to come up with something actually thoughtful. It doesn't hold much merit though when compared to goals, but that's still better than the outright lies others tell... which there were plenty of this time. In this particular thread, it was the lack of understanding what 200 MPG actually represents. For driving a Prime during summer, the distance traveled from a single charge yielding that result is a little over 50 miles. Assumptions that 25 miles of EV isn't enough fall apart when that real-world outcome is witnessed firsthand.
- 6-21-2017** **Camry Hybrid.** More proof that the end has come wasn't hard to find. The embargo on Camry Hybrid reviews was lifted today. We were told what the next-generation design delivers. There's a lower cost NiMH option and the full step forward with a Lithium battery-pack, just like what Prius offers. The results are amazing too. That more efficient choice delivers a whopping 52 MPG combined (53 city, 51 highway). For a larger more powerful vehicle, that's remarkable. Like with the newest Prius, you get a substantial improvement to the body & suspension. It's very exciting to know that not-so-obvious improvements are adding into the mix. Now, it's just a matter of waiting for rollout of the 2018 model. This is very exciting. The market has been patiently waiting for the long overdue upgrade... which clearly has been worth it. Expectations were met. Toyota will be delivering a very nice improvement, something which could end up being a standout hybrid offering. Of course, there is still a little bit more wait required.
- 6-22-2017** **Poor Decisions.** He should have known better than to utter such a statement: "*I say let the market decide.*" We've seen disasters with self-regulation. For that matter, we're now seeing a disaster play out with letting poorly informed and emotionally influenced people vote. I wasn't surprised. That came from a member of that blog which up-votes intentional misleading. Today, it was a blatant lie about Volt outselling Prime... a claim easy to disprove. Dealing with enablers certainly is a challenge. Anywho, I decided to this way: That's exactly how the problem of "*halo*" vehicles and the lack of subsidies comes about. Mandates have overwhelmingly proven more effective. Some automakers take advantage of the situation. Knowing the regulation is coming, they step up their game instead of just delivering a minimum. Look at how the market has shown preference for large guzzlers instead of small sippers. There simply hasn't been any incentive to endorse a vehicle like Volt... which is why it is still stuck as a niche offering. Regardless of enthusiast praise, interest has floundered. What is there to get consumers to change? They already have speed, power, and cheap gas. Dealers certainly haven't been interested either. Reality is, the market doesn't care... hence California's push. They can balance increased regulation with HOV incentives and charging infrastructure.

- 6-23-2017** **Tank Refill.** The potential to drive for months without refilling the tank is a new situation, a paradigm shift for which few have any experience or even reference. If you don't drive much beyond the EV range available, the gas will last a very long time. Only highway trips are when you notice an impact to the gauge. Otherwise, the miles remaining really doesn't change much. Having 2 plug-in hybrids in our household now makes it especially odd. We'll take the Prime with more EV available when going out in the evening, trying to carpool as much as possible on weekdays. On weekends during Summer, the carrying of bikes & kayaks will be exclusive to mine. But then again, what if I can plug in at those destinations? We both carry squeegees in our Prime so the window can be cleaned, if necessary. Rarely ever going to a gas station makes you do things differently. What a great new situation!
- 6-24-2017** **Attack Spin.** When all else fails, the antagonist will claim the problem is with branding. With Volt, it's understandable for GM supporters to play the Toyota card. They figure with such a terrible reputation for "*over promise, under deliver*" that customer distrust alone is enough to undermine a product... regardless of how bad it actually is. We know Volt is small, expensive, and inefficient. That doesn't matter to them though. They still feel strongly that brand is the problem: "*The very minute Toyota comes out with a greater range, watch John change his tune and explain why the new figure is *superior*.*" It's that trophy mentality. If you point out any advantage whatsoever about another vehicle, they think you are claiming superiority. The same is true if you point out a shortcoming of their favorite. Pride blinds them from having constructive dialog. They feel they are always being attacked. What a waste. That obsession with range makes it even worse. The very idea of a moving target evades them. Toyota focuses on price-point. So naturally, the range offered will increase over time. You offer what's affordable for that particular time. When an upgrade is realistic, that becomes the norm. It's not a fixed value. It will change. No amount of spin will convince shoppers that good enough is competitive. The balance of cost & need allows improvements. Greater is not always necessary though. But looking at the big picture, you'll always see why the next step was taken.
- 6-25-2017** **1.1 Miles.** Backing into the garage with that much EV available isn't the ideal. To get the most from the battery-pack, you should arrive at your destination without any electricity remaining. On these warm days of Summer, that's what is happening if I don't recharge at work. Curious about how far that single charge will take me, I drive EV continuously. With all those consecutive miles building up, not taking advantage of HV mode is a missed opportunity. I've seen a little over 33 miles a few times now. That means the engine starts up close to home (for the 37-mile round-trip commute). Unlike with the PHV, the system in Prime warms up aggressively. It can be a very efficient approach, if that added load (which results in electricity being generated) is used effectively afterward. In my case, it has not been. I need to finally start using HV prior to running out of EV. That way, I will be able to take advantage of that 1.1 miles. Why not exploit a 55 MPG for 999 MPG trade opportunity, knowing that I can?

- 6-26-2017** **One Sentence.** Participating in venues where there is a diverse set of opinions is how you learn. After all, avoiding group-think is very important. Of course, even on the friendly forums, you do have to deal with the "reset" experience, where antagonist simply pretends you haven't already discussed that topic. The only way to avoid that repeat is to not take their trolling bait. That doesn't work in hostile forums though. You have to respond in some manner. What I've come up with to deal with that is the one sentence reply. It's an approach that doesn't leave them much to work with. You come up with a message so concise, they really struggle to spin it. Brevity is key. There's little opportunity provided with just a short stream of words crafted into a thought with the precision of careful consideration. This has proven very effective so far. Too bad it took so long to come up with the method. But then again, things were never this bad. There's a strong sense of hopelessness emerging from the status quo being shaken by Prime.
- 6-26-2017** **Great Expectations.** You hope for the best. When it actually happens, you celebrate. In this case, I shared the experience online. The cheers of rejoice was nice confirmation of others also seeing reason to celebrate. Many have great expectations. But with so few deliveries so far and it simply taking awhile to encounter situations to exploit the systems design, you have to live vicariously thought others. That's what I help to provide. This time, it was: Today was a 27 mile drive home from work with my wife. We started with a full charge. The climb out of the river valley at 55 mph with the A/C on was rather demanding. That changed to a 65 mph cruise a good chunk of the way. I passed twice in excess of 70 mph. Got home, still 1.4 miles of EV left. The entire trip was all electric.
- 6-27-2017** **Spreading Misinformation.** This got me really riled up: *"It can't regen the LI battery, it can only regen the Hybrid battery. It's a two battery system..."* There were already some posts attempting to figure out what the situation was. How could such incorrect claims be spread? Was that particular post intentional? Was the source of which it came attempting to greenwash? We wanted to know, especially me: It's hard to believe anyone would attempt to spread such extreme misinformation. Where did you get that belief? There is one battery-pack. A large portion of it is dedicated to EV driving. It's what gets recharged when you plug in. The other usable portion is for HV driving. If you drive down a mountain or turn on charge-mode, the EV portion is replenished. 6 weeks ago, I took a trip to Wyoming from Minnesota in my Prime. One stop along the way was Mt. Rushmore in South Dakota. The trip down from it resulted on about 10 miles of regen. Stop spreading that clearly incorrect information about Prime.

- 6-27-2017** **Purchase Analysis.** As a lurker, it's really easy to get drawn into arguments. You start reading to learn about the various points being posted. You want to learn why those are important. What does all that mean? Not knowing up front what topics apply to what outcomes create a lot of confusion. It's easy to focus, forgetting the overall purpose. For example: "*As a cost conscious consumer I really struggle with the whole Volt vs Prime purchase analysis.*" Sadly, there is no simple solution. Today, I got into it with: Notice the level of desperation of some to paint an ugly picture for Prime? That extreme is confirmation of a paradigm shift. They see the true competition. It isn't other plug-in vehicle. It's traditional vehicles... and reality is about to come crashing down soon, when the tax-credits trigger phaseout. The measure of success comes from replacement of those guzzlers. A plug-in with a "right sized" battery will compel the masses to buy. Drawing attention isn't enough. It's all about high-volume profitable sales. Change doesn't come from someone like you who takes the time to consider detailed analysis. Change comes from those shopping the showroom floor who take an unexpected pause to consider the purchase of a plug-in vehicle, a thought they hadn't ever entertained.
- 6-27-2017** **50 miles = 200 MPG.** The teaching moments are plentiful now. EV range posts were popping up all over that very active Japan sales topic. Focus only on "25 miles" is the classic, not considering the big picture problem. That's an invitation for me to jump in... which is what I happily did: 50 miles = 200 MPG. That's what you get when taking the time to study Prime. 30 miles of EV from a 25-mile rating is nice, but it really does come down to looking beyond electric-only range. As more Prime fill our roads, that real-world data will become more prominent. Seeing 199.9 MPG on the screen is what will solidify the purchase decision. No complicated math or detailed spreadsheet is required. It really is that simple. Plug. Drive. Get great MPG.
- 6-27-2017** **Inventory.** It's amazing how hypocritical some people can be. The same individuals who screamed "*foul*" when conclusions were being drawn prior to rollout having commenced in all states think nothing of doing that themselves now. We've seen that recently with both gen-2 Volt and Bolt. Watching those same individuals do exactly that with Prime is remarkable. It goes so far beyond double-standard, there's no excuse. In fact, after being called out on it and watching the behavior continue, you know they are intentionally trying to mislead. There's no excuse. So, I attempt to prevent those opportunities by posting inventory information before they get a chance, like this: Midwest deliveries of Prime began in April and have only been in very limited numbers. No supply for January, February, and March provides a misleading impression of true demand. Note that there are many still waiting for their orders to be filled. Worldwide rollout is underway. Inventory available for immediate purchase is a long way off.

- 6-27-2017** **Hope.** Some of those from that old daily blog have begun participating on other forums, ones not so welcome to the idea of superiority. So, their posts really stick out. It's looked upon with dismiss. Why in the world are you fighting the effort to spread acceptance of plug-ins by attempting to undermine a new popular choice? I jumped in to point out some history they would not be aware of: Watch future posts. You'll recognize the pattern after awhile. Sales results infuriate those who push for "*faster & further*". They don't appreciate ordinary consumers who just want a good buy, something well balanced & affordable. It's unfortunate some spin intent to undermine mainstream offerings. They want standout, not common. Pressure from the upcoming phaseout trigger of tax-credits will only make the trophy-mentality worse too. Hopefully, sales of plug-in vehicles genuinely trying to replace traditional vehicles will overwhelm their rhetoric.
- 6-27-2017** **Home Charging Discounts.** Hope of getting that starting today didn't work out. There was a programming issue with the meters. Watch for an update, soon... The point was to take advantage of discounted charging rates by having dedicated lines & meters installed. They offer a \$500 rebate to help cover the cost too. Since we'll be doing that for each vehicle, double that is a really nice opportunity to take advantage of. Why not? That's the point of getting into a program early on. Of course, I know of someone who did when it was first established. She pays even less. That's ok though, it's still a good deal for us. The reason for the discount is for demand to be off-loaded to non-peak times. For use, the 8AM to 4PM range is the same usual billing rate of 11.68 to 13.08 cents per kWh. That in itself is lower than what many others pay elsewhere. Our area of the county strives for lower cost, despite getting rid of most imported coal in favor of local natural gas. We are establishing local solar-farms and wind-turbines too. It's a nice place to live in that regard. Anywho, the discount from 9PM to 8AM is a lower rate of 6.74 cents per kWh. Nice, eh? Of course, Prime will only consume about 3.5 kWh for the commute to work. That isn't much electricity anyway. But the point is to lead by example. So, that's what we are doing. The catch is if you recharge during peak hours. That's from 4PM to 9PM. The rate then jumps to 41.44 cents per kWh. That's only during the week though. On weekends, the rate for all hours on Saturday & Sunday is the low 6.74 cents per kWh. Overall, it's a great setup, especially since there is no monthly service fee. We only have to pay for the equipment up front. The car is \$75 and the meter is \$70. Knowing we'll be living & charging in this house for a very long time, and the fact that it would be a selling-point years later, makes it a very good investment... which would eventually return a benefit from the discounts.

- 6-28-2017** **Clashing.** More questions arose about the head-butting. Seeing a Volt enthusiast lash out at a Prius Prime support is rather bewildering for a Volt supporter. It makes no sense to see something with such potential to be attacked. It's not like Volt, which clearly has a high MSRP concern. Toyota really strived to deliver on the affordable aspect. Striking a balance rather than playing up strengths is a confusing concept for the trophy seekers. In other words, they simply don't care about ordinary consumers. The purchase of a reliable vehicle that gets people from point A to point B in a clean & efficient manner without any demonstration of power is of no interest to them. So, basically, you'll never win. There is no recognition of something for the masses. They wouldn't be caught dead driving something common. Effort to appeal with something they detest is futile... unless you're like me, who uses them to flush out detail about what the market truly find important. Anywho, I added this to the on-going post clashing: His priority is faster & further. My priority is high-volume profitable sales. That fundamental difference has been a major problem. I couldn't care less about enthusiast wants, it's all about mainstream consumer need... sustainable business.
- 6-29-2017** **Spin.** Some have an extremely difficult time accepting change, still attempting to spin a picture of leadership using more to draw interest. It's the faster & further belief. Appealing to the primal urge that more is better, the dominate discussions. That doesn't translate to increased sale though, which is why the stance has turned to such desperation lately: *"Now Toyota has a weak offering and you are claiming superiority in the plug-in arena, any which way you can spin it."* Pointing out the initial success of Prime and laying out reasons for the potential makes Volt enthusiasts crazy. They don't see a partnership as the Volt supporters do. They want superiority, hence that becoming the focus of their fight. It's really sad they don't see traditional vehicles as the competition. Isolating their world to just other plug-in vehicles is how they deal with *"too little, too slowly"*... since from that perspective, all appears to be going well. But when look upon from the larger perspective, the entire market, things look grim. I pointed out that cold, hard reality this way: Ordinary consumers just plain aren't interested in getting the most, they simply want a good buy. That nice balance is why Toyota will sell a lot of Prime.
- 6-29-2017** **Recognition.** Eventually, even the most stubborn of naysayers will give up. Either they become silent & disappear or their opinion ends up becoming what you had been saying all along. They'll make it seem the idea is new & obvious though. What you had struggled to point out for years won't be recognized. In fact, they'll do their best to ignore you. What I've found very effective in this regard is to keep replies to just one sentence. They cannot say much in return, since you give them almost nothing to work with or any reason to lash out anymore. However, you are still entitled to point out and ask about the transition itself: Remember how often I sighted the *"too little, too slowly"* concern and no one else agreed, instead insisting that a solution would soon be delivered. GM was going to do this and do that and... If we are at a turning point, which Tesla Model 3 would clearly highlight, discussions can finally be turned toward traditional vehicle replacement. Are those who blew off the concern ready now?

6-30-2017 **We Already Did.** Sometimes, you can't help but to wonder: "*The biggest savings would definitely be in the biggest vehicles, which hasn't been discussed very much at all.*" A reaction like that from an ordinary consumer is quite understandable. But having this come from a frequent poster who has expressed quite the opposite, it's hypocritical. The change of stance is encouraging though. You know they will never admit such a move. Seeing a shift away from the status quo is the best you'll get. So, I pushed that step in the right direction: That topic has been discussed to death... to the point of people getting angry whenever reminded about it. All those reminders of Two-Mode cannot possibly be forgotten. Remember what its purpose was? We have since moved on discussions of to putting Voltec in a SUV, like the new Equinox. We know Mitsubishi & Kia are both rolling out plug-in SUVs. We also know that Nissan & Toyota have easily augmentable hybrid designs to offer a plug. Recent rumor is that Ford has a mule they are now testing too. Then of course, there's Chrysler approaching the same issue from a different angle. If anything, the lack of discussion is from GM remaining totally silent on the topic. There's nothing to discuss. btw, another reminder is how much pushback there has been about discussing the topic of diminishing returns. That also addresses the topic of bigger vehicles offering the biggest saving.

6-30-2017 **Problems Beyond the Technology.** Lack of being able to see the bigger picture has plagued Volt enthusiasts for an entire decade now. They focus so intensely on the engineering with a belief that superior technology is all it takes to achieve mainstream sales. It boggles the mind how some people lack business background to the extreme that they never notice what's contributing to the lack of progress. That was my minor in college, so I took the study the discipline intensely. My engineering emphasis (the software type, studying all aspect of programming) was what came easy. Those business classes were quite a challenge. I struggled to pick up on the fine details of economics, accounting, and legal. It was a lot of work... which I didn't realize would serve me so well later with this. But when it comes to programming, understanding user need and recognizing market pressure is absolutely vital. That's why finally seeing this was encouraging: "*Dealer acceptance remains a huge problem.*" Talking about too little, too slowly. Though correct, it is only a start. There is still much more to see. Hopefully, some will find this informative: Sadly, that is a big problem. Why bother trying to sell a vehicle that will generate a lot of questions & concern, consume a lot of personnel time & resources, and result in a low-profit margin? Once we finally get past that hurdle, there's still the issue of infrastructure. How many of you have the capacity to handle delivery of two 10 kW draws at the same time? Setting up for decent charging at home of just one car presents challenges... and that's the low-hanging fruit. Adding a second is not a simple next step. Think of the extra expense and the physical limitations.

7-01-2017 **Unrealistic Expectations.** Vague comments contributed to problems. Even when innocently stated, they can become a source of misleading. A review of Bolt from a highly respected green website did such a thing today by posting: "*Buy a 240-volt Level 2 charging station to install at your home. It's roughly a \$600 investment.*" The omission of vital detail contributes to incorrect assumption. We don't want that. We want to set realistic expectations. I quickly jumped into the discussion to interject some of the missing information: The odds of someone having a 240-volt line in the needed location with available capacity are extremely unlikely, to the point of worry that you're setting up unrealistic expectations. If they are lucky enough to have a service-panel in their garage and it can support that addition, the cost of hiring someone along with the wire, conduit, outlet, and permit will easily double the sighted investment price. If you have a second vehicle in your household that would also want to plug in, that's going to add quite a bit more... especially if also want to take advantage of off-peak or time-of-use discounts. Since I just did that for my home a few days ago, I know it's best to make sure the true cost is known up front and not trivialized. The benefits are great, so it's worth consideration. Having 2 lines each able to deliver 10 kW to both cars at the same time is really handy. No messing with inconvenient cord locations either. I did end up having separate cans installed to get a sub-meter for each car. That simplified the setup, but added some cost; however, it did provide an extremely convenient way of tracking true electricity expense for each of the cars. The detailed billing should be quite informative. Long story short, that rough \$600 is way off for the typical household. Don't be afraid of quoting a more realistic cost. Saying \$1,500 isn't that big of a deal when stated in terms of how much you won't be spending on gas.

7-02-2017 **Better Warm-Up.** This comment was part of a brand new discussion: "*i prefer to make the decision to switch from ev to hv, rather than have it happen when i'm not aware. one for the reason stated, and two, to do a better warm up while i'm still in ev.*" It's interesting to feedback from PHV owners about Prime. Their perspective is unique. Most people will only know Prime, so their observations will be quite different. The power & feel are not the same. You do things differently with more EV capacity available too. I joined in asking: Better warm-up refers to what? Toyota's choice to emphasize the switch was intentional, making the driver well aware of the transition so the subtleties of operation to follow won't be overlooked. For example, the MPG remains unchanged. You can drive for 50 miles before MPG drops below the maxed out "199.9" value. I did that last week to find out how far I could go on just a single charge before efficiency in HV would actually go unnoticed. 50.6 was the distance traveled, just on my ordinary commute, followed by a run to the coffeeshop. Had I plugged in between, the MPG would have stayed at 199.9 for all my driving that day. Another thing to keep in mind is that warm-up is more aggressive in Prime than it was in PHV. If I drive my entire commute on just a single charge, the engine will fire up around 33 miles. Shortly after warm-up completes, I notice EV capacity available. This newer system takes advantage of stoplight & acceleration activity. How many owners would notice that, especially if the transition from EV to HV wasn't emphasized?

7-02-2017 **Backfired Advertising.** The on-going discussion with Volt enthusiasts now is the effort to improve efficiency of the biggest vehicles, in this case, pickups. Inevitably, a reference to Ford was finally made: "*Chevy responded by bashing aluminum in their pickup truck ads.*" Sales have confirmed Ford's gamble really paid off. The market has embraced aluminum. There's worry the same thing will happen with Prime, despite the smaller EV range. I was happy to point out some history to draw a comparison:

Chevy bashed Prius about lithium in their Volt ads.

They were attempting to portray Toyota's approach to technology as outdated, using technology from the long-ago past. Problem was, Chevy's timing was horrible. Shortly after the new advertisement campaign began, Toyota revealed the next-gen Prius. Rather than using NiMH batteries, as the television commercial stated, this new Prius would be using Lithium instead. The commercial abruptly vanished.

GM's struggle to leap-frog with Volt never materialized. That entire first-generation was haunted by sales they simply couldn't ever match, not to mention exceed as so-often boasted. It was a disaster, now getting worse... because the gen-2 Volt about to be rolled out didn't fulfill those original goals GM had set either. MSRP was still above \$30k and depleted efficiency was still below 50 MPG.

No distraction was available either. All they could do was hope the next-gen plug-in Prius didn't deliver too much of an improvement. Turns out, it did. Now, there's this on-going efforts to label the elves as trolls for providing reminders. Well, too bad. Acknowledging shortcomings is what makes a product better.

Those here, you know who you are, ragged on Prius PHV relentlessly. Although the arguments were weak and quite a stretch at times, they were taken seriously nonetheless. Remember the shortcomings that were claimed? Notice how they aren't anymore?

We know Chevy is pursuing aluminum pickups too. The lesson learned with Volt applies to this effort as well, it must be competitively priced. Cost of aluminum is very expensive. Cost of lithium is also very expensive. Notice how much emphasis MSRP gets? People want improvement, but few are willing to actually pay a large premium for it.

- 7-03-2017** **Time-Of-Use Meters.** It took some work to finally get them installed. The first attempt last week was a bust. All they needed to do was swap out the hard-connection in the socket with a meter. It is literally just a device you plug in. The catch is, that device must be programmed correctly. It wasn't. They should have tested it prior to delivery. Oops! Oh well, I thoroughly enjoyed chatting with the installer. He was very well informed and was happy to answer my questions. This took place only an hour following the inspector having sign-off on the contractor work. He found the lines from the service-box in the garage, which punched through the wall for outside installation of the 2 socket boxes for the meters (known as "cans") then returned back into to the garage, nicely done. The lines & outlets were too. He even liked the brackets I came up with. What he didn't like what the chargers themselves, since they are not UL listed yet. Fortunately, I'm well informed. My study of that hardware confirmed the redesign early this year was for certification. The obvious part of that was the shortening of the outlet cord. For UL approval, it must only be 12 inches. That meant the convenience of the prior 6-foot length would be lost. The thickness of the cord had been increased substantially too. This is why I had to so carefully consider mounting. Anywho, I knew papers had been officially filed and what I had purchased met all the criteria. Testing would soon be complete. So, my use & endorsement later would be no big deal. The inspector took the time to share detail I could provide our plug-in owners group with. It worked out nice. We got the needed sticker. The service guy from our CO-OP (the local power-supplier) came over shortly afterward and popped those time-of-use meters in the cans. All 3 categories registered. They cycle through the display, allowing us to see how much kWh of each we'll be billed for. Very nice!
- 7-04-2017** **Holiday Travel.** We have been doing some in my wife's Prime. So far, the average for 251 miles of driving comes to 58.1 MPG. That's with the A/C running the entire time. It also included taking advantage of Charge-Mode. For just a recharge from the wall, I'd say that was pretty darn good. Think about what a regular Prius would get under the same conditions, especially when taking into account the spans of highway at 70 mph. It's nice knowing that even under demands of vacation, you can still enjoy the benefits Prime has to offer. Consider what a traditional vehicle would deliver under the same circumstances. Visits to see the family over a holiday are quite routine. Today though, we were all over the place. That's what happens when it occurs during the middle of a week, rather than on a weekend.
- 7-05-2017** **First Tank.** This was her first refill after 5 weeks of ownership. Being on vacation required far more use of the gas engine than usual. But that's ok. This is what the system was designed to deliver. Regardless of drive demands or availability of an outlet to plug in, you still get great efficiency (and clean too). In this case, it was 1,278.5 miles for the tank. That worked out to an average of 130.3 MPG overall. That certainly isn't anything to look down upon... though seeing the maximum 199.9 MPG on the display everyday while commuting is nice. That certainly is higher than my average too. Our round-trip to Wyoming in my Prime was over 1,700 miles with lots of the travel at 80 mph. So naturally, my average overall is lower. No big deal. It will creep back up over time. I wonder how high. Hmm?

- 7-05-2017** **Misrepresentation.** It's easy to find examples of cherry-picking. They are often used to make generalizations. For example: "*Most Prime drivers will have to use gasoline quite a bit, while lots of Volt drivers will avoid it 95+% of the time.*" What's difficult though is to dismiss that example, especially if you are not certain that it represents an extreme. Vague claims make that even more questionable. How many is "*most*" and how much is "*quite a bit*" are valid things to ask. Most of the time, you don't have to though. The real-world data emerges on its own. Patterns begin to emerge. That's why they attacks on Prime are so intense now. They know the opportunity to undermine is limited. Owners sharing stories will drown out the rhetoric after awhile. I pushed back with some of my own information and points to consider: 2,074 miles with the most recent tank in my Prime shows potential for that to be false. No real-world data indicates the claim speculation only for now. 53 could be overkill, especially if "*most*" Prime owners are like me. Currently, that range pushes cost out of reach for "*most*". In other words, drawing a conclusion based of a specification isn't a good idea. Also, don't overlook the big picture. Sales of more Prime would offset a lower volume offering anyway.
- 7-06-2017** **Predictive Efficient Drive.** Did the Prime just brake on its own? That certainly wasn't a question I had ever thought I'd be asking myself. It was as I approached a turn into my neighborhood. After some research, it turns out the Prime did. I had driven enough for data to confirm that location was easy to predict. There's a feature called "*Predictive Efficient Drive*" that the Premium & Advanced models have. Toyota included this without really promoting it. Owners with enough miles are just discovering the feature now. It's designed to "*help boost real world fuel economy*". I suspect it will for many too. Think of it as an automatic hypermiling behavior. That's something which no quick review or rating would ever include, a nice extra discovered long after purchase. Cool. After some poking, I did find an option on the screen to indicate were data had been collected so far. They show up as bright green diamonds on the map. Sweet.

7-07-2017 **Panelist Discussion.** There we were at a convention in a room filling up with those interested in finding out more about plug-in vehicles. Volt, Prime, i3, Leaf owners and an expected Model 3 buyer (who had a Leaf) were all there representing the future that audience wanted to know more about. We could have easily gone twice as long, especially if the room had been bigger. There were a ton of questions... none of which included anti-EV sentiment. That's quite different from showing many years ago. Battery technology has proven reliable. Now, focus has shifted to cost and how recharging takes place. That's undeniable progress. Yeah! I thoroughly enjoy the experience. It was very encouraging. It did point out how much longer we still have to go though. People simply have no idea what they are considering... but at least consideration is finally taking place. That's where Prime comes in. New rollouts like the upcoming next-gen Leaf and Model 3 will validate the market shift toward electricity. The crude roar of a combustion or compression engine is being replaced with the smooth & silent of an electric motor. No more noise. No more shifting. No more worry of excessive wear. Think about how long an engine in Prime will last. That high-optimized power source simply won't be worked as much or as hard. And with a pure EV, that electric-only propulsion comes exclusively from a brushless motor. Ever hear of a Prius motor wearing out? Nope. It simply hasn't happened. Those electric motors keep going and going and going. Eventually, the battery-pack will loss capacity, but replacement basically resets the vehicle to almost new status. That doesn't work with a traditional vehicle. You still have a transmission to consider even with an engine replacement. Anywho, it was very rewarding to be part of that.

7-07-2017 **Parking Lot Presentations.** There we were at a CON, the 4-day event where sci-fi exploded into a celebration. We had reserved a room for a panel talk about plug-in vehicles, which was clearly too small. It was a great opportunity. I was one of the speakers. When it finished, we all left the hotel to see those cars in the parking lot. With so many people walking through that area, it was a nearly ideal venue. Lots of questions were asked. With everything from my Prime to a Tesla Model X, the variety really drew a crowd. Being parked next to a Volt was nice. You could compare them side-by-side. The smaller size of the seating for Volt was obvious. The higher cost for Volt was obvious too. Seeing that Toyota had chosen to just raise the floor for the added battery capacity made it quite clear why that design was so much more affordable. You take an already well-refined hybrid, then augment it with more electricity. That's a strong business case for reaching the masses. You can give GM credit for making an appealing niche, because people there checking it out were definitely intrigued, but that falls short when it comes to common consumers actually purchasing it. The same was true for Tesla. It's an impressive as you could imagine, but far too much for competing directly with everyday vehicles like Camry & Corolla... hence the approach with Prime. Interest in the Leaf there was intriguing. People were clearly excited about the potential the next one could offer. That's likely why I was asked so often about plugging in at home. Fortunately, I had my 120-volt charger there. Showing people that it plugged into an ordinary household outlet made the discussion short & sweet. They understood the simplicity. I can't wait for more opportunities to do presentations.

- 7-07-2017** **Model 3 Production.** It began today. Tesla rolled out the very first one. What an amazing coincidence that we just happened to have a panelist discussion and vehicle showing scheduled for the same day. It was extremely well timed. This particular audience was one that felt the original Tesla offerings were simply too expensive. That's why when I mentioned a base MSRP of \$27,100 for Prime, which included 4 key safety features, really caught the attention of those checking out of our display in the parking lot. Knowing that Tesla is aggressively working toward having their own affordable offering is quite a message to convey... something GM failed miserably at with Volt. How can you reach the masses if the price is too far out of reach? Progress like this is wonderful. Think about how the work Nissan has done in this regard. Rather than suffering from the Osborne effect, quite the opposite happened. The heavy investment in a next-generation Leaf has stirred more sales of the older one. That wasn't anticipated. GM may have hoped the same would happen with Bolt, showing an overall investment in support of plugging in. The outcome has been leaving Volt in a very awkward position. Had Volt offered a larger interior like Bolt or Model 3, things could have been different. Unfortunately, it's still quite cramped in back... not at all the approach Tesla has taken. It's easy to imagine Model 3 becoming quite common as a family vehicle. We'll find out soon enough. Projections are that 20,000 will be delivered by the end of the year.
- 7-07-2017** **Leaning Down.** Being parked next to a Volt during an event showing, you learn a lot about the supposed competition. Our effort is to replace traditional vehicles, so that belief of competing with each other quickly melts away. Supposition is replaced by an effort to find strengths. With Volt, it obviously offers greater EV range & power. The obvious tradeoff is a much higher MSRP. The not-so-obvious is what caught my attention for the first time. It wasn't until today that I noticed the deeper storage area in back is actually disadvantageous for some. That fact was pointed out by someone simply seeing both side-by-side. Virtually everyone focuses on the depth. This person pointed out leaning down. With Prime, you simply slide out cargo. Things like grocery bags are easy in, easy out. No bending required is a big deal for some. After all, how much more do you do that rather than cargo something so large it needs to go on the lowered seats instead? I hadn't ever thought of that. Heck, even an idea like that hadn't crossed my mind. This is just like seating. We had the comment today that Model X was more appealing than Model S simply due to the entry & exit height. The owner of an S was looking to switch to a X for that very reason. Heck, this is why Toyota is giving C-HR a try. It's a Prius with the platform raised... for that very reason. Interesting discovered, eh?

7-08-2017 **Why further discuss?** The past few days have included an intense sparring session between Volt and Prius. It wasn't from me either. True, I was the one responsible for shifting the rhetoric away from the daily Volt blog over to the general audience blog, but I didn't actually provoke. The new participants are responsible for that. It's all new to them; however, the arguments are not. They are much more diluted too. There simply isn't enough vague anymore. Too much real-world data readily available is helping prevent any of the old material from gaining any traction now... which was the point. You bring up the topics again and watch how they play out differently this time. Only thing is, I'm not just watching. I jumped it to response to that question asked of an obvious antagonist struggling to undermine Prime:

There is no point to his "*not a hybrid*" argument. Gen-2 of Volt blends engine & motor operation even more so than Gen-1 did. Neither operates as a "*range extender*", which is a serial design that never provides any momentum power to the wheel. The only hybrid that does that is BMW i3.

Since Volt's initial rollout, there has been a desperate effort to separate it from Prius. Yet, as this discussion topic clearly highlights, that hasn't been possible. It has a gas engine and electric motor, using them to squeeze out maximum efficiency... and falls short with both.

25 kWh/100mi is the EV efficiency rating for Prime.

31 kWh/100mi is the EV efficiency rating for Volt.

54 MPG is the HV efficiency rating for Prime.

42 MPG is the HV efficiency rating for Volt.

With the 52 MPG rated Camry hybrid LE about to rollout, there's a new fear of Volt being left behind. So, it's quite understandable seeing so much semantic bickering at this point. That's a sure sign of having run out of "*facts*" to support the effort of realistic replacement for traditional vehicles. It's very easy to imagine it supporting a plug in the not-too-distant future.

7-09-2017 **Misrepresentation, opinion.** This round of attacks included trying to misrepresent the cargo area by not stating an opinion. He figured by posting a link for a video to have someone else say it for him would be looked upon as passing along information instead, that he was just provided facts. That, of course, is a load of crap... and I was unwilling to put up with his continuing stream of posts: Incorrect information posted with "*opinion*" is yet another example of misrepresentation. Leaving out purpose for stating "*just the facts*" is a problem too, since it contributes to false assumptions. In this case, it is not "*around 8 inches under the cargo cover*" as claimed. It is actually 10.5 inches. It is not impractical as implied either. In fact, that's quite the opposite. After showing my Prime to enough people, I have discovered the advantage of the raised deck. It's at an extremely practical height for carrying routine cargo. You don't have to bend over and lift. Getting items out of the back, like groceries, is a simple matter of sliding. If you do have an item larger than the area above the cargo cover, you simply drop one of the seats to hold it. No big deal. In other words, your vague attempts to undermine have not gone unnoticed.

7-09-2017 **Misrepresentation, labels.** Use of labels to misrepresent is something we have to deal with on a regular basis. It's really a pain when that type of endeavor to impede is taken. Since official ratings or certification is sighted, it gives the impression of whatever you post as a desperate measure to spin the truth. What the antagonist hopes is you won't bother to actually look at the detail of what that label represents. They hope you'll assume what they are implying rather than what it actually means. The on-going nonsense included this: *"GM is not just saying it seats 5, it is the official government passenger rating of the vehicle..."* That's frustrating to read. What a waste of time having to deal with stuff like this. All it takes is a few seconds in the vehicle itself to confirm the effort to misrepresent is quite desperate, that they feel threatened by the idea of losing yet another argument point. Unfortunately, online exchanges make that a challenge to overcome. Oh well, all I can do is stuff like this: We've seen the *"official"* word be exploited again and again to misrepresent. You know all too well that the spirit of the *"5 seat"* label is not being acknowledged. No one in their right mind would ever call a location without a place to put your legs a proper seat. Having to straddle a hump to squeeze your legs into the area being used by other passengers is absurd, especially with a car that's narrow in the first place. The firmer padding for that middle area results in a reduction of headroom too. It's quite telling when the message of *"facts"* is really an effort to portray something obviously false as no big deal. If this is how Volt comparisons to Prius will continue, be prepared for a serious backlash. Effectiveness of misrepresentation can take an abrupt turn.

7-09-2017 **Misrepresentation, doubt.** The technique of raising doubt has been a very effective means of undermining for decades. You don't want your product harmed by new evidence of a problem, you raise doubt. We saw that for many, many years about smoking. We've seen the same thing for climate change. When facts are diluted or dismissed, it gives pause to the effort to deal with the problem. That delay is exactly what the antagonist wants. They know an end is coming. Slowing it's progress is all they have left. We're certainly seeing that now with the introduction of affordable plug-in choices. The expensive ones unable to reach their intended demographic are in trouble. With this misrepresentation, we are witnessing attacks on Prime by Volt enthusiasts. They know that when Hyundai's new offering, the plug-in hybrid model of Ioniq, pressure will grow significantly... especially since GM will also be facing the phaseout of tax-credits at the same time. I kept the discussion going with: Again, you are misrepresenting. This time, by posting moot points. The use of *"more"* and *"longer"* and *"some"* are all extremely vague, which leaves the reader concerned by raising doubt. Taking advantage of assumptions is a common tactic for undermining. The purpose of a PLUG-IN HYBRID is to significantly reduce consumption, not to eliminate it. So what it the engine briefly runs. That's what it is there for. By repeatedly posting the message over and over again to create a stigma, you are misleading people about what the system was designed to deliver. You get an extremely efficient gas engine to supplement the smaller battery-pack. It is not an emergency backup. It is there to supply power when desired. If you want to save electricity for later, generate electricity while driving, or get an extra boost for high-demand use, the engine is readily available. The spin about purpose has become quite evident. We see what's happening. It misrepresents.

- 7-09-2017** **Misrepresentation, power.** Since way back when Volt first rolled out, the thought was power would overcome all other shortcomings. That approach failed to attract anyone beyond niche buyers. Mainstream consumers simply aren't willing to pay a premium for power. They obviously like it, but that is far from a leading priority. Their purchase decision falls upon other much more important factors. Nonetheless, they keep trying and keep failing. Our drive to dinner with friends last night provided yet another great example of how their effort to undermine falls desperately short. In reply the latest effort, I posted: My wife floored it yesterday in her Prime to pass someone on the highway who clearly didn't place driving as a priority. For our safety, she wanted to get past them quickly. We shot up to 75 MPH effortlessly, never triggering the engine. It was all EV. There's nothing else to clarify. No gas was consumed to supply that burst of speed.
- 7-09-2017** **Misrepresentation, purpose.** All I can say is "Wow!" After those many exchanges, he continued to be belligerent. Outright dismissal of doing anything to misrepresent is a blatant sign of concern. That lashing out is the panic we witness whenever something goes horribly wrong and all other opportunities have been exhausted. This is how I decided to end the nonsense: **YOU ARE COMPLETELY MISSING THE POINT OF THE TECHNOLOGY. IT IS NOT FOR AUTOMAKERS TO COMPETE WITH EACH OTHER. THE PURPOSE OF THE TECHNOLOGY IS TO REPLACE TRADITIONAL VEHICLES.** Got it? Do you honestly think a customer shopping the dealer's showroom floor looking for a GM vehicle is going to care whether or not that Volt there in front of them is better than a Prime? No, they won't. That ordinary mainstream consumer will be comparing that Volt to a Cruze or Malibu, other vehicles from GM's own product line. It boggles the mind how **PURPOSE OF THE TECHNOLOGY** is completely overlooked for the sake of bragging rights. Our market's obsession with winning small battles has the consequence of losing the war. Traditional vehicles must be replaced with choices that are actually competitive. A simple look at the MSRP of Volt causes that shopper to walk away. That is a fact you continue to evade.

7-09-2017 **Misrepresentation, excuses.** It never ends. The concern over "*too little, too slowly*" has been overwhelmingly validated. Time is rapidly running out and some continue to make excuses. I'm in utter amazement how enthusiasts are becoming apologists. That was unexpected. They see what's happening and try to defend it. Unfortunately, all that does is soften the impact. The inevitable failure to achieve goals will still happen. You'll just feel better about having been so wrong. Even writing about it makes me uncomfortable. Knowing the purpose of replacing traditional vehicles will have been missed by not addressing shortcomings is a big let down. You learn from mistakes and move on... not make excuses! Ugh. Oh well. It's not like warnings weren't provided: Tax-Credits will trigger phaseout next year for GM and you're making excuses for delay of dealing with the situation. We need affordable choices now. The dependency upon subsidies to compete will come to a painful end and refusing to deal with it by portraying the market as a tiny niche is unacceptable. Refusal to acknowledge mainstream buyers through redirection of "*EV curious consumers*" is denial of the need to replace traditional vehicles quickly. Your claim of "*They aren't comparing Cruze or Malibu to Volt*" supports that. They simply don't bother. Why waste time on a expensive compact specialty vehicle? Look at purchase priorities of ordinary consumers. So what if Toyota did a much better job of matching Prime to them and GM didn't with Volt? That's no reason to deny their importance. Sighting reasons to wait is not a good plan. Like it or not, next year's phaseout trigger is coming.

7-09-2017 **Misrepresentation, who?** Pressing the reset button each time something new rolls out is how shortcomings are concealed. When I called out the antagonist, he tried to spin it right back with: "*Why such a desperate effort to ignore/exclude/marginalize key feature differences between the the Prime and the Volt?*" I wasn't about to take his bait. I'm not going to press the button. The goal will remain fixed upon traditional vehicle replacement, period. None of the conquest nonsense is acceptable. So, I jumped right back into the routine of retaining focus by asking: Who is the market for Volt? That question has been asked countless times over the past 7 years. The answer was always the same. GM was targeting Volt for conquest sales. That's why the red herring of Prius verses Volt has persisted. Enthusiasts couldn't care less about actually changing GM's own loyal customers. All attention was placed on winning over new buyers instead. What a terrible waste of tax-credits, squandering them away for the sake of bragging rights rather than actually replacing traditional vehicles. We continue to be told to be patient, yet no progress is actually being made with the replacement. Cruze, Malibu, and Equinox owners keep replacing their old models with new models. Volt isn't of any interest to them. Say whatever the heck you want about Prius or Toyota. The problem for GM isn't going away. A void & Distract only works for so long. The product-line must change.

- 7-09-2017 Misrepresentation, disagree.** The effort to get me to compromise was not going well. You could tell there was growing frustration related to my unmovable stance. It has been 10 years. Being told GM would leap-frog the competition gets old... when it never actually happens. Even with a \$7,500 subsidy, the mainstream sales we had been promised never materialized. They didn't understand the market. They had no idea how many challenges Toyota had actually overcome. GM continues to struggle... which would be fine if there was an effort to address the problems, then they too could overcome them. It's not unrealistic. It's quite reasonable. The catch is to shallow pride so direction can be changed. Acknowledging efforts had been targeted the wrong way is how you get back on track. Pretending their isn't a problem doesn't help. I'm not going to agree that all is fine, that we only have to be patient. Waiting for a product not targeted at mainstream consumers doesn't make sense, as I replied: No, I don't agree. The goal of "*nicely under \$30,000*" was set an entire decade ago and promised for gen-1... then gen-2... now gen-3. No more excuses. Toyota already delivered a MSRP of \$27,100 for a base model Prime loaded with safety features. Camry, RAV4, and C-HR hybrids are all being positioned for plug-in models. No more delay. Why must we continue to wait for GM to catch up, despite having such a supposed huge lead? Where is the affordable model? What is the plan? Who is the market? When will traditional vehicles finally be replaced?
- 7-09-2017 Misrepresentation, repetition.** It's rather remarkable to see so many of the same old nonsense resurface again. There's no point to following the path it take us this time though, since all of that research is complete. The antagonists of the past provided information to steer away from the same traps the next time around. That's how you avoid repeating the same mistakes. I learned. They didn't. It's so simple. Just pay attention, then remember. In fact, if you are reading this, you know how I remember. Taking the time to document the detail as it was playing out is the source of study material later. Watch for patterns. React based upon what the past taught us. Don't just try the same old thing again. Ugh. Seeing that repetition play out another time is truly remarkable. Those who don't learn from failures of the past are doomed to repeat it. I summarized the absurdity of the situation with: Volt never attracted GM's own loyal customers, hence the "*who*" question in the past and the tax-credits having been wasted by conquest sales. You can continue playing the game... There is 10 years of that spin to work with. Read up on that history. You'll be surprised by the similarity... and lack of progress.
- 7-09-2017 Misrepresentation, resentment.** It's getting intense. GM set the goal of 60,000 annual for good reason... and the enthusiasts know it. They've got nothing else left to defend their lost cause though. So, there's lot of posting going on to dissuade its importance. If find it intriguing what they'll claim. Simple dismissal doesn't always work. They have to get creative about missed goals. It's often a reinterpretation of what was stated. That's why I so clearly document comments from when we first hear of something. Anyone can distort long afterward with some degree of success. But back when it first happened, that's extremely difficult... especially if you saved the exact quotes from those in favor of what was said. You can later catch that same person changing their story later... which is where the resentment comes from. Some get really upset from you using their own words against time. We'll too bad. I'm not going to allow their misrepresentation to continue.

- 7-09-2017** **Misrepresentation, flat sales.** The most irritating of shortcomings with GM's struggle for Volt has always been the most important. It's sales, which have been flat. The most recent month's outcome was just 1,745. That isn't any improvement over the previous generation. Growth has not been achieved. Each report just adds to the stream of disappointment. Witnessing the continued lack of progress is how such misrepresentation has gotten so out of hand. The enthusiasts have run out of options. There is literally nothing else to work with. What else can be said at this point? Every imaginable argument has already taken place. It's over. They just don't want to acknowledge it yet.
- 7-10-2017** **Timing Gamble.** Toyota's decision to not use up tax-credits with gen-1 is paying off. Pointing that out today sure stirred the pot. Discussion branched all over the place. There was confusion, denial, and some lashing out. What a mess. The worry that GM would screw up consumer perception like they did with diesel decades back was warranted. They rolled out such a terrible product, it disenchanted the entire market. Diesel was all but totally abandoned as a result. Fear of that happening with EV came about for the same reason with EV1. Thankfully, the claim of there not being any consumer demand was exposed as farce. They did still mess up perception though. This is why Toyota keeps their distance. If fallout comes, they won't suffer from it. The gamble of waiting sure looks like a good one. Claiming that timing is "*too late*" don't hold merit. The market as a whole is only now starting to notice plug-in vehicles. Those ordinary consumers who just want a reliable form of transportation for a good price are the great untouched still. They have yet to begin research. Actual shopping is still a few years off. Until they start seeing them on the road and noticing public charging-stations, the game of sales hasn't really begun. That's why saving the bulk of tax-credits for now makes so much sense. Toyota chose wisely. GM on the other hand, has almost used them all up already. Oops! It's like sprinting early in the race. You end up tired long before anything important even happens.
- 7-10-2017** **Two Vehicles.** The topic of "*streetlight charging*" came up yesterday. Coincidentally, I had actually just witnessed that. It's a nice opportunity to take advantage of, when offered. Unfortunately, it isn't as convenient as you might think. Not all charging ports are located in the same place. Some have them in front. Some have them by the driver's door. Some have them by the passenger rear. It varies, which means parking situations will be beneficial to some more than others. For Prime, being able to park next to a streetlight, then plug into it is no big deal. The port is on the needed side. For Leaf, it's port in front could take advantage of the opportunity too. But with a GM or Ford plug-in, the cord would have to be wrapped around the car and the charging handle stick out into traffic. That's obviously not good. But rather than stress that awkward placement in a circumstance some may never even witness, I thought it would be better to bring up a far more realistic situation. What do you do at home when there are 2 vehicles sharing the same garage? Hanging a cord from the ceiling may be an option, though the cord would still be in the way at times. For us with having 2 plug-in vehicles, it worked out really nice. Here's what I shared & asked: My wife parks her Prime on the right side of the garage, to allow maximum room for the driver's door. I back in on the left for the same reason. That makes plugging in very easy for both and completely eliminates stepping over cords. It also makes plugging in while parked in the driveway possible. How are other 2 plug-in vehicle homes dealing with recharging?

- 7-11-2017 Emissions.** Notice how no value whatsoever in the comments is placed on the reduction of smog-related emissions? That's really a sad statement about priorities. Sadly, I've said it countless times over the past 17 years too. Almost none of the reviews ever take them into account. Focus entirely on efficiency payoff is such a waste. Since when do those driving guzzlers care anyway? It's all just a stall tactic. They know they'll ultimately lose. You can only ignore the younger generation for so long. For the perspective of our children, it simply makes no sense not embracing new technology. It's an expectation in their mind. A constant state of improvement is the norm. Imagine never upgrading your phone. Gasp! When a better technology comes along, you replace the old with the new. Why in the world would you keep buying the old. That kind of purchase makes no sense. Yet, we see that with the traditional vehicles. Buyers pretend there isn't a better choice available. Ugh.
- 7-11-2017 Statistics.** Now that things are settling down at home with the 2 new Prime and the 2 new chargers, it's time to start gathering some easily sharable real-world data. For example, how much recharging can you achieve in just 1 hour? Today, I measured... though I missed my timer by 2 minutes. So, after 1 hour and 2 minutes, I have something to share. Starting from empty, the battery-pack was able to utilize 3.66 kWh of electricity. This is data shown on my phone, using the app that connects via Wi-Fi to the charger. In the Prime itself, the charge-level stated it was at 62%. I bet that isn't what you were expecting. Since a full recharge takes 2 hours, most people assume half would be 50%. But in reality, the charging isn't linear. You get more electricity initially, then it tapers down. That gradual drop as it reaches "*full*" is part of the longevity approach. It doesn't put as much demand on the chemicals within. Another part of that is "*full*" not actually being full. When it states 100% on the display, it is really about 85% of the battery-pack's actual capacity potential. Not recharging entirely helps prolong life too. Anywho, that 62% on the display worked out to a EV distance estimate of 21.3 miles. Not bad for just a little over 1 hour of charging.
- 7-12-2017 Top Plug-In Hybrid Sales.** The website moderator published this blog topic, knowing it would stir quite a bit of posted activity. Right away, the trolls emerged too: "*So to jump from 0 to 200,000 sold per year in 8 years is quite an accomplishment...*" The expectation as an elf is for me to immediately squash that attempt to mislead with solid fact corrections and a jab... to stir even more posting. So, I did: No, not even close. 227,800 Prius alone were sold in 5.4 years **WITHOUT** any tax-credit help. There wasn't a \$7,500 subsidy back then. The only thing available in those days was a \$2,000 deduction, which worked out to roughly \$350 as a credit for most taxpayers. The first actual credit started on January 1, 2006...well after the 200,000 milestone had already been reached. And that's just Prius, not an entire industry added together like the supposed "*accomplishment*" celebrates. Volt was too little, too slowly. Watch how things change when offerings of the first affordable plug-in hybrids are finally available in dealer lots. Prime's base MSRP of \$27,100 is nicely under \$30,000.

- 7-12-2017** **Prius Attacks.** Turning personal is inevitable. They start with attack Toyota first though, then lash out a Prius. It's quite lame. Somehow, it makes antagonists feel better. For everyone else, they see desperation. Ironically, one of those antagonist actually posted something to that very affect, supporting exactly what I wanted to point out: "*Desperation is the first sign of a losing battle.*" That was handy to have put aside for use later... in this case, now: Saving that post from the forum yesterday is proving helpful already. "*Ugly*" is not what people were saying at the plug-in presentation on Saturday, in the lot where my Prime was parked next to a gen-2 Volt. That isn't what they expressed. No amount of posting here will drown out their compliments of the new look. Claims otherwise are a sign of denial, if not desperation. "*Slow*" is becoming increasingly difficult to spin. Like the attempts to make people believe the gas-engine will start upon heavy acceleration, it just obvious misleading... desperation. I merge onto the highway and pass people in EV mode. It works fine. It is clearly not slow. You are losing. Fortunately, that loss doesn't represent failure. It just means the attempt to replace traditional vehicles with Voltec in Volt didn't work. The technology itself has proven successful, just not in a compact car attempting to deliver too much. It just needs to be reconfigured. The long discussed "*lite*" version would be more affordable. The often mentioned SUV would better target GM shoppers. Too bad if GM lost this particular battle. That's no reason to give up entirely with posts of desperation. Remember, the war is traditional vehicle replacement.
- 7-12-2017** **Get Over It!** I got attacked right away, prior to the rebut post. This particular individual hates the fact that I was correct about the market and absolutely refuses to look forward. Somehow, he thinks spite will make things better. Ugh. It's really sad when losing a battle prevents the continuation with the war. You win some. You lose some. Who cares. As long as the ultimate goal is achieved, all will be fine. Needless to say, he doesn't see it that way. So, I fired back: Get over it already. There is much work to do still and tax-credits are almost all used up. Personal attacks are an undisputable sign of desperation and they contribute nothing to progress. Scapegoats are just an excuse. Face the reality of traditional vehicles posing far more of a challenge to overcome than you had anticipated. Real-World data is the best way to take that next step. With a 38-mile commute (recharge at work) and a 1,700-mile vacation (much was at 80 mph without recharging), I've driven just under 88 hours with my Prime. The resulting EV ratio is 58%. The average for those 6,208 miles is 96.4 MPG. In other words, Toyota delivered a 100 MPG for \$27,100. What should GM's goal be?

7-13-2017 **Pressure.** It has been building up for awhile. Each posting of monthly sales results would trigger quite a bit of anger. The growing intensity signaled change was coming. Sure enough, it came too. Rather than just a few days of exchanges, then it blowing over. This continued. Indication of an end approaching is quite a relief. They were getting quite desperate. How many times can you ask about goals and get nothing instead of the usual red herrings? My guess is they grew tired of month after month of disappointment and finally decided to give up. That's when you post a reminder summary... with the hope that stirring burns out the remaining ashes:

Volt was designed to alleviate the concern of range-anxiety.

Bolt was designed to alleviate the concern of range-anxiety.

See the problem? The purpose of the 2 are at direct odds with each other. Rather than offering choice, GM ended up confusing the market. They compete rather than compliment. Remember how GM used to compete with itself prior to the bankruptcy? Resources were spread thin as a result of the variety of GM dealers competing with each other rather than other automakers.

That's why knowing the goal for GM now is so important.

The situation for Bolt is about to get ugly too. Both Tesla & Nissan will be putting an enormous amount of pressure on GM in new market of gen-2 EV offerings. Fallout will be a loss of attention to Volt. Notice how it is almost non-existent in the news already? Ironically, the effort to suppress this concern by hiding posts with negative votes will end up making the situation worse.

Purpose of a Volt with a smaller battery-pack would have been obvious to potential customers. Those here were strongly opposed to that idea. Now, it's about to come back to haunt them.

Realistically, the best next step would be to make the goal to deliver a short-range plug-in hybrid SUV. Offering Trax with a 25-30 mile EV range seems to be the approach with the greatest potential. Equinox is too large & expensive of a base to build upon so late in the game, especially now that the traditional version is such a huge seller. That level of self-competition with such a high premium isn't a good idea.

Don't forget about BMW, VW, or Hyundai in the either. There's also Ford, Chrysler, and Toyota that will be adding to the pressure.

What should GM's goal be?

- 7-14-2017** **Not The Same.** When things go back to basics, you've got your confirm of a reset having happened. Abandoning failed objectives in favor of a simple goal is exactly what you want. Of course, they'll never admit what has happened, nor will they declare any targets of any sort. It's still progress though. Notice the fundamental being asked: *"Isn't that what Toyo-duh did when it added a credible plug-in to the Prius hybrid line?"* That's far better than any rhetoric of the past. It's fulfillment of the goal I had for all those posts too... to finally step back to consider the big picture. Phew! My response to what had grown to a hostile attack on his part was this simple message: Not at all. The progression to a larger battery with a plug is so obvious of a next step, that has been a natural expectation of many. Toyota's effort to offer a low MSRP, to completely avoid tax-credit dependency, is what makes them different from GM.
- 7-15-2017** **EV Ratio.** What a nice discovery. I wondered what Toyota ultimately decided to do to convey overall electric efficiency. Since there isn't a measure of kWh anymore, some type of simplified approach must have been used. I didn't dig to find out though, since I wanted my discover process to mimic what an ordinary owner would experience. It's too easy to just jump ahead to the answer. A few quick searches through the manuals is all it would take. But I want to write my own, again. Another user-guide could be quite helpful. That requires patience. You must make observations. Discover what's important based on questions asked and comments posted. Reaction from others is priceless. That tells you far more than any documentation. So, I waited. Today, it was revealed. I hadn't realized the EV Ratio value wasn't just for the immediate drive (the one that resets each time you startup the car). It has a value for each of the separate odometers. Sweet! Though sadly, I had already reset the "A" odometer as my tank meter. The "B" odometer still had lifetime data collected. It stated 59% for EV Ratio. Cool. I was quite curious how much plug-supplied electricity went toward those miles. Of course, the HV miles are not included, regardless of whether they include EV driving. There's the question of climate-control tracking too. Hmm? Anywho, it's nice having such a simple means of providing a general idea of plug benefit.
- 7-15-2017** **Designed Around.** Ever notice how some often-stated claims don't actually have any substance? Simply asking for a little clarification ends up stirring emotion rather than detail. That's a sign of rhetoric, where the person either has no clue what they are talking about or they are intentionally attempting to mislead. Either can be a major obstacle. Both are quite bad. For example: *"Toyota could've championed a Prius with a plug for the masses that was designed around a battery pack vs. what they did which was vice versa."* What the heck was he actually talking about? There has been a lot of bewilderment around GM's choice to have an intrusive tunnel for the battery in Volt yet having avoided that entirely with Bolt. That's why I have been asked about goals. What are they? That's also why I responded to that vague statement with: EV efficiency. HV efficiency. Heater efficiency. A/C efficiency. All are battery-centric designed. As a result, the system is competitive with traditional vehicles and is not tax-credit dependent. Simply delivering a larger battery to compensate for efficiency shortcomings has never been a good plan. Notice how offering larger hasn't resulted in expected sales growth? Toyota delivered a plug for the masses prior to the paradigm-shift about to begin when phaseouts are triggered. Having that already in place puts them ahead of the other legacy automakers.

7-15-2017 **Pointless Naming.** An obvious sign of desperation is attempts to change the topic of discussion. Several have been made recently on the thread addressing the issue of what happens when tax-credit expire. This particular attempt was worthy of response: "*GM had switched from "EREV" to "EVRE" (electric vehicle with range extension) to stress that it's an EV first.*" The reason for posting something is it provides an opportunity to supply detail. Vague claims are pointless, especially when it deal with nothing but a name. My response was:

BMW showed the world what a range-extender actually is. Their use of a very small engine in i3 used for the sole purpose of generating electricity is what they delivered. GM's approach with Volt is a plug-in hybrid... which isn't a bad thing.

Consider what Toyota delivered for Prime. Even without the ability to recharge at home or a large battery-pack, there is still opportunity for the design to thrive.

CHAdEMO is an option currently available for Prime in Japan. With that, you can recharge 80% of the 8.8 kWh battery-pack in just 20 minutes. Speculation is that the United States will get that option later in the form of CCS (which appears to be the CHAdEMO successor).

CHARGE-MODE is a standard feature in all Prime offerings. At 66 mph (outside temperature of 64°F and a light crosswind), I observed an 80% recharge in 38 minutes. Distance covered during that was 40 miles. Efficiency reported on the display was 37.8 MPG.

For Prime owners who will be limited to only opportunity charging with 240-volt stations available at stores, coffee-shops, restaurants, and parks, 100% recharges at 3.6 kW takes 2 hours. With only 1 hour of recharging time, 62% of can be delivered.

In other words, it is pointless to dwell on naming convention. What the vehicle itself actually delivers will be the basis of purchase decisions.

- 7-15-2017** **Growth Needed.** That's the point. With gen-1 and gen-2 of Volt, there has been a reckless use of the tax-credit. Enthusiasts state price as if that discount will always be available. They absolutely refuse to deal with the reality of it going away as having any impact to sales. That's a fatal mistake. Sales aren't that good anyway. Growth is desperately needed and the extra \$7,500 of help isn't achieving it. There is a serious reason for concern. Sales have been flat and well below what they must be for sustainable business. Still remaining a niche is not what anyone had hoped for after so many years. Meeting goals is vital. Mainstream volume (5,000 per month) is required, at a minimum, for it to be a realistic high-volume traditional vehicle replacement. I reminded those antagonists: Those who have been carelessly taking the subsidy for granted, hoping costs will drop enough to offset the loss just in the nick of time, are in for a rude awakening. The phaseout period will draw attention to how much lower sales still are compared to what they should be for profitable, sustainable business. Tesla is providing some guidance to the legacy automakers about how much is involved with such major chance. Too bad if the necessary steps for them are not as exciting. That's part of being common. Think about what needs to be done to achieve on-going high-volume sales without government incentives. The effort to evade discussion of growth is reason to be very concerned. It's a sign that tax-credit dependency is still a big problem for some.
- 7-16-2017** **Understanding Statistics.** Yet another attempt to change the topic was made: "*Note that over 80% of the U.S. population can install a charger where they live. Specifically, 60.3% live in single family detached structures...*" That's how the post began. A variety of statistics and encouragement followed. No detail was included though. That's a warning sign. Statistics can be used to mislead. I pushed the new subject, but made sure tie the original topic back into the mix: Note that 100% of the population could purchase a hybrid. See the problem with those assessments? Neither takes into account the desire to do so. That's why there are tax-credits offered. The subsidy stimulates market interest in new markets. It only focuses on the low-hanging fruit. In other words, mostly just those who can easily install a charger will bite. What happens after the tax-credit is no longer available is the key. We have no clue how the loss of subsidy will impact Model 3. Selling 400,000 certainly would be impressive. It would also be enough to become an established automaker (convenient sales & service network). There will be competition by then though, with quite a variety of choices. Point is, we are looking at potential, without any solid indication of what the market will actually do. Just because an outlet could be available doesn't mean the owner has a convenient way of plugging into it. Matters complicate quickly when the expense of new wiring comes into play too. How many of those 60.3% could accommodate recharging 2 vehicles at the same time?

7-16-2017 **Market Saturation.** There's a desperation at play now. It's intense. The antagonists are lashing out with their final attack. All they have left is to focus on visual. No other argument has any substance. At least with emotion, there's a sense of having something. It falls apart when you actually consider detail. But with these in the attack messages, who could resist replying: "*extremely ugly, felt nauseated, ugly car, insulting our tastes, I feel sorry, get a barf bag*". With an invitation like that, I certainly couldn't:

When you have nothing of substance left to argue with, go for emotional appeal.

The writing has been on the wall for several years now. The plain, ordinary, basic look is everywhere. Market saturation of anything is a warning sign for business. Sustaining sales becomes an increasingly difficult problem. Switching to a standout look is inevitable.

Honda was quick to jump onto the change with noticeable acceptance. The trend is now becoming apparent with Toyota. The big names here... GM and Ford ...have yet to respond. They will find themselves scrambling to catch up as a result.

The choice to make gen-2 Volt look even more like a traditional sedan was a bizarre move. That decision targeted it at traditional buyers... which seemed sensible when it was designed. But the upcoming shift was overlooked and traditional buyers didn't show interest. Needed growth didn't result.

C-HR is Toyota's effort to reach buyers who are seeking a choice that doesn't look ordinary. It's built upon their new lower-cost architecture too. The platform itself is based upon Prius. So yes, there is a hybrid option (in Europe currently) and could become a plug-in.

Enjoy your market-saturated look while you can. History shows us change is coming.

7-17-2017 **93°F Commute.** The first truly hot drive home from work with the Prime was today. A/C blowing generously was all it took to satisfy curiosity of potential. We were comfortable. There was clearly no impact to EV power. It simply worked. The fan running to cool the battery-pack was pleasant too. It was more of a surprise to hear it with the PHV. With this, the sound was just a subtle noise in the background. I suspect that had to do with the larger vents and new placement of them. I bet the fans are larger too. Thankfully, we don't have heat that intense too often, here in Minnesota. The radiant feel coming from the cooking concrete surface of the parking ramp informed us how much hotter it seemed. The thermometer in the car confirmed it. Having cool air blowing so quickly, from the electric A/C, sure is nice. Of course, what would be even nicer is if I would have brought my Prime into the dealer sooner. When I go there tomorrow, I'll be having them program my FOB to provide the all-windows-down feature. You just press the "unlock" button and hold it until there's a second beep, then all the windows open. That's a great way to always cool the interior of the Prime quickly.

- 7-18-2017 Dealer Sighting.** What are the odds of encountering another Prime coming in for routine service at the dealer the exact moment when you arrive? For the only other vehicle there in the entry area at the very same time to also be one was virtually impossible. Yet, it happened. There are so few still in the Midwest, I was blown away. Then another drove by. Whoa! Being at the right place at the right time is remarkable. What a sweet treat! I couldn't have planned that any better. To think that someday the sightings will become routine. There are not a ton of gen-4 Prius yet, but I do see them pretty much every time I drive now. That give a general idea when Prime will become common enough for the same. In other words, the expectation is 2 years from now. Cool. In the meantime, there apparently is a high concentration of them near my local Toyota dealer.
- 7-18-2017 Reversal, diesel.** Today's daily blog topic is about holding onto the past as long as possible. We're seeing very large efforts to retain the status quo emerge. In an interesting twist, the issue often sighted as a major problem with Toyota is now haunting GM. Enthusiasts don't support diversity. To them, it's plug only, period. No support for anything else is given. So naturally, there's rhetoric about fuel-cell advancement. The fact that those vehicles are fully electric is disregarded. Improvements to motor efficiency, cooling efficiency, heating efficiency, and cost reduction of related components like the inverter are completely ignored. The idea of mutual benefit is dismissed. That's really sad... but true. So when I point out GM's new investment in diesel, you can imagine the hysterical responses. Saying they panic is putting it mildly. Whoa! This opportunity to poke came from: "*Just breathe in those wonderful Koch Brothers' diesel micro particulates!*" That sarcastic remark was the perfect opportunity to reply with: 2018 Chevy Equinox Diesel is what GM will deliver instead of one with Voltec. Why?
- 7-18-2017 Reversal, hypocrite.** There's no excuse; yet, the hypocritical posting continues. This time, I was stunned by the irony: "*It's a sad world we live in, where tin-foil hat wearing, **** wannabes, consistently type into Google searches the results they want to see, and as soon as it pops up they say 'I knew it!'. Rational thought, on any topic, is becoming extinct.*" That is precisely what the Volt enthusiasts have been doing a lot of lately. Being able to call out the biggest of the antagonists with his own words of being guilty of exactly that is an odd situation. It wasn't unexpected though. Surprise would have been if it didn't happen. The build up to a major lashing out that exposes what's been happening was inevitable. That's what we've seen every time fallout approaches. This is the turning-point they could see coming. It's regret that will really sting. That's how next steps are taken though. Revised goals will emerge from the fallout. Learning from mistakes is part of the process. Volt was a mistake. Too much emphasis was placed on faster & further. I pointed out what had just occurred: Like hiding posts you don't want to see by negative voting them. That's exactly what this group here has been doing on a very regular basis. Makes you rethink the situation now, eh? This type of behavior is why I have been repeatedly asking for GOALS from participants. That's how you overcome the rhetoric.

- 7-18-2017** **Reversal, panic.** Wow! I had a feeling this particular subject matter would bring out the worst. The daily blog today was about a new anti-EV campaign from oil lobbyists. It's quite nasty to see such publicity against plugging in. But with an industry dependent upon consumption of non-renewable energy that's dirty, the reaction was expected. The information conveyed is not only very misleading, some of it is just plain not true. What's most interesting though is how the Volt enthusiasts are taking the news. Anything that shakes the status quo causes panic... and this certainly did that. Within minutes of my posts, there was a lashing out at me, the messenger. Typical. Always look for someone to blame for your own self-inflicted problems. Ugh. I posted this upon observation of their behavior: I see a frantic effort to hide what I posted. Getting caught with a hypocritical post will stir such an extreme. On this particular topic, it's ironic too. Continuing to vote down the message to make it not visible by default won't make the problem itself go away. What should GM's goal be?
- 7-18-2017** **Reversal, mandates.** Bolt production has come to a halt. Inventory is piling up. There are only 6,000 unsold now. That's a very real problem. Some of it comes from only the CARB states issuing Zero Emission Vehicle (ZEV) credits being the only place a Bolt could initially be purchased. That's California, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, and Vermont. Why rollout to the rest of the United States didn't happen sooner remains a mystery. Aren't mainstream sales the goal? By the end of next month, that should happen... finally. In the meantime, the situation looks grim. Tesla's new Model 3 and the upcoming next-generation Leaf from Nissan are taking away attention from Bolt. That is what is making the situation with Volt so much more of a problem. With market change comes winners & losers. GM's failure to branch out with Voltec, offering it on another vehicle is long overdue. Enthusiasts had expected it years ago and boasted about that would be so much faster than Toyota's expansion of HSD. Now that the time has pasted and it didn't happened, the reality of having fallen behind is crushing. This new anti-EV campaign makes it even worse.
- 7-18-2017** **New Voices.** I don't have to listen to the rhetoric anymore. The antagonist posts are getting overwhelmed by new content coming from new sources. That equates to a quieting of voices that had once been so loud, nothing else could be heard. They were not the voice of reason either. They were just the most prominent... who hated my never ending chatter. It was a steady stream of logic that the new voices are now echoing. I'll never know if they picked up on what I had posted or were simply in agreement based upon their own study. Whatever the case, those members are the change taking place. Yeah! To that, I posted: When there are no excuses left, when all you can do as pretend everything's okay by evading facts, it's over. The faster & further approach clearly didn't work. It was too little, too slowly. Watch how the market responds to newcomers, those who didn't follow the same path.

- 7-19-2017** **Real-World Data.** It goes a long way toward squashing misconceptions. It can also help snuff out intentional misleading. The catch is figuring out what data to actually convey. True, all real-world observations can be informative. But knowing what won't be subject to cherry-picking or bias dismissal takes some careful observation. Much like the data itself, you have to look for patterns. The more common you see it, the more likely it is to stand the test of time. You have to start somewhere. Since the duration of ownership for me is brief still, there isn't much to work with yet. So, all I can do for now is mention totals & highlights: 6,479 miles. 60% EV ratio. 99.9 MPG. That includes a 1,700-mile trip from MN to WY and back, driving at 80 mph the entire way through SD and in WY with no opportunity to plug in. \$27,100 base MSRP (not including tax-credit) is very good reason for interest shifting over to the plug-in hybrid model.
- 7-20-2017** **Perspective.** Saying the reaction was explosive would be underselling it. Witnessing the extremes a few will take to avoid & dismiss Prime has provided a very clear picture of how Toyota has adapted to the changing market... and how they have taken notice. We only need to wait for inventory to finally settle. There is still a lack of availability in the Midwest. In fact, some areas have long waiting lists still. The switchover to 2018 models and the very high demand in the domestic market (sales in Japan) give good reason for expectation of strong sales. As with all things Prius related, patience is required. Time will resolve issues of perspective. What's perceived as a problem may not be in the long-run. Basing hope on what we've seen recently is an encouraging sign. The naysayers see it and have reacted accordingly. Whoa! Makes you wonder what they'll do next, eh?

7-20-2017 **What A Waste.** I asked the goals question, again. This was the response: "*We refuse to answer this question when *you* ask it...*" The self-deprecating nature of their problem makes it impossible to ever get a straight answer. Of course, that isn't what I was actually going after from the enthusiasts anyway. My purpose was to finally get acknowledgement of need. To do that, it required elimination of want in every regard... revealing what remained in the end as necessity. That sure was a challenge to get though. But today, it finally happened. Phew! This is how I replied to having to deal with such counter-productive behavior:

We know why. It is a simple matter of want versus need.

The problem first emerged when Two-Mode was being developed. Goals were set to surpass requirements without regard to cost. Desire for more than what was necessary clouded judgment, leading to a fundamental misunderstanding of the market. The result was a system too expensive to be competitive.

Later, when gen-1 Volt was being developed, echoes of that past were dismissed and warnings were not heeded. There was a blinding obsession to deliver more than was necessary. The original intended audience was forgotten. Same outcome resulted. The system was too expensive to be competitive.

When gen-2 Volt was being developed, enthusiasts lashed at those pointing out the obviously recognizable pattern. Those same mistakes were being repeated, yet again. The desire for faster & further had become such a preoccupation, nothing else mattered. Goals of the past were entirely abandoned. The result is now becoming all too apparent.

Stating a goal requires recognition of need and how the gamble on want failed... which would validate what I have been saying all along. So, I totally understand the reason for refusal.

7-20-2017 **Closure.** With tax-credits about to run out and no clear message still about what GM intent is, there's reason for concern... especially since all the hype has had such an undermining effect on the market. The very thing well-informed green supporters worried about a decade ago has been playing out. Just like with diesel, they offered something that wasn't actually competitive. Promises were made that were not fulfilled. Worry is that GM will claim there was no interest and will abandon the idea of plugging in all together. Making "*green*" transform to "*ordinary*" is no where near as easy as enthusiasts understood and their role as enablers is proving quite costly. So much time wasted. So much opportunity missed. All we can do at this point is to attempt to get some focus on the self-inflicted disaster, to make those who contributed understand the resulting damage and find a way to overcome it. My attempts at closure today included: Notice the timing? Countless posts here shifted focus from Volt to Bolt... with little clarity. It didn't matter much when it was just rhetoric. But soon, we'll see offerings from Tesla and Nissan stirring mainstream interest. Rubber hits the road. That closes the chapter on the 3 prior stages from GM leading up to this. It also brings about the very topic I have been pushing: GOALS

- 7-20-2017** **Using Charge-Mode.** I like responding to questions like this: "*And then the question is whether there's really much value in driving that part in EV mode?*" The fact that Toyota offered a charge-mode is making people think. Rather than it being academic, there is a real application of what had only until recently been hypothesized. What if you could recharge the battery-pack with the gas-engine at times? When would it make sense? How much is too much? Would the penalty be significant? Could there be a net gain? In what manner would we convey the potential advantage? Is there potential for misuse? Could the ability be misrepresented in some greenwash effort? There are lots of questions with few answers, so far. Fortunately, I already have a little bit of some real-world experience with on-the-fly charging to share: For us on vacation, there was a very obvious payoff. Running out for something, once settled at your destination, EV provides the opportunity to avoid the warm-up penalty entirely... especially if you need heat or cold. Charging while cruising on the highway has been a very efficient, while that extra power needed has minimal impact.
- 7-21-2017** **Surprise?** This was the result of a very significant news break today: "*I cannot decide if this is good or bad.*" It was the reveal that GM is struggling much more seriously than realized. Union issues are arising due to production halts. Inventory problems can no longer be denied. Some plants have inventory piling up and others cannot build fast enough. That's a very big deal. Jobs are at stake. Lots of money will be lost. It's a big mess. Plans for vehicle production are now getting lots of attention. That exposes Volt as a serious problem. Sales did not grow, despite gen-2 upgrades. Significant growth was required to overcome the loss of tax-credit help. No subsidy available is big trouble. Needless to say, ending production of Volt is being considered. That has set off explosive reaction online. The variety of emotion is stunning too. I jumped in immediately, using that comment as my launch point: It's good. The expectation for years has been that GM will move on from Volt... hence the answer to that much asked "*Who?*" question about market. The interior layout of gen-2 all but confirmed that when they didn't address complaints about back headroom and created a legless middle seat. The catch is we had hoped this move would be sooner, especially knowing the European demand for Outlander plug-in and the potential for Pacifica plug-in. Now with Kia about to rollout a plug-in SUV, it totally makes sense that GM is finally looking ahead too. And of course, Toyota is preparing for the opportunity to offer Camry, RAV4, and C-HR hybrids with a plug. Don't court out Ford either. The new expectation from GM would be for Trax to become the first Voltec offering in a package that appeals to GM's primary audience. Volt proved the technology. Trax could be the first for a larger group of customers, something dealers will embrace & promote.

- 7-21-2017** **Holy Crap!** Online reaction to the news was amazing. Pressure had obviously been building. Despite Prime's limited availability, it has already become a major irritant for Volt enthusiasts. GM's shift of emphasis away from Volt (to the point of almost abandoning it entirely) for the sake of building up Bolt as a true competitor with Model 3 and the next-gen Leaf made that situation even worse. A rumor emerged yesterday that BMW will be pushing i3 even harder soon, with a big upgrade in the works too. Then there's the reality of Hyundai attempting to undercut everyone with a very affordable plug-in hybrid offering. VW is, of course, taking electrification serious as well. Needless to say, it was no surprise that today's revelation came when it did. I certainly saw it coming. The reaction to my posts from enthusiasts confirmed they felt change coming too. The status quo had been crumbling. Everything they could do to avoid acknowledgement of that fact didn't work. News finally penetrated their stubborn domain. The supposed "*troll*" had been vindicated and they were exposed as "*fanboi*" posters in a state of desperation. Who knew the denial would result in such a build up, then dramatic response. Whoa!
- 7-22-2017** **Consequences.** This particular quote really sent me off on the role of play offense: "*Heed these warnings GM, or suffer the economic consequences of your one track (advertising) mindedness.*" Wow! Talking about a revelation far too late!! I posted this and the following log entries to give that group in denial a serious wake-up call: That's what Volt enthusiasts did for an entire decade. They kept pushing faster & further... over and over and over and over again... an endless stream of Volt being better because it delivers more. That was so blatant of a fanboi obsession, it was obvious their priorities would be a very real problem. An absence of balance is reason for serious concern.
- 7-22-2017** **Consequences: Who is the market for Volt?** That question is what came about as a result. It was a deliberate effort to draw attention to the self-destructive behavior taking place. Fanboi cries were becoming the voice of potential buyers, even though it was clear they were not the audience required for achieving high-volume profitable sales. GM fell into that trap, choosing to cater to cries rather than listen to the whispers of their own loyal customers.
- 7-22-2017** **Consequences: Too Little, Too Slowly.** That had been the biggest concern from the start. Regardless of what happened with rollout of the technology initially, it needed to be adapted & adopted quickly. We were assured that was no big deal... by enthusiasts. They proclaimed GM's rollout & diversification would "*leap frog*" what we saw with Prius and its spread of HSD to a Sedan, Minivan, and SUV. Assurances came in the form of "*vastly superior*" chanting... over and over and over and over again.
- 7-22-2017** **Consequences: Significant cost reduction.** It became the theme for gen-2 Volt. Rather than seriously consider diversification in the form of offering a variety of battery & power choices (search for "*Volt lite*" discussions), all focus was placed on the next-generation design bringing down cost so significantly, there would no longer be any concern about being competitive with traditional vehicles, even without the benefit of a tax-credit.

- 7-22-2017 **Consequences: Yesterday's revelation.** As with other failed attempts to overcome the status quo, a day of reckoning arrived. Predictably, it was at the conclusion of the second year of sales. That's exactly what happened with both Two-Mode and the first generation Volt. It is inevitable. The future must be addressed before unwanted speculation emerges. Volt faces a struggle just to maintain sales. With the upcoming phaseout of tax-credits, the hope for growth to mainstream levels was futile.
- 7-22-2017 **Consequences: Shoot the messenger.** That is no longer possible. Having a scapegoat was a sign of trouble routinely disregarded. It was easier than making excuses. You place blame for stirring the status quo, which ironically was the goal anyway, by just dismissing what was posted as an attempt to undermine. Seeing the effort as outside assistance to help overcome challenges of legacy barriers were instead labeled as "troll" posts... even though they were actually on topic, which by definition is not what a troll does.
- 7-22-2017 **Consequences: What should GM's goal be?** I started asking that recently, many, many times. It was a strategy to point out what was coming soon. Enthusiasts obviously couldn't see it. I could. The pattern was very easy to recognize. Stating a goal is how you get beyond personal conflict. Focusing on an objective makes taking that next step easier. Rather than do it though, there were attacks from antagonists and a lot of enabler reaction. Sure enough, the bottom fell out. Disappointing news did indeed come.
- 7-22-2017 **Consequences: Caught totally unprepared.** What a mess. Despite countless warnings of this coming, there is upset. Rejection of the importance of business objectives was a self-destructive choice. The original sales goal of 60,000 annual (5,000 monthly) was set for good reason. It was a minimum for sustainability. Recognized as a "mainstream" level for other technologies, there was no valid reason for refusal to accept it. Yet, that's exactly what happened and now the consequences must be dealt with... after the fact. What a terrible waste of time.
- 7-22-2017 **Consequences: So, what comes next?** Looking at Volt, it should be indisputable that it does not match the purchase priorities of GM's own loyal customers. Those shopping dealer showroom floors overwhelmingly prefer a SUV of some sort. Equinox has become a top-seller. The smaller Trax is gaining popularity. Looking at the production plant situation. 9 are severely under capacity and 8 are severely over capacity. Writing is on the wall that change is necessary. Build plans will need to change.
- 7-22-2017 **Consequences: Voltec's Future.** Volt never made any sense. Denying it was anything other than a niche was horribly counter-productive. So much opportunity was missed as a result. GM customers simply weren't interested in a compact car with limited leg & head room in the back seats. Strong demand has been on the form-factor SUVs deliver. Despite obvious efficiency sacrifice, there was a clear preference for tall vehicle bodies. Fortunately, the excessive battery & power capacity of Volt can be carried over effectively to a SUV, making it a more balanced offering that's actually competitive... something GM's own shoppers will be drawn to.

- 7-22-2017** **Consequences: Interest for SUVs.** Sitting higher up has, by far, been the biggest reason for SUV purchases. Getting in & out is easier. It's that simple... now. In the past, they were marketed as safer. When that was revealed as false, we saw the reasoning shift. Combined with cheap gas and a complacency for oil & emissions, those high-profit vehicles have been the focus for many. Unfortunately, that has led to market-saturation... hence some of the challenges emerging now. Smaller and more efficient choices, in tall design vehicles, appear to be the solution.
- 7-25-2017** **Signs of Change.** This observation confirmed it: "*Lots of new commentators...*" It's a repeat of the pattern I have observed several times in the past. The fact that others are now seeing it too is informative. Ironically, that particular message came from an antagonist in response to a new commenter. He's finding himself quite alone now. So many troublemakers of the past have simply vanished with no sign of why. Of course, I know why. If you've been reading the blogs, you know too. Yet another chapter has closed and a new one beginning. This is when new characters and new plot is introduced. Right now, it's happening. Sweet! This was my one-sentence reply to that post: When common voices of the past fade into the background, replaced by new ones, it is confirmation of the next step forward.
- 7-25-2017** **Grid Operation.** Having the opportunity to experiment & observe has been scarce. There's lots to learn still and I want to enjoy Summer at the same time. So, doing things like comparing operation of chargers while drawing electricity from the grid simply hasn't been a priority. I did get to give it a try recently. The curiosity was how much electricity for remote running of A/C could be from the plug rather than the battery. Could all of it be supplied that way, some, or none? This was my brief observation posted, with hopefully detail to follow in the not-too-distance future: Just tried the test on a second charger. With my charger at home (JuiceBox 40 Pro), the grid draw took place while the A/C was running. With the ChargePoint station at work, the grid draw didn't begin until after the A/C had finished. In both cases, I started with full battery-pack. The difference I noticed was 3.6 kW verses 3.1 kW. (Home provides more power.) Anyone know what the A/C draw on max is?

- 7-26-2017 Business Approach.** There is a certain pleasure from reading stuff like: "*We are all waiting for the day your posts fade away.*" Coming from such a hypocritical source, the irony leaves me scratching my head sometimes. What is he thinking? Anywho, I responded with: Being correct about GM's flawed approach means you will be hearing the message for a very long time still, even without more posts. *Who is the market for Volt?* That question got asked scores of times for good reason... which is now overwhelmingly obvious. Back then, there were lots of excuses for the mismatch though. GM built a compact hatchback, a vehicle GM's own customers simply were never interested in. *Too little, too slowly.* That was the concern expressed over and over and over again to get across the point that a minimum production volume must be achieved for the vehicle to be sustainable. Again, there were lots of excuses for the delay. There was no merit for all the boasting either. *One size fits all.* Raising awareness about the importance of diversity was an endless & thankless effort to get GM back on track. 2 suggestions were repeatedly made. Making a "lite" version of Volt would have put GM ahead of the industry that is now working to flood the market with choices just like that. Making a SUV which reused the technology already in Volt would have aligned price & demand. *Ironically.* The fade won't happen in a desirable fashion. Success means becoming common. Becoming common means no longer having the spotlight. When a technology is accepted by the masses, that thing that made it special changes. In other words, rather than fade away, you'll see reminders everywhere & often about the business approach that worked.
- 7-28-2017 Renewed Attacks.** OMG! Did it really have to come to this: Listening to this group exclaim "*vastly superior*" and boast about how much faster GM would be at rolling out technology has earned me the opportunity to point out missed goals and ask questions. Why is the first CUV/SUV using Voltec still 5 years away? That is a reasonable question to ask, especially in a thread loaded with FUD and red herrings attempting to paint a rosy picture for GM. Reading an op-ed this morning about GM electric vehicles, the writer highlights the very thing I've been saying for years. Volt didn't target GM's own customers, who prefer larger vehicles. Finding out it will take 15 years from of development to finally reach that required target audience is good reason to comment here. Too little, too slowly was a legitimate concern. Delivery expectations were indeed missed. Profitable high-volume sales continue to remain uncertain. Not having a form-factor shopping want is a major contributor to that problem. In other words, it's your turn to listen now.

7-28-2017 **Reset Button.** The end of Volt as we know has left some in dismay: "*Why are you still commenting here?*" Or is it really just an impression they wish to portray? Having endured their relentless attacks only to be redeemed in the end would leave a person that way. He gave his all for something he truly believed in. Though misguided and poorly informed, he really did think consumers would find Volt compelling. Not understanding either the market or the audience set him up for trouble... which is exactly what I became to him. Oh well. Maybe he'll walk away from this defeat having learned from mistakes. After all, anyone that persistent has demonstrated a strength you want in allies. Friendships can emerge from fundamental misunderstandings. After all, a shared experience is something to cherish. Think about game playing. Just because one loss happened doesn't mean they will have the same outcome. Press the reset button, then try again:

For an entire decade, Volt enthusiasts attempted to convince people that Volt was a vehicle for the masses. They even went as far as saying mainstream volume would be realistic by the end of year-2. When that didn't happen, we were assured year-2 of the next generation would achieve that milestone instead.

Whether you consider those reasons stated as sound assessment with strong merit or they were just desperate excuses didn't matter. Patience was required regardless. So, we all waited. Now with the end of year-2 gen-2 coming to a close, it is undeniably clear things went horribly wrong. The tax-credit will soon be used up and sales are still at the low level they had been prior to the upgrade.

That presents the Volt enthusiasts with a choice. Their want failed. That means taking a serious look at need now instead. Will they do that or will it be more holding firm to talking points? There is opportunity. After all, virtually none of the mainstream buyers have actually shopped for a plug-in vehicle yet.

We know for a fact GM shoppers couldn't care less about a compact hatchback. This market is obsessed with taller vehicles... to the point where even the raised cargo floor in Prime is seen as advantageous, since it prevents the need to bend down and lift to remove contents. Like it or not, that's the way it is.

Taking the same battery-pack and same propulsion system in Volt and placing it into a compact SUV body makes a whole lot of sense. The power & capacity are clearly overkill for the little car but would be a nice fit for the larger vehicle. Customers would be much more likely to pay a premium for that, since it is in the body style they prefer.

It's really unfortunate certain individuals here fought so hard to push change in a direction the status quo would not accept. They absolutely refused to read the writing on the wall. But now that so many voices are saying the same thing, it is time to decide. Press the reset button or make more excuses.

7-29-2017 **Recognizing Change.** The belief that hiding facts somehow makes the situation better: "*We will just keep pressing the down-vote button.*" After 10 such votes, the message disappears. That's so idiotic, I'm in dismay. It is the literal online equivalent of sticking your head in the sand. The belief is that if you can't see the problem, somehow it isn't a problem anymore. Ugh. This is how I dealt with that absurdity in today's nonsense:

With Tesla & Nissan pushing GM from the EV direction and Toyota pushing GM from the PHEV direction, you'll find there is no group of deniers to down-vote anymore. That past of blind hope is now an ugly chapter in history they want to distance themselves from. GM screwed up. The choice now is to pretend that didn't happen or finally embrace change.

Look at all the PHEV choices coming to market. None shared the configuration of Volt. People don't want a compact hatchback with that size battery. The vehicle is too small and the price too large. Let it go. This isn't the death of plug-in hybrids for GM. This is just a reset. The original configuration failed to obtain mainstream sales.

The next offering from GM will likely break the ideals Volt enthusiasts held dear. Well too bad. They are not the intended audience. GM will be shifting focus away from conquest buyers and over to their own showroom shoppers. Instead of trophies, they will be working to deliver commissions for salespeople. Ordinary purchases has become the goal.

It is truly amazing how the mismatch of priorities carried on for so long. Fortunately, the group of enablers continued to shrink. Now, there are only a handful remaining. Remember all those voices of the past who are long gone, who have let go and moved on? Give yourself credit from remaining strong & true, but also be sensible enough to recognize the need for change.

7-30-2017 **Move On.** The desperation has become so extreme, even shooting the messenger doesn't work: *"No one reads your false narratives or takes any points you try to make seriously. You have soiled yourself with anti GM rhetoric and Toyota fanboism."* He knows that's not true. Posts in response to what I say are becoming too abundant. Dismiss, evade, and ignore failed. Defending a lost cause is a wasted effort now. So, going down with an insult is all he has left. I enjoyed writing this detailed comeback to all his wasteful rhetoric:

It is truly bizarre to witness a few individuals fight so hard for the opposite, to maintain the status quo. They don't want to see the world around them changing and hope ideals of the past will somehow triumph. Ugh.

Orders for Tesla Model 3 have surged to over 500,000. That puts legacy automakers in a position of deciding how to compete with plug-in offerings of their own. For Toyota, that means pushing forward to the next stage in lithium battery technology as well as offering a collection of new technology features. For example, the following are all standard on all Prime models:

- Dynamic Radar Cruise
- Pre-Collision Braking
- Lane-Departure Detect with Assist
- Automatic High-Beams
- Quad LED Headlights

That focus on safety, rather than catering to the obsession with faster & further, is how you reach ordinary consumers. Move on means recognizing what sells and what doesn't. Emphasis on speed & range was clearly something legacy automaker shoppers were unwilling to pay a premium for. This is why Volt failed to attract mainstream buyers. Loyal GM customers simply were not interested. Toyota is also pushing forward with other new technology features with Prime. The most obvious are:

- Dual-Wave Rear Window
- Carbon-Fiber Rear Hatch

There are other options too, like the large touch-screen, heads-up-display, and self-park. But what appears to be a offering that Prime strives to break new ground with is:

- Predictive Efficient Drive

This technology monitors driving pattern. When frequent repeating data-points indicate a location where you would normally brake, the system will automatically trigger regeneration. In other words, without touching the brake pedal, the vehicle will slow itself down. This makes stops, turns, and roundabout more efficient without requiring anything special from the driver. It's like the car hypermiles for you. Like the ultra-efficient heating system, you take for granted that it strives to save electricity.

Notice how all of those efforts advance the entire fleet? Legacy automakers have a lot to deal with. Move on means recognizing what sells and what doesn't. They must

continually try new things to see what will attract their own wide variety of customers over to a plug.

- 7-31-2017** **Alternative Facts.** That's the new term for internet spin. It had emanated from distortion of actual events, in the past. Now, people sometimes just make up stuff entirely... hence this new rhetoric tool. How does one combat this: "*Years ago, Toyota was upset about a group making Prius into PHEVs.*" That just plain isn't true. It does sound convincing though. It tried with this relatively short, purpose reminding rebuttal: No. There was never any upset response. They simply pointed out how unrealistic it was. Lithium batteries back then were extremely expensive and energy density was very low. Volt is small, crippled by its MSRP, and heavily dependent upon tax-credits... which is what makes endorsing it an issue. Toyota steered clear of those barriers, instead, delivering a configuration very realistic for high-volume profitable sales.
- 7-31-2017** **Ignoring Facts.** The response to my previous post was: "*The Volt isn't small, especially the Gen 2. It's actual selling price after tax credit is about the same as the PP.*" He simply dismissed what was said. Gen-2 Volt actually got a little smaller. Why in the world GM would reduce headroom in back is bewildering. But to pretend it wasn't small in any regard is outright denial. My head sticks out of the hatch when attempting to sit in the middle seat. That cramped no matter how you spin it for a man only average height (5'8"). The real problem though is the total disregard was for price. The sticker is a major deterrent for buyers, even with the federal subsidy. The fact that it will be expiring next year makes that bad situation even worse. But rather than acknowledge that, all he cared about was competing with Prius Prime today. Who cares about long-term well being of the business when you can win a bragging argument today? Ugh.
- 8-01-2017** **July Sales.** They were so bad for the struggling Bolt & Volt, it was no surprise to see such weak damage control: "*Almost 3500 plugins combined. Not too shabby.*" When the count of both fall so far short of necessity for business, what else can you say? Expectation for this close of year-2 for gen-2 Volt was to achieve mainstream sales volume. With the tax-credit phaseout approaching, being well established before that is a very big deal. Not achieving that means trouble... if the status quo doesn't change. Knowing that Prius Prime is seeing strong demand and that Ioniq PHEV is about to stir growth puts Volt in an even more difficult position. Bolt is equally challenged. Model 3 is seeing strong demand and Leaf is about to stir growth. Of course, you cannot point that out and not expect to be attacked. Sentiment of anything to that affect is looked upon as being anti-GM. Constructive discussion is totally unrealistic... especially now that there has been mention of gen-3 facing major economic barriers. Needless to say, the numbers revealed today clearly indicated a turning point.

8-02-2017 **Missed Opportunity.** It's quite remarkable how antagonists eventually end up backing themselves into a corner. For example: *"Note that GM is at 146,400 total plugin sales in the US now. If they continue with 3500/mo in sales, that leaves 15 months of the full tax credit left."* Reading this was redeeming. Only now, after all the years of fighting, is there the first glimmer of the situation playing out. Despite literally hundreds of warning this was coming, he always resisted. Being told was unacceptable. Finally noticing the trap he had guided people into was far too late... hence the lack of any fight back this time. Nothing came from what I posted. Coming to the realization of me being correct all along isn't a good idea to draw attention to. Just like all the other antagonists, when cornered, they become silent. I was thrilled by this. Progress comes from recognition of the problem. It's not too late, but there certainly is a cost from having missed so much opportunity along the way. What a waste. Oh well, it's not like I didn't provide an enormous amount of concern about this very outcome, hoping to prevent or at least minimize it: What part of *"too little, too slowly"* isn't understood at this point? Volt growth is not happening as needed and the outlook you just provided recognizes flat sales. The business must significantly increase to be competitive; otherwise, it's missed opportunity.

8-03-2017 **Save the Volt.** What a mess. So much of this could have been prevented. Oh well, all I can do is provide observations. In this case, there is now an effort emerging to save Volt. It's history repeating yet again. Do they really not see the same mistakes being made? Ugh. I'll try to draw attention to the problem:

We've seen this before. Recognize the pattern?

Enthusiasts seriously thought Volt would be killed upon the start of year-3 for gen-1 due to sales coming up well short of expectations. Disagreement of what should come next divided the support. Many discussions left here as a result of unclear goals. The remaining ended up suffering from group-think that didn't match market-need. That lack of clarity is now causing the process to repeat.

What should the next "Volt" have for specifications?

Notice how there is nothing resembling consensus on how the next offering from GM should be configured? Regardless of body type, there isn't any sort of common theme. What size the battery-pack should be... How the battery-pack should be charged... How the battery-pack should be cooled... Which features should be standard... Who the competition should be... What the sales goal should be... How long rollout should take...

Without a solid idea of the target, there's simply no way to actually hit it... especially with a bullseye result. Hoping for the best is futile. This is what doomed Volt from the start. Lessons learned from Two-Mode were disregarded. And sure enough, gen-1 suffered from some of the very same problems. Then when gen-2 support began, it was the same chaos mess. Goals were not stated. Results have been disappointing.

Expecting a gen-3 offering to somehow overcome those same barriers without addressing them is not a recipe for success. In fact, it is an invitation for inevitable defeat. Vague is how an outcome is sabotaged. Consider how lack of detail could be an effort to undermine.

You want to save Volt, you have to tell us precisely what that means. Define success. Spell out what needs to be achieved & delivered.

8-03-2017 **Abandon the Volt.** We are witnessing the end. It makes writing blogs very interesting. Documenting this chapter in history as it plays out is fascinating. We know what will happen. We just don't know how. Enthusiasts are acting like the President. What happened in the past doesn't matter as much as how it is reacted to. Will they continue to deny the obvious? How can they believe the evidence will somehow be dismissed? It's absurd. I'm scrambling to write down and analyze as much as possible before the next news brings new reaction. Today it was posting this:

Supporting Bolt means a careful look at the market for Volt. Who are the potential buyers?

Tesla is positioned to overwhelm GM in the EV arena. Economy of scale benefit as well as the volume of them spotted on the road put odds heavily in favor of consumer interest for Tesla. What will GM do in response for Volt?

Knowing there will be Toyota & Hyundai pushing hard in 2018 with their much lower cost offerings and the fact that they will still have tax-credits available, the idea of conquest sales for GM is a lost cause. It's simply not going to happen. All that low-hanging fruit has already been picked.

The cards are stacked for GM turning to SUV plug-in offerings. That is what their own showroom shoppers will want. Heavy preference for SUV purchases now makes that difficult to dispute. Interest will be lost for Volt the moment an announcement is made about plans to deliver its tech in a SUV. All but enthusiasts will abandon Volt. What would compel them to support a compact hatchback?

You don't think that will happen? Watch market reaction to the gen-2 Leaf. The expectation is for Nissan to undercut GM by offering a much lower price than Bolt. That's even more pressure on EV sales... which will force GM to take a big step in the plug-in hybrid market.

8-03-2017 **Selling Points.** Back to just ordinary discussion about Prius: "*The two biggest criticisms against the Prime that i read over and over again are lack of 5th seat and poor cargo space.*" I had to ask: From who? We have found (2 Prime in our family) that the 5th seat is of no real value anyway. Large adults just plain don't fit. No one wants to be squished together like that. Oddly, the center-console helps to keep items tossed in the back seat from sliding around, an unexpected benefit. The extra storage is nice too. As for the raised floor in the cargo area, that has actually become a SELLING POINT. It hadn't occurred to us that not having to lean over to lift cargo set down onto a low floor would be so nice. You just slide it out. Stuff is at arm level. That's so handy of a benefit, I'm at a loss at how to promote it. The design should be obvious, but clearly it is not... until you've taken advantage of it firsthand several times. In other words, don't put too much weight in criticism of those who make quick observations. Owners like us can really do a lot to shake up assumptions.

- 8-03-2017** **Not Paying Attention?** Sometimes, the discussion get way out of hand. This snippet came out of the selling points remark: "...so I can easily grab something in the back while sitting in one of those 2 seats." Talking about bizarre. That is such a strange twist from what I said, you have to wonder if the person was not paying attention or had ill intent. What would possess someone to think that is what I was saying? Others found it odd too. Thankfully, we all kept focus on comments that were actually somewhat constructive: "*You want a low loading height such that you can reduce the height needed to lift an item off the ground.*" I followed up with: When would the item be on the ground? It would be at arm height already... which is the very thing we've experienced. Again, this is real-world observation from actual ownership. Toyota is willing to try different approaches and figured out that practical is more important than perception. Try carrying groceries out from the store or taking off your backpack when approaching the car. Then reverse the process when leaving. The benefit quickly becomes obvious.
- 8-03-2017** **Estimate vs. Actual.** The difference can be really big. Some owners don't pay close enough attention to notice. That becomes an issue when you're driving an EV, not so much with a plug-in hybrid though. But when people are quoting values, you should know what's truly happening. We're hearing unusually large numbers from Bolt now. How do you know they are accurate? It's very difficult to imagine them driving for days on end without plugging back in. And of course, how close do they actually push it? At least with Prime, it's very easy to get the exact value. You just drive and note when the engine starts. You can repeat the process easily too: "*After 5 full charge cycles, the estimated miles remaining finally display slightly more than 30. I've been getting around 35 since the beginning (no high speed driving). Looking good.*" I was happy to join into that discussion: Mine said 33.4 the other day... then I went on a 55 mph drive with the A/C cranked and 2 bikes on back. When we got to the park, there was only 0.6 miles of EV left. I plugged in to recharge while out on the trail. Upon our return, we repeated the same high-demand drive home. The next day, the EV estimate for a full charge plummeted to 26.9 miles. Eek!

8-03-2017 **Understanding Scope.** The importance is like understanding audience; there are major consequences if you misidentify. In that regard, this particular comment sure stirred trouble: "*They were actually listening to owners of the previous generation and customer research.*" Problems arise online when you engage in a discussion with someone who never participated elsewhere. If their perspective comes from only participating in that particular forum, be prepared for trouble. I've had intense arguments with some people in that regard. They either dismiss other groups entirely for some reason or aren't even aware of them. This was the problem with that daily blog for Volt. There were outspoken Prius supporters who had no clue as to the influence that group had on GM. I recognized the patterns... and documented them in great detail here. It became quite obvious GM was heavily focusing on them for input. Their feedback became the guide to gen-2 development. It doomed that design to be stuck as a niche... since those individuals clearly did not represent mainstream consumers. Ugh. That's how we end up with antagonists on the big Prius forum. They don't believe that ever happened. That means a struggle for me to convey the history and how it influenced both GM and Toyota decisions. Limited scope means limited understanding: Closely following advice from early adopters & enthusiasts is a fundamental mistake GM made twice. Sure glad Toyota didn't do that. Prime stayed true to the keep-it-affordable approach which has been an overwhelming attractive attribute of the Prius design. PIP broke that rule, but it was only a mid-cycle rollout to a very limited market... which allowed Toyota to collect a priceless assortment of real-world data to design their first wide-audience offering. They delivered that with Prime. \$27,100 is a very compelling start price for the masses, who are only now taking their first look at plug-in hybrids. Of course, with so many people complaining about the cramped seating in back, the fact that GM actually reduced headroom a little bit for gen-2 contradicts the claim of GM listening to Volt criticism.

8-03-2017 **Enthusiast Blinders.** They only see what's directly in front of them. Looking around simply doesn't happen. It's really unfortunate. You run into comments reinforcing that perspective all the time too: "*The volt improved everything that was derided on with the second generation.*" The most definitely is not true. Some things were indeed upgraded. Not everything got the priority needed though. That's a very real problem for growth. Random improvement isn't enough. Those enthusiasts are only now starting to see the consequences. They were so focused on faster & further, they had no idea other needs were also important. The obsession blinded them from seeing the bigger picture. Oh well. It's not like I didn't keep trying to convey that message. In fact, I still try: The most important aspect still falls short: PRICE. Sales growth hasn't been achieved, despite the \$7,500 subsidy. When that tax-credit expires, then what? 5,000 per month is a minimum for realistic sustainable, profitable sales. Not coming anywhere close to that by the end of year-2 for gen-2 is the reason for consideration of cancel. Using the tech in some other vehicle is viable, but Volt itself simply doesn't have a big enough audience for the production-cost and resulting price.

8-04-2017 **New Camera.** My oldest video camera overheated. I was really annoyed. Finally getting a chance to film a drive into work and just 60 seconds from finishing that commute, I hear it beep then shut off. Ugh. It had a polarized-lens glued onto its case, so that had been the ideal for capturing window footage. It was really a pain to setup and control though. The replacement for it failed the following day. That one was for other play. It too was quite a few years old. 4 minutes into that drive, I lost the Wi-Fi connection. 18 minutes into the drive, it overheated... despite having a just a frame rather than a case and no secondary component attached. Ugh, again. Since neither had stabilization, the time had come to upgrade. Yeah! I could get a much better camera. It may take awhile to get setup with it, but the wait should pay off. This one will be must more robust and will deliver higher quality. The easier use will be a plus too. I still remember all those years ago trying to document what the driver saw & experienced. That was a clumsy series of experiments. Since then, the process & equipment is much improved. Stay tuned for new videos.

8-05-2017 **Reflection.** It's truly amazing how some still don't see it: *"That the UAW was first to boast "Volt is dead" (when that decision is not final) tells me that they are exactly in the same camp as nasty fossil interests."* They are putting up their own barriers. In the meantime, their position continues to erode. Having a different and powerful source draw attention to the issue is wonderful. You wouldn't expect anyone to be so clueless. Getting lost in a hopeless cause will do that though. Perhaps they will finally notice what has happened:

Turning a blind-eye to what was happening on the other end is just as much of a problem.

Volt showed the world you could have a great performing plug-in hybrid, if you were willing to pay. That message of it being worth the premium was conveyed relentlessly. We've endured 7 years of enthusiasts reinforcing that idea, setting a precedent against affordability for mainstream consumers. Volt enthusiasts were their own worst enemy. When confronted about the vital nature of production cost, we were always assured that the vastly superior design would triumph.

The UAW is now bringing up those same concerns the so-called "*trolls*" had been saying for years. Lack of high-volume profitable sales *SOON* will be a very real problem, one that would threaten acceptance of the technology. That's why there was so much of a push to get a "*lite*" model and a SUV version built. That diversification would establish sustainability, a vital aspect of continued employment.

Enthusiasts stood firm, preventing the status quo from changing. Efforts to show progress toward mass-market acceptance were shunned. There was a constant stream of belittling comments and insults to supporters. There was a trophy-mentality that prevented being affordable from rising as a priority. The obsession with faster & further still continues to be a problem.

Take a serious look what camp those here are in.

- 8-06-2017** **From The Beginning.** I couldn't resist contributing to this: "*Actually Toyota have not made the plug-in Prius from the beginning (1997).*" It was an interesting comment posted about an article highlighting Toyota's upcoming 20th anniversary for Prius. I jumped in to point out: Actually, the original model sold in 1997 had a plug. That was discontinued, since capacity was small and price was large, that simply didn't make it worth it. When the second generation was rolled out in the United States, we discovered it had the ability to drive up to 100 km/h (that's 62.1 mph) in an electric-only mode. Catch was, battery technology of the time couldn't deliver the capacity to sustain that. Same problem. The energy-density was still too low and the cost was too high. Aftermarket providers attempted to exploit that untapped design feature anyway, but interest was very low. It wasn't until 2012 when the energy/cost ratio actually made the approach realistic, but not for the mass market yet. Early adopters were happy to purchase & drive that though... which provided Toyota with a wealth of real-world data to design a high-volume offering... which is how we got Prime. Think about what consumers are willing to pay. That's been the hold up all along, not the ability to propel the vehicle. After all, EV1 demonstrated it was possible. Battery played a major role, especially when you add in the requirement to provide heating & cooling with electricity.
- 8-06-2017** **On-Going Greenwash.** This is quite common when a new generation of Prius is rolled out. Some online source will publish some type of greenwash material, then it gets referred back to over and over and over again. The reason is simple... there's not enough real-world experiences from actual owners shared yet. That means any uninformed reporter or some writer with bias can exploit the knowledge gap. It's unfortunate. It happens every time. Thankfully, it doesn't last much beyond the first full year. It sure is annoying in the meantime though. I chimed in about the situation with: It's amazing how far an article like that can persist. As an owner who commutes with a Prime using only EV, it makes me wonder what could have happened for them to print such a blatantly incorrect claim. Saying "*it cannot function as a complete car without gasoline*" is just plain not true. That statement is so easy to disprove too. How could it continue being passed as a reputable source? 7,000 miles into ownership has convinced me that retractions of error, or at a minimum a revisit report, is good reason to make a point of drawing attention to misleading articles. In this case, that is definitely one of them. The first 25 miles of travel (at least, I'm seeing low 30's during the warm months) Prime operates as a full EV. Regardless of power demand or need to heat/cool the interior, it's entirely run using electricity. The engine does not start.

- 8-06-2017** **26,867 Sold.** That worldwide count of Prime sales for the first half of this year is bringing out a lot of hate... to an extreme. Outright lies began to emerge over the weekend. That Volt blog has become the nastiest. On it, there's a claim that Prime only delivers 11 miles of EV. The person stirring this new greenwashing effort is hoping that rating from PHV will be mistaken as what is offered now delivers. It's a common type of deception. Using outdated data gives the impression of being trustworthy. After all, you can even provide a handy link for verification. The hope is readers won't realize something newer is now available. That type of desperation is telling. Rather than the usual FUD (Fear, Uncertainty, Doubt), they take advantage of assumptions with the hope to mislead. It's easier. It tends to work too... when you know most of the posters will go along with the rouse and readers won't bother doing any research. In this case, I have that one video published to refer to. In the past, that was an effective debunking tool. Hopefully, I have a number of them available. But for now, that single bit of footage has already been viewed over 3,100 times. So, we're off to a good start. Just think what will happen when production ramp-up kicks in. That sold count will really stir the rhetoric.
- 8-07-2017** **300 Miles?** You ever wonder how this claim can actually be made: *"I'm getting up to 300mi per charge currently... and that's with occasional A/C use."* I highly doubt there will be a constructive reply to my questions. But I really want to know. Don't you? Is that actual miles or just an estimate? What type of driving would they even consider normal? For that matter, does it actually matter? Prime uses Miles/kWh to indicate efficiency. What is the value for that Bolt owner? When you think about it, there are many unknowns. Since this was a first of such claims, I started my quest for information in this simple manner: How are you measuring that? It's difficult to imagine an owner driving for several days without recharging or pushing the pack to almost empty, and we all know how estimates are often very optimistic. At what point do you plug back in?
- 8-08-2017** **Quoting Extremes.** It was an obvious attack, but not on me this time. The classic undermine-by-understate was being used against Prius: *"On the highway you will only get around 12 miles EV range in the Prime."* I was quite curious about source & intent, so I proceeded with this response: Where do people get such incorrect ideas from? That is just plain not true. If I take the back way on the commute home, it is almost exclusively highway. Starting with a climb out of the river valley at 55 mph, it changes to 65 mph, then ends with a stretch back at 55 mph. Even with the A/C on, I can just barely make it home with a little bit of electricity left. Total distance traveled on that drive home 25.4 miles. Where ever that 12 mile nonsense came from, it ends here. You've been told by an owner... who routinely sees EV distances in the low 30's ...that it was incorrect, by quite a bit.

8-08-2017 **Lost What?** The rhetoric has become weak. Antagonists really don't have any substance available anymore. This was rather lame: "*Toyota has lost a lot of EV ground since the beginning with the Prius...*" It did have me yearning for more. In their mind, what ground are they referring. We know most consumers only have a vague idea what EV availability is. Basically, they've heard about them being available and may have noticed a few on the road. That's it. Charging stations go unnoticed. Knowledge of actual operation vague, at best. And detail about an actual purchase is basically just a myth. They have no clue. Some people drive them, that's all they know. So, the idea of somehow being behind is meritless. Behind what? I was curious how the "lost" claim could be substantiated, especially with such dependence on tax-credits still. We basically haven't even passed the first milestone in the race yet. So, the idea of progress is extremely difficult to measure. Think about how many actual plug-in vehicles a dealer has in stock at any particular moment. It is such a tiny quantity, the count of zero is often quite realistic. I fired back with: What was lost? Prime delivered the industry's most efficient heat-pump, aero-improved glass, carbon-fiber components, and EV drive. Combine all that with high-volume use of the newest lithium chemistry, claims of somehow being behind don't add up.

8-08-2017 **Winter.** Things will get interesting when it arrives. Rather than cold-season rollout, we basically all started with a warm-weather perspective. Those months of low temperatures had been when the other generations of Prius were rolled out; consequently, that resulted in a bunch of reviews only reflecting Winter performance. Catch was, people didn't understand impact of heater use and engine warm-up. In many cases with Prime, there may not be engine warm-up. Trips could be entirely with electricity. That means heat for the interior will come exclusively from the battery; though, the well-informed will experience pre-conditioning from the plug. Whatever the case, it will open up new dialog. Current discussions don't even begin to address the topic. I'm attempting to change that: We've addressed speed & distance, which is important. But I don't see any comments about WINTER, which is also important. The impact cold has on efficiency is a big deal, something not to be casually overlooked. Prime offers the industry's most efficient choice, a vapor-injected heat-pump. No contest. It consumes the least amount of electricity. The next is a regular heat-pump. You'll find that in a variety of plug-in vehicles. A few still use resistance-heating, which requires the most electricity to operate. Prime also offers battery-warming, as do some other plug-in vehicles. It maintains the temperature of pack to prevent the efficiency hit caused by the cold. For lithium batteries, electrical resistance increases significantly when below freezing. Keeping it warm means more EV miles will be available.

8-09-2017 **Let Me Tell You.** There's some very real abhorrence when that phrase is uttered by the president. It's so obvious how poorly informed he is, especially when telling us that. We don't get anything of substance to follow. That is his closing remark. Ugh. It makes you wonder how clueless those supporting the performance aspect of Volt are when saying this: "*That is worth the price difference, let me tell you.*" If they gave equal weight to other aspects of appeal, then it may be worth listening for more. But when all they do is quote acceleration-rate without anything else, it's just brain-dead power trip. The obsession, known as "*trophy mentality*", has blinded enthusiasts for an entire decade. All they cared about was being "*vastly superior*". In fact, they even said that for years. Fortunately, that time has been used up and I now get to tell them: There is no audience to receive that message anymore. All the low-hanging fruit has been picked. After 7 years, it should be obvious. Time to recognize the larger market.

8-09-2017 **Charge-Mode Video, part 1.** I finally got a chance to do a little bit of filming. It was on the return portion of a biking trip. There was a stretch of highway I could take advantage of. Unfortunately, all I had to work with was 1 camera. But it was still an opportunity to exploit. After all, the busy Summer schedule doesn't allow me to play that often. There would be construction to deal with and the warmer weather meant depending upon the A/C. So, my choice to capture Charge-Mode would mean a longer drive than my first experiment back in the Spring. It's a topic that needs much discussion, since so little is understood about it. This is definitely a new topic when it comes to plug-in hybrids. GM's offering isn't efficient enough to make the option worthwhile. Toyota's is though. So, there's a very real possibility of showing advantage... if we can clearly convey the circumstances. This is my first attempt:

Wisely used, the choice to consume EV miles generated by the gas-engine rather than from plugging in can result in an efficiency gain. Poorly used, the resulting MPG will be lower.

In most cases, you are better off just using plug-supplied electricity. However, I have discovered on long highway trips with my Prius Prime and no place to plug in, it can be handy to take advantage of charge-mode.

This video footage is a capture of the complete charging cycle, presented at 15 times normal speed. Pop-Up of the DRCC (Dynamic Radar Cruise Control) is usually a pleasant visual experience; the car automatically slows down upon detecting a slower vehicle ahead of it. At this speed, the display can be a bit disruption. So, pause the video from at times to see detail.

Overall efficiency, including acceleration onto the highway and deceleration to exit afterward, was 40 MPG. That's incredible considering the A/C was at the coldest setting (that's "LO") with the blower on medium the entire time. This caused the recharge to take 10 additional minutes, but 50 minutes is much faster than when plugging in anyway.

Watch the video careful. Keep in mind that brief recharging is likely what you'll end up using, not the entire 80%. When you do, choose wisely... [Prius Prime: Charge-Mode](#)

8-10-2017 Charge-Mode Video, part 2. There was follow-up to what I originally posted. This was in the form of a comment reply to myself. I wanted it to stand out and to give people the opportunity to respond directly to it, should they find that point compelling. My point was to stress that this wasn't a blanket endorsement by any means. Only certain circumstances would yield a benefit. Others could result in an efficiency penalty. Knowing the specifics is how to stir discussion and begin the understanding. It's an on-going process. You pick up more as each example is shared and analyzed. Having provided detail is a good first step. Hopefully, people will take the time to watch the video entirely and take time to think about the detail in comments posted. Here's more to ponder:

Additionally, do not overlook this important comment, which influences consideration of use: NO PLACE TO PLUG IN

When you are out on vacation, there can indeed be a benefit from having some EV available. Rather than going through the warm-up cycle, you can avoid HV entirely. Under some circumstances, that will result in higher overall efficiency. For example, going out in the morning for breakfast. The engine is cold and you only need it for a brief time. EV could easily cover that real-world circumstance.

Also, there was the concluding comment about briefly recharging: NOT THE ENTIRE 80%

It is unnecessary to recharge as much as possible. Just a little will do. Choose wisely.

8-10-2017 Production & Sales Worldwide. Today's discussion topic on the daily blog was a question asking if Prime would outsell Volt this year. I quickly got labeled as a troll for posting this: *"26,867 Prime have been sold worldwide between January & June of 2017. That puts Toyota on target with a production build capacity approaching 60,000 for the year."* Taking into consideration any type of distribution outside of this market was looked upon as an effort to disrupt the status quo, therefore inviting attack. I see limitation of scope as a clear effort to undermine. We've hear a lot about "*narratives*" lately with political issues. They attempt to paint a picture based upon selective data, rather than taking all information into consideration. This is very much the same thing. For Toyota to strive to reach a wide variety of markets all within the first year requires quite a bit of work. Actually delivering a production quantity greatly exceeding that of the supposed competition is worthy of attention, not omission or dismissal. This is quite hypocritical too. Volt enthusiasts demanded exactly that when gen-1 was first rolled out. Refusing to accept the same for Prime is just plain wrong. There's no way to even spin it as a double-standard either. Production costs are driven down by volume. Where those sales take place doesn't matter. The economy-of-scale benefit happens regardless of location. Worldwide is great for shifting the paradigm too. Stir as much interest as quickly as possible.

8-11-2017 **Nothing Offered.** Things are getting ugly as the market takes a step forward. Not all will advance. Some will even drop out of the race. New entries will join. It's very much a time of change. A few don't want to recognize it though: *"If there are more/better plug-in SUV, CUV, and Trucks, vs. just plain hybrid versions, then they will quickly surpass hybrids."* That look toward the hypothetical is a sign of trouble. We should be refining design at this point, not just considering the possibility of offering something. Ugh. Needless to say, that quote came from a die-hard GM defender, who refuses to listen to any type of attempt to be constructive... hence reverting back to "IF" considerations. Dealing with fallout is simply too much for him to handle... which is how you step forward... acknowledging an issue, then trying a different approach. Oh well. It's not like I don't keep trying to provide insight: Cost is the issue. Cost has always been the issue. That's why GM abandoned hybrid SUV production. There was simply no way to deliver something with a profit even remotely competitive against traditional counterparts. Remember Two-Mode? The plug-in prototype was grabbing media attention before reveal of the Volt concept. Difference was that SUV with a plug would retain parallel hybrid abilities and Volt would be a series hybrid. None of that worked out though. Cost continued to be the reason why. It was simply too expensive... and still is. Upcoming phaseout of tax-credits will make the situation worse. Needed growth has not happened. Loss of the \$7,500 subsidy will make competing with those traditional counterparts much more difficult. Of course, the reality that GM doesn't offer any type of electricity-focused SUV pretty much makes it all a moot point.

8-11-2017 **Know Your Audience.** Nothing has emerged from the ashes. We've watched the same old rhetoric being given another chance. There's desperate hope that something will be different this time, that failure in the past won't repeat. No change of audience is a fatal oversight. Enthusiasts attempting to appeal to mainstream buyers didn't work in the past. Why would it work now? That mass market of ordinary car buyers simply are not interested in what excites an enthusiast. I especially liked this comment: *"This, coming from you, on a GM-Volt website?"* That perspective comes about when you are trapped so deep into a group-think issue that you've lost touch with expectations. That's usually referred to as not seeing the forest. Focus is so tight on a single tree, all the others are forgotten. It's a fatal mistake. Crucial clues go unnoticed. All you can do is wonder. Comment outright dismissed on the sole basis of being an outsider is lost opportunity. It's easy to confirm too. If nothing constructive is given in return, they are ignoring what isn't liked. Bad news is a challenge to accept. Refusing to accept is harmful. Fallout will come. There are consequences from not dealing with a problem. It won't just go away on its own. Ugh. Oh well. It's not like I don't keep trying to point out that audience still unknown to them: Being one of the few who recognized early on that Volt wasn't targeting GM's own shoppers and getting pushback for raising attention why, I wonder what that comment is intended to mean. Bolt is in a similar situation. As nice as it may be, those looking to replace their old GM vehicle with a new one simply won't be interested and there is little potential for profitable high-volume. The popularity of Equinox should make that obvious. Think about why loyal GM customers are paying a premium so they can guzzle cheap gas. What draws them to it? Notice how well even Trax is selling. Why is that?

8-13-2017 **Electric Bill.** I'm still waiting for it. Turns out, the prior month isn't represented in the bill I just got. Tallied electricity consumption is for the month before that. I didn't realize there was a lag. I never occurred to me to look that close at the statement. I simply noted which day meter values would be read. For this new setup with the 2 sub-meters, I was expected 7 values to be noted. There's the 1 for regular electricity consumption throughout the house itself, then there's the breakdown of 3 billing categories used by the chargers for the 2 Prime. From the middle of the day is a cost of 11.68 to 13.08 cents per kWh. That variance is a warm versus cold season pricing difference. It spans from 8 AM to 4 PM. The killer cost comes from peak demand. During that 4 PM to 9 PM span, the cost per kWh is 41.444 cents. That much higher pricing is a deterrent to help minimize usage during that time. The late-night hours are the best for recharging. It gives your battery-pack a chance to cold soak, which is important for longevity. That wait is rewarded with a cost of 6.74 per kWh. It goes from 9 PM to 8 AM and also covers the entire weekend (all 48 hours). This isn't what the typical household will encounter for billing. My association is one of the leaders in the market. They take pride in not requiring customers to install entirely separate systems for charging... which can provide even better discounts, but includes a monthly fee. For me, it's just the one-time setup, then a cost-reduction of roughly half price. The meters are really nice too. They just cycle through each billing category, displaying the kWh tally. On the next electric bill, it should be nicely broken down to show the charges for charging from each. I can't wait! How often do you hear someone make a comment like that about getting a bill in the mail?

8-15-2017 **What Next?** It's like watching an accident in the making. You know the outcome will be a mess, even if there's a last minute course change: *"Everyone is actively killing off diesel and GM is making new ones. Why?"* I knew this would stir the pot. But it didn't matter. The pot was about to boil over anyway: GM has an extensive history of trying out a new technology, then abandoning it later... EV1, BAS, and Two-Mode. This is why the *"too little, too slowly"* concern was expressed over and over again. There was good reason to worry that Voltec would not be expanded upon... just like those other abandonments. Much emotion was expressed in regard to that concern, with personal attacks on the messenger and reassurances this very thing would never happen. Enthusiasts here could not see beyond the impressive engineering. They'd remind me over and over again how well Volt performed, every time business issues were brought up. Now those enthusiasts are seeing the same thing and questions of dismay emerge. Rather than a step forward with electrification, which reduces oil-dependency as well as emissions, we see a step backward to fill in the gap other automakers left with their step forward. Instead of an Equinox using Voltec, customers instead get the choice of diesel. So, what happens next?

- 8-15-2017** **Changing Stories.** A few keep trying: *"Those technologies mentioned were not abandoned, they were improved into the Volt/Bolt tech we have today."* One attempt too many. He backed himself up to a cliff and actually stepped off. That's far worse than being cornered. There's nothing to do when you get caught spinning a situation and end up contradicting yourself. Over and over and over again, I pointed out GM's past motor & battery rollouts. They dismissed them when acknowledgement would reveal a mistake being repeated. But when the mistake is the rollout itself, there's a very real problem. You cannot ignore it. So, they try to embrace the very thing they had shunned. You can't do that. The internet makes it very easy to prove you are being hypocritical. In this particular case though, it isn't just check, it's check-mate. Neither story works. Both cast GM in a bad light. Whether endeavors prior to Volt count or not, the fact that Volt itself is 7 years old means time is up. This isn't a final. It's graduation. All the grades for each class have been tally. GPA shows the difference between "A" students and those who will struggle to get by. I found it redeeming for it to now be over. No more having to deal with a bully. What was learned, and what was not, will be obvious to others. I brought not having to deal with changing stories anymore this way: All those years of supporting the claim that Voltec was new and we needed to be patient and wait... Now what I've been saying all along is the story? In that case, why is it taking so long? What is GM waiting for? Too little, too slowly...
- 8-16-2017** **Characterization.** The outcome of getting caught having made a mistake or overlooked something vital is to spin the situation. Done often enough, the spin itself becomes spin: *"Characterization as abandonment instead of improvement is yet another cheap troll shot."* The catch this time though was that every noticed what happened. Spin only works if someone goes along with it. Being totally alone means defeat. It's over. I get to sum up the situation: I get the *"broken record"* characterization for staying true to goals. We have now heard both that experience with motor & battery prior to Volt apply to the development effort for Voltec and do not. What does that make the contradictory timeline you posted? Realistically, it doesn't matter anymore. As of this discussion topic, the timeline has expired anyway. Year-2 of Gen-2 is when the critical decisions get made. 7 years after rollout, GM has chosen to promote diesel instead. Cruze diesel will be joined by Equinox diesel. Eventually, another technology that takes advantage of GM's now even more expansive experience with motor & battery will be rolled out and characterized as new. The reason why is simple... not to be associated with failures of the past. Odds are, it will be successful... but will resemble what's being offered by other automakers... due to goals. They never change. Replacing traditional vehicles with clean & efficient choices is essential for the business.

- 8-16-2017** **Choice.** The push now is for enthusiasts to make a choice. Since the original rollout of Volt went horribly wrong, they have refused to take a stance. In fact, that's what makes them an "*enthusiast*" rather than a "*supporter*". That decision in the past to just observe and forgive GM for mistakes is no longer acceptable. They have exhausted that position, which as proven ineffective. That's why claims like this are no longer going to be tolerated: "*I don't see Volt being summarily discontinued because of an Equinox diesel offering.*" The perspective spin and lack of any type of commitment on their parts is very much a problem. They have become anti-plug by the simple act of holding it back. Impeding advancement with a "*good enough, let's wait & see*" attitude is terrible. We waited for gen-2. Now what are we waiting for? Asking questions like this is well timed. With so much polarization of sides in the political world, you can no longer sit on the sidelines. You must make a choice. Put up or shut up. I stated the situation this way: Too little, too slowly doesn't mean discontinue. It means not enough. Remaining a niche offering fails at the goal of replacing traditional vehicles. There's no way for you to spin sales count falling well short of mainstream competition upon start of the 8th year, especially with so much of an industry endorsement for electrification now. The reality that GM is dragging its feet... which ironically, is exactly what Toyota was said to have done... is a problem you have to face. The choice is to excuse & enable or push for a next step. Which is it? Choose.
- 8-16-2017** **So Vague.** What do you do with a Prime supporter that is a very frequent forum poster, but had higher expectations and won't actually purchase one as a result? He's always so vague and has the one-size-fits-all perspective. Today, his comment was: "*Toyota is being forced into plug-ins.*" I found that particularly annoying due to the complete absence of detail. What does that actually mean? On the surface, it sounds like it has merit. But that's the basis of rhetoric. When you take a close look, there isn't anything there to support the claim. That is the case with this too. No substance is frustrating. So, I shot back with: That is so vague, it could mean anything. Try again with some detail, any sort of specific will do... like time, volume, cost, capacity... Then, think about how those comments apply to all legacy automakers. I see the continued push from Toyota in the form of electrification, not EV range as most. What's the point if you don't have an efficient & affordable collection of components. It should be obvious with Prime's design under the hood. The ramp-up of lithium production for both Prius & Prime/PHV is not so obvious, be just as vital. How will expansion to other vehicles, Camry & RAV4, happen without the production & reputation of the needed components well established first?
- 8-17-2017** **Recall Hypocrisy.** If anything whatsoever was updated for Prius post-purchase, for any reason at all, there was a huge outcry... There was an intense effort to create a stigma for "*recall*" work. Treating it as an upgrade was unheard of. The vehicle was supposed to be perfect at the point of sale. Improvement was looked upon as apologist spin. What a pain, especially now with such hypocrisy playing out with gen-2 Volt recalls. There have been 3 recently. Recall #16185 was "*Replace fuse and reprogram Hybrid Powertrain Control Module*". Recall #17058 was "*Reprogram Drive Motor Power Inverter Module*". Recall #17197 was "*Inspect Evaporative Emission Pipe. Installed Protector*". Remember the claims we were all going to die from Prius? Ugh. It's really unfortunate how they change their tune when the shoe is on the other foot.

- 8-18-2017** **Too Late?** The attacks on gen-2 Leaf coming from GM supporters are weak, at best. Though, I still find them annoying: "40 kWh is too little, too late." It's a desperate effort to portray GM as somehow being so far ahead of the other automakers, that it is pointless to even try to deliver anything less. In reality, that's a desperate attempt to conceal cost issues. There is a very real problem coming when the federal subsidies run out. Necessary growth hasn't happened. The loss of that help and increased choices for consumers will make that even more difficult. That know that though. You know that too, from reading this blogs. So, there's no need to dwell. My responses was very simple: Too late for what? The battle for sales without tax-credit help has yet to begin.
- 8-18-2017** **Sudden Power.** There's a growing concern from newbies about there being enough power in EV mode for Prime to suddenly accelerate. This is fallout from the greenwashing effort. Those hoping to undermine are working hard to spread FUD. That stands for Fear, Uncertainty, Doubt. The hope of that assurances from owners won't be satisfy concern. From owners, the message was to simply switch to EV-Auto if there was any discomfort about being able to accelerate fast enough. After all, that is the point of offering it. At times of high-demand, why use up precious electricity when you've got a perfectly good gas-engine available? That doubt part comes from conveying a belief that the gas-engine not being warmed up yet somehow won't be able to fulfill the request for sudden power. But then, you have stuff like this to respond to: *"I honestly don't understand ev-auto. How is it good for an engine that has been cold for hours to be fired up all of a sudden and running at full power?"* Fortunately, PHV owners like myself already have years of experience to share... to snuff out any reason for concern: In this case, it was a simple reply: It's basically like a gen-1 Prius plug-in mode, which never was a problem for me starting cold on a ramp.
- 8-19-2017** **Affordable Choices.** There has been an obvious pattern emerge recently as the reveal of gen-2 Leaf approaches, making it an clear point of worry: MSRP is being avoided & downplayed. \$33,220 for the LT (base) model Volt is simply too expensive. \$26,000 is the MSRP for the LT (base) model of Malibu and the Premier (fully loaded) model of Cruze is just \$24,820. GM has a very real problem already. \$36,620 for a LT (base) Bolt makes it even worse. What will compel GM's own loyal customers to replace their aging GM vehicle with one offering a plug? That's a huge premium to pay, especially with gas so cheap. Knowing that Prime has a base MSRP of \$27,100 and gen-2 Leaf is expected to be priced \$29,990 for the base, there's no point trying to spin them as competitors. Hyundai is expected to undercut GM pricing too. They are all legacy automakers striving to deliver affordable choices for showroom shoppers. Why is there still no "lite" model of Volt offered? Will there be one for Bolt? What about Voltec rollout to Trax, the platform GM customers prefer... a SUV? We don't need expensive choices. We need models actually capable of high-volume profitable sales able to sustain GM's own business.

8-20-2017 **Handling Risk.** It's rather remarkable how easily the most basic of concepts get overlooked. But then again, that's only for those who have studied marketing, economics, or accounting. Without that background, those approaches probably aren't obvious. You learn right away that the product alone is far from enough to being successful. Business is a complex equation of variables, many of which are not even tangible. How much is customer satisfaction worth? If it results in a recommendation to someone else, who ends up making the purchase, that is worth quite a bit. There's no way to quantify it though. That's a very big problem, especially when quantities aren't available either. Nonetheless, you have to start somewhere. Toyota's approach is to focus on this intangibles. They've learned that value from that is substantial for reducing risk. Great engineering can become a major financial loss if consumer confidence is uncertain. That's why I have always been in favor of the way they've been handling the technology penetration. Each step has been small. Impact has been enormous though, since it moved the base forward. GM's approach with their attempt to take one giant step clearly hasn't worked. We're not seeing a market shift from GM like we are with Toyota. Notice how popular the RAV4 hybrid has been? As insignificant that may seem, it is a genuine step away from traditional vehicles. Those buyers are showing confidence in what a battery-pack can deliver. That's absolutely vital for true progress to take place. I conveyed that message this way today: Establishing a plug-in reputation with Prime in the meantime makes sense. They'll have all of the EV tech itself already proven in the minds of dealers & consumers, making the high-volume investment in solid-state batteries a reduced risk for the business. Basically, it's a chicken or egg situation. We know how under-developed the infrastructure is for plugging in the still. Why not get that electric-vehicle technology well established in the meantime?

8-21-2017 **Back Route Home - Video.** 25.4 miles driven with 2.1 miles remaining, all using only electricity. Taking this back route home on my commute was a demonstration of what the system has to offer. In this particular case, I had to deal with construction detour backup in the cities and climbing out of the steep river valley once on the highway. The trip from there to home was almost exclusively at fast speeds, which uses up EV miles faster. So, seeing real-world EV distance exceed that of the 25-mile EPA rating is good confirmation of Prime delivering on expectations. Watch the drive for yourself... [Prius Prime - Back Route Home](#)

8-22-2017 **Quantitative Value.** The fundamental flaw EV advocates makes when trying to promoting plugging in is not having anything substantial to present. They just generically mention benefits, like no oil changes. References that vague have little impact. People just plain don't care. That's because mainstream shoppers don't care in the first place. Not wanting to truly know how much their guzzler actually guzzles is key to its appeal. Driving a large vehicle that roars when you stomp on the pedal is what's important. How much it costs to purchase or operate is pushed aside and never really directly addressed. That's why efforts now are somewhat futile. For that matter, it is why Volt failed so miserably with attempts to appeal to ordinary consumers... who don't pay attention to detail anyway. blah blah blah, sign here. How does a plug-in vehicle compete with that simple of a guzzler purchase? Basically, they don't. You have to empower buyers. Sneak in learning moments here and there. Eventually, they put the puzzle together on their own. I'm going to do that here with the following. It will likely be meaningless the first time you encounter numbers like this, but it's a start. That's why Prime is so important. It lays down the foundation, building an understanding that will very beneficial years later when looking to upgrade. It's really too bad gen-1 Volt owners never bothered to educate. They figured the technology would somehow sell itself. Thank goodness that naive attitude is quickly becoming a thing of the past. For example, my real-world numbers to share:

Rapid recharge is quite handy. I tend to avoid the after dinner recharging though, since we got our outlets wired into sub-meters for Time-Of-Use discounts:

11.68 - 13.08 cents / kWh = 8 AM - 4 PM

41.444 cents / kWh = 4 PM - 9 PM

6.74 cents / kWh = 9 PM - 8 AM

By the way, our electricity association provided \$500 per charger rebate. That incentive worked out really nice.

8-23-2017 **Quick Impressions.** That is the stage we are at now. Plug-In vehicles are finally getting attention... but it is brief. People recognize the technology and the benefit. That's all though. Nothing else. You simply get acknowledgement upon mention. That's definitely progress, not at all what enthusiasts had hoped for though. Remember where Volt was supposed to be at this point? Success was expected to be so high, demand would make the choice of EV unnecessary. There wasn't plans for Bolt. In fact, that was the very thing GM had campaigned so intensely against. Technology implemented in Volt was to be the ultimate "*range anxiety*" solution. That would make hopes of the next-gen Leaf unnecessary. Instead, there is now Tesla dominating one end and Prime striving for the other. Nissan would obviously like to shake up that new outlook. Hyundai obviously would too. This is why an overly simplistic look at the entire plug-in market is taken now. That's ok though. Quick impressions are fine while initial rollouts & inventory build-up take place.

- 8-24-2017** **Eco Experience.** Just like with the past few years, the Minnesota State Fair will have a plug-in vehicle display in the Eco Experience building. Today, it begins. Tomorrow, I get to see it. Our owner group got the training recently about how to greet & inform those who stop by to check it out. There will be a Bolt and a Pacifica, along with a charging-station. Unfortunately, I cannot participate in the volunteering this year due to family obligation. But at least I'll get to see it. On this upcoming weekend, there will be the usual parade which a few of the vehicle join in with. That obviously would have been a lot of fun... especially with the standout color of my Prime. Oh well, its not like there won't be other events. In fact, there will be an Energy Fair just next week. Anywho, there is a good way to draw in environmentally conscious consumers for a closer look. They visit that particular building to learn more about green options. So, our group fits in really well.
- 8-25-2017** **Plug-In Promotion.** My day at the fair allowed me to pay a visit to the Eco Experience. Sadly, it was a bit disappointing. Unlike last year, this display wasn't in the middle. That made it harder to notice with some of the other larger exhibits also there. The small back seat of the Bolt was a surprise too. It was obviously bigger than Volt, which is why I never took a really close look. Most of the time, I'm too busy answering questions for others. But at this particular time, there was opportunity to explore detail. It wasn't as spacious as hoped. Why? Was it that important to squeeze out every last mile, rather than offering more room? Knowing that Prime is larger, you'd think GM would try to compete better with Toyota. On the other hand, Chrysler did an excellent job with Pacific. That plug-in hybrid minivan appears to offer quite a bit of potential. It is an oddity though. Despite minivans being a Chrysler specialty, there simply isn't much of a market. The potential consumer-base to appeal too is quite small. Much like GM, it will be quite a gamble not if they don't diversify right away. Whatever the case, the display today is good plug-in promotion. You have to reach out to ordinary consumers somehow. Groups like us can really help that process along.
- 8-26-2017** **Too Bad.** Complaining about price. I never ends. It shouldn't either. The past 20 years of hybrid sales clearly reveal that to be the highest purchase priority. The reason is simple too. That's the way people shop. As a result, that's the way automakers design their vehicles. They are building & selling to make a profit. The motivation for offering something green is to remain competitive. In this case, it is both competing with themselves, as well as with other automakers. That's why I get terse when comments like this are made: "*We need to compare average sale price, minus federal tax credit.*" It's a clear disregard for the bigger picture. Focus solely on what's happening with the early stages of rollout is a terrible approach; yet, that is the underlying theme in virtually everything I deal with online outside of the big Prius forum. And even there, a few just plain do not want to look at the automaker's overall production. It's really unfortunate. Only considering the low-hanging fruit, rather than what comes next, is a very real problem. Mainstream acceptance is far more difficult than the antagonists want to accept... or even understand. To them, I say too bad. Today, it was stated this way: Short-Sighted perspective is also known as cherry-picking. Business sustainability is essential to plug-in survival, which requires a competitive price. A dependency on subsidies to lower the price means little to no growth... which is exactly what has happened. You can't just choose to disregard a key reason why traditional vehicles are selling so much better. Too bad if you are tired of hearing about it.

- 8-26-2017 Gas Coupons.** The grocery store with free charging-stations is just a few blocks down the road from my house; so close, I can see it from my driveway. That means, even with a very short stop, I can recharge the battery with more electricity than what's needed to drive home. That helps extend the already mostly electric driving even further. It's quite handy to stop there on the commute home to buy something fresh for dinner. That type of only-buy-what-you-need approach works really well. There's pretty much no waste and you get exactly what you want. Anywho, some purchases result in a discount for gas. A substantial per-gallon value is accumulated over time. Normally, that would result in a great savings at the pump. Unfortunately, it doesn't work that way when you have a Prius Prime. Each of those discounts only have a 30-day lifespan. You only have a rolling-month total available. Going much longer than that between fill-ups means watching some expire. My best tank so far was 2,074 miles. Oh well. You win some. You lose some.
- 8-27-2017 Commute To Work - Video.** This newest capture of one of my drives is representative of a typical Summer commute for me in the Prime, including the road-construction slowdown. I arrived at the ramp where I park for work with 50% of the EV capacity still available. That shows overall electric driving availability is well above the 25-mile rating estimate. And since I recharge there, taking advantage of the 85 kWh solar-array, the drive home is exclusively with just electricity too. Watch the video closely for detail. Notice the hills and variety of speeds. Also, keep in mind that the maximum efficiency reported is 199.9 MPG. Beyond that, there really isn't much of a point. Diminishing returns makes the value less meaningful. Here it is... [Prius Prime - Commute To Work](#)
- 8-27-2017 Ford's Response.** Plug-in & Hybrid SUV options were only a matter of time, despite the cancellation back in 2012. We still have to wait 2 years. It is progress though. In fact, this is exactly what we were hoping for from GM... simply stating the intent to move forward. The hopeless rut Volt is stuck in is wasting time. There's nothing else to prove at this point; the technology works and needs to be refined to become affordable. With Toyota & Hyundai already at that stage, dragging on the mismatch with Volt makes no sense. GM customers want SUV choices, not a compact car. Not offering one with a plug, or even just a hybrid, goes beyond missed opportunity. It's a shrug of unwillingness. Thank goodness Ford is finally moving on. Perhaps when Mitsubishi and Kia hybrids with plugs start to make appearances on roads here, then things could change with the incredibly stubborn GM executives. In the meantime, how will Ford's announcement of intent today impact the Volt enthusiasts who have been fighting so hard to retain the status quo? This represents quite a change.

- 8-28-2017** **Left Behind.** Now that tax-credit expiration is rapidly approaching, the inevitable spin to defend poor choices has emerged: *"They get to cherry pick all the best technology, designs and efforts from Tesla/GM/Nissan and build essentially a Gen II EV with little risk and have most of their tax credits left in place."* Spinning that situation of being "left behind" overlooks the advantages we've been told about for years. Scrambling to catch up doesn't actually work if the market is still just a niche. In other words, high-volume production is not a factor of generation as implied. Telling them that is pointless though. So many have that mentality of more being better, it's obvious they don't have an understanding of economics. For the business to thrive, there must be some on-going profit return. That comes from those vehicles they couldn't care less about. The ordinary "blah" vehicles they shun are absolutely essential. It's like never eating vegetables. You may enjoy the meal, but the behavior will lead to wellness problems. The focus entirely on the exciting sales, not realizing how important the other sales actually are. That's why that "left behind" perspective is such a problem; yet, they don't see it. And with phaseout being triggered within the next year, losing the help subsidy money provided will really hurt. Ironically, they'll find out at the last minute their own choice was cherry picked. Like a well-balanced meal, a well-balance vehicle will have a become outcome.
- 8-28-2017** **Bugs & Automatic-Wipers.** We made an interesting discovery today. When doing long-distance travel during the buggy season, make sure to shut off the automatic-wiper feature. That lesson was learned the hard way today. As the cruise down the highway progressed, the impact splatters from each bug grew in count. Not a big deal if that is only what happens. Unfortunately, it wasn't. A squished bug triggered the wipers. That resulted in a horrible series of smudges across the windshield. What a mess! You cannot conveniently clean that off either. Spray from the wipers doesn't work well at highway speeds. You really don't have much choice but to stop at some point. Looking around smears can get annoying after awhile. Fortunately, we had been planning to anyway. So, a quick wiping with the car no longer in motion cleaned most of it off. I got the rest with a squeegee.
- 8-29-2017** **Education & Support.** I was intrigued where this claim would take the discussion: *"Can't rely on tax credits forever. Those who have invested from the beginning will reap the benefits of being ahead with lower costs for electrification/batteries/etc."* Knowing that the price of Volt won't magically fall when phaseout is triggered, what will be relied on instead. If GM was holding out and actual production cost is much lower, they'd need to ramp up sales considerably to make a price cut matter. No growth defeats the entire purpose. Something must be done quickly. For Toyota, the situation is quite different. That's why they are focusing on education & support instead. With far more time & credits still available, growth can be given much more attention without any consequence. I diverted attention back to GM though. Those enthusiasts really don't care anyway. But at least having focus on their own favor is better for continued discussion: Depends upon what those investments contributed to. We certainly haven't seen dealer-support resulting from GM's effort with Volt. After 7 years of sales and 2 generations, they continue to exhibit disinterest. In other words, investment should not be only in the design & production of physical components. The value of education & support has been a serious overlook.

- 8-29-2017** **Disappointment.** It means a lot when someone else makes this comment in response to your post about having a reason for concern: "*I'm disappointed that GM hasn't brought out a whole bunch of Voltec based cars, SUVs and truck Plugins.*" I was assured by those providing negative votes we'd have many to choose from by now, that there was no reason for concern. They were wrong, very wrong. All those assurances that "*too little, too slowly*" wasn't in any way applicable to the situation. GM was doing just fine. Despite literally no sales growth as a result of the advancement of time, greater market acceptance, and the generational upgrade, all was just fine. 7 years later, there's no reason whatsoever left. No excuse. No circumstance. It's over. Opportunity was missed. How that transformed from hostile denial to genuine disappoint is a bit of a mystery for those not looking forward. For those well aware of what will happen next week... it's obvious.
- 8-29-2017** **Avoidance.** I like when they invite me to post about what's coming: "*Where is Toyota's Prius Prime additional models or EV?*" Despite the obvious change of topic, it works out nice: Divert attention away from GM by inviting me to discuss Toyota. That's rather desperate. But since you did that... My post was about the value of education & support being a serious overlook. Toyota is directly addressing that by establishing a variety of Prime choices. They started with Prius to demonstrate the technology itself, while at the same time rolling out RAV4 hybrid, an all new Camry hybrid, and C-HR hybrid... each of which could offer a plug-in model. Toyota is also investing in the next-generation battery (solid-state lithium). They are laying the foundation for an easier transition for both dealer & consumer to embrace the plug-in choices. That variety of hatchback, sedan, SUV and CUV covers each of the major passenger (non-pickup) categories. Each has affordability as a primary goal. GM is avoiding SUV entirely, despite it being their primary sales product. Your list avoids that too.
- 8-29-2017** **Commute To Home - Video.** I filmed my drive home too. It was a fairly typical Summer commute. Bridge construction was finally completed, but a stoplight wasn't working. So, I ended up dealing with some stop & slow traffic anyway. Oh well. Prius thrives with that. Prime abilities kick in when I hit the highway. Merging onto the highway, then climbing out of the river valley is effortless. There's plenty of electric-only power for that. It was a beautiful sunny day. Traffic was normal. The number of lights that were red was too. That 18.4 miles of driving used 61% of the battery-capacity available. That left me with an estimated 13.4 miles of EV still available. I've seen values like that all throughout the warm season. Choosing to not recharge at work, I witnessed a total of 33.6 miles driving that same route before the engine started. So, there's no question whatsoever about the 25-mile rating. That is effortlessly exceeded with real-world driving. It's too bad our official testing process can't portray a more accurate expectation. Oh well. It doesn't really matter. The resulting efficiency average just says 199.9 MPG anyway. That maximum is all you get. It's really all you need too. At that point, gas consumption has been so significantly reduced, you can say "mission accomplished". Here's a link to that video... [Prius Prime - Commute To Home](#)

- 8-30-2017 Leadership.** Calling them clueless doesn't seem accurate, since they dismiss what I say. It's more a matter of denial: *"GM has more plug-in models than any other manufacturer. Why would we expect GM to follow Toyota when GM is leading?"* That's like judging a book by its cover. The thing may look appealing, but the actual substance is lacking... or absent. In this circumstance, we see several automakers moving to offer SUV models electrified in some fashion. With GM, there's nothing at all. Enthusiasts pretend all is well though. No big deal. That's amazing. To leave such a huge problem unaddressed. Ugh. Oh well. All you can do is continue pointing out the problem: Dodging the issue of SUV doesn't make it go away. Equinox is a major profit-making vehicle for GM. We were shown a plug-in prototype SUV that was to be delivered in 2009. Instead of finally delivering, GM is rolling out diesel instead. Those here fiercely insisted that Voltec would be diversified much faster than HSD. That didn't happen. The start of year-3 for gen-2 shows disinterest, where focus is shifting from PHEV to BEV with a heavy dependence on tax-credits still. Remember, each automaker has their own distinct audience. For GM, they are primarily SUV buyers. Neither Bolt nor Volt targets them. Leadership comes from getting ordinary people to change. What is GM doing that mainstream consumers... their own showroom shoppers, not early adopters ...have responded to?
- 8-30-2017 The Real Problem.** This was an noteworthy comment: *"When the big 3 get lazy on product development they tend to lose market share to the import brands."* That isn't the actual situation playing out; nonetheless, it is a reasonable theory. I would give GM credit for pushing plug-in technology. It's not in the direction of need, but following a want is still a type of advancement. With climate-change and oil-dependency such monumental problems, not addressing them directly is a very real problem. They haven't been. High profit-margins from large vehicles has been too great of a temptation to resist. People here crave size & power. It's really unfortunate marketing has exploited that. Clean & Efficient becomes a challenging sell as a result. The fact that those clean & efficient vehicles return a much small profit in return makes them unappealing to build & sell. What incentive is there for dealers to carry them? Sales of dirty & wasteful vehicles are very easy. I replied to that comment with: It's a matter of disinterest. GM doesn't want to undermine its own product. SUV sales are highly profitable as guzzlers. Adding a plug brings that cash-view to an abrupt end.
- 8-31-2017 Obsolete.** That word is carelessly used. People don't really know what it means. The reference is actually an indication of trouble. From today: *"GM will be obsolete if they don't follow the trends which includes EVs and PHEVs. So will Toyota."* In the software industry, a more concise term is deprecated. You know it will be discontinued at some point, but use in the meantime is acceptable if you are making accommodation for replacement in the meantime. That end of support is clear though. We don't have that in this case. It's all quite muddled for the automotive industry. I jumped into that discussion: Obsolete already applies. That's why all automakers are already shifting. How is what's at issue. Toyota is rolling out plug-ready hybrids. 52 MPG rated Camry ends all those pointless arguments about Prius size, power, and looks. RAV4 has been selling really well as a hybrid. The expectation is for GM to do something like that too, rather than pursue diesel. It's as if Malibu hybrid doesn't exist.

- 9-01-2017** **Look Forward.** The feeling of contradiction and double-standards is building. The next-generation of Leaf will push the market out of the status quo. It was stuck in a rut. Sales were flat for Volt, the vehicle which was supposed to lead the way... rather than struggle to survive. I had to endure quite a bit of hate for having to deal with the backlash of pointing out facts and providing clarifications for the obvious efforts to undermine. Prius plug-in had been made the target, since it aimed squarely at the audience GM was never able to appeal to... and consequently gave up trying. That sense of abandonment has made me the scapegoat for their anger & disappointment. Look forward is the only suggestion I have available, with a reminder of goals. Those enthusiasts get far too hung up on specific configurations and let pride prevent them from taking the next step. They don't want to acknowledge what went wrong and simply move on. Dwelling on failure can be a serious setback, rather than the advancement advantage it can be. You learn from mistakes. What is that so difficult to accept? Hmm. Oh well. I'm asking what's next with the hope someone will look forward: Anyone have any idea what GM's strategy is for Volt will be? Knowing the tax-credit phaseout will be triggered mid-2018, the struggling sales will become even more difficult. Think of the variety of new plug offerings other automakers will be promoting. Volt's opportunity to stand alone is gone. A clear message to consumers is essential, something blatantly absent so far. Don't forget, the purpose of Volt was to alleviate "*range anxiety*" concerns. Bolt very effectively does the same thing.
- 9-01-2017** **Misinformation.** The intentional spreading of it is what kept me coming back to the daily blog for Volt. They'd just spread lies. A few would post the misinformation and the rest would be supportive, enabling the greenwash material to be validated through acceptance. When you're the only one pointing out the error, it makes you look like a troublemaker... countering the information everyone else has accepted as fact. That happened endlessly. I remember the "*6-mile*" range claim going on for years. It was an outright dishonest attempt to mislead. Some just plain did not care though. Ultimately, I squashed their efforts by filming my drives to prove they were wrong... very wrong. When that happens, they move on to the next lie. The latest is a type of range claim: "*A car that won't get 10 miles of electric range in Winter?*" With so much real-world data from other plug-in vehicles showing the less efficient vehicles losing roughly one-third of their capacity to heating, the claim of double that from a more advanced design is absurd. Yet, they try it anyway. Sadly, I have to endure the greenwash for awhile. It's quite warm here still. Taking advantage of cabin pre-conditioning and the battery-warmer, combined with the vapor-injected heat-pump, I expect far less impact... which I will film and share as soon as the data can be collected. In the meantime, I have to just put up with their rhetoric: Spreading misinformation about any plug-in is helpful to our effort of promoting electric driving how? That claim about Prime is uncalled for, totally inappropriate. We here know that is false.

- 9-01-2017** **Dragging.** The spin when it comes to tax-credit expiration is that those automakers with a lot still available weren't trying hard. The very idea of a certain automaker having wasted them is impossible. If something was offered for sale, that's all that matters... to enthusiasts. Those who believe in quality over quantity see it very differently. The concept of waiting until you've got a viable product for the masses doesn't make any sense... to enthusiasts. It's all desperation, an act of pride. Excuse after excuse comes from not having delivered a design capable of competing directly with traditional vehicles. Needless to say, there is very real concern about the subsidies running out. This was the spin today: *"I doubt that congress will leave American car companies at a disadvantage to the foreign companies who have been dragging their feet on EVs (like Toyota)."* I was amused. How much do they think the government should provide? Think about how much money was lost bailing out GM. Who's actually paying and what are they paying for? If new credit funding was allocated, shouldn't the criteria for eligibility be re-evaluated? After all, the current availability is based upon understanding of implementation for 2008 and without any clear guidelines. It was nothing but a basic acknowledgement of battery-capacity. What if the eligibility was based upon MPGe instead. Less efficient use of electricity would get rewarded with less money. After all, it makes no sense promoting a guzzler of a different fuel. Waste is waste. I sounded off about the situation with: Dragging? Toyota's first nationwide plug-in rollout is affordable without tax-credit help. GM is still very dependent on subsidies and hasn't expanded to their primary market yet (no SUV), despite 7 years and 2 generations. In other words, the measure of progress is based upon how well the technology actually replace.
- 9-02-2017** **Faster & Further: Sad.** The idea of leadership coming from the *"faster & further"* crowd is just an adolescent desire for more. There's never enough. There no sense of balance. It's just an obsession to go faster & further. That makes any type of response to this pointless: *"Someone like Toyota should be near the front of the pack, if not leading. Releasing two generations of anemic PHEV Pruis is just sad."* Understanding anything other than an increase of power or capacity for the electric system simply doesn't happen. There's no priority given to other aspects of the purchase. Heck, even affordability is dismissed as something of important. Those particular enthusiasts simply are not interested. So, I just stuck to the one-sentence reply: \$27,100 base MSRP with an assortment of included new safety features is leading the pack.
- 9-02-2017** **Faster & Further: Some.** The reply to my comment was weak: *"It may be leading some pack, but not the PHEV/EV pack. They would have to double EV range, cut 0-60 time by 33%, and have five seats to even be in contention to do that."* Acknowledgement that it wasn't actually an absolute opened up opportunity to actually have some dialog. Though, I knew that would be brief. That audience doesn't need a reminder of audience. What ordinary consumers consider important is nothing they share in common with these enthusiasts. So, I kept it simple again: That *"some pack"* is mainstream consumers, the group that matters far more than early adopters.

- 9-02-2017** **Faster & Further: Priorities.** Coming from the trophy-mentality perspective, the need to appeal to the masses isn't a consideration. In fact, there is an outright dismissal of attempts to match traditional vehicle configurations. That isn't important, period. Why bother? Needless to say, they still don't understand: *"At the moment the PP is cannibalizing standard Prius sales from people who don't do research and blindly buy from Toyota."* To not see the audience is so different, comparing ordinary people to early adopters, boggles the mind. How can they not recognize priority differences? Oh well. It was just another thread with deaf-ears not hearing what needs to be accepted: Thinking conquest is better is a fundamental mistake. That is just purchases from new customers. Legacy automakers must get their own loyal existing customers to change. Replacing older offerings with new is the goal. It's called an upgrade. This is why MSRP is so vital. Falling into the trap of thinking faster & further is better happens all the time. Don't let that distract from the purpose of attracting ordinary shoppers, who have very different priorities.
- 9-02-2017** **Promotion.** What aspect of this can be taken seriously: *"...Toyota did a terrible job of promoting it."* Some supporters of Toyota are understandably upset. That's what happens when you make assumptions about the market. Without study, that's very easy to do. The big picture isn't easy to see... unless you participate online routinely. Then, it's difficult to not notice what's going on. We have a diverse array of buyers, but the actual quantity is still extremely limited. Supply simply isn't there. Dealer incentive isn't either. With many more profitable vehicles so much easier to sell, what is there to actually draw interest? This is why to focus isn't exclusively on plugging in... especially since knowledge of that topic is so limited. It's attention to other aspects of appeal that need to be established in the meantime. Think of the advanced new features that have nothing to do with the hybrid system. Then think of how plugging in enhances the ownership experience. While all that is being discovered by the first owners, reputation is being built. Those impressions from firsthand observation go a long way. This is why having the worldwide rollout take place all right away is so valuable. It makes more of an impression. Anywho, this is what I ended up posting: That wasn't a priority for year-1. Remember, focus was on production & penetration. Delivering a new model with the waved-glass and carbon-fiber into 3 major markets was a major undertaking for just 12 months.
- 9-02-2017** **Problems.** They are rather significant. They are quite clear. They are all undeniable. I wonder how people will react to them. Nonsense of the past won't even pass as weak excuses at this point. Heck, even a claim of desperation is pointless. What does any of it achieve? So, it looks like the best choice is to simply state the facts... or in this case, the problems: Tax-Credit phaseout will be triggered mid-2018. Voltec is still uncompetitive with other GM offerings. Voltec is selling in volume well below other GM offerings. Voltec is not available in SUV or CUV format.

9-02-2017 **Attacks.** Will they ever end? Yes, in just a few days. It's quite clear that things are about to peak. That's very good. Pressure has been building for quite awhile. The timing was easy to predict due to the rollout of Model-3 and the new Leaf so close together. Remember how Bolt was expected to be a strong seller at this point, having demand so high that Volt would just naturally ride that wave of acceptance to victory? None of that happened. In fact, the slow & steady pace GM had set was followed rather closely. None of the hype materialized. Yet... we still have to deal with attacks. Ugh. For now, they are annoying. In about a week, I wonder how they'll be perceived. Hmm? Here's what I have to say about the build up: Year-3 of Gen-2 means looking at the big picture. Honda discontinued the first Insight much sooner, for the same problem Volt continues to struggle with... being too small and too expensive. Attempting to distract from GM's problem by diverting attention to Toyota won't change that. Volt has fallen well short of the business-sustaining level, despite 7 years of trying with a very generous tax-credit.

9-03-2017 **Who is the market for Volt?** I posted that question over and over and over again. The purpose was simple. It was to stress the importance of audience and to bring about acknowledgement that GM did not target Volt at mainstream consumers as enthusiasts continually claimed. It simply wasn't true and they were in deep denial about it. Their resistance to accept that was building a barrier to progress as a result. They were holding back the advancement of plug-in technology by setting a percent of unrealistic expectations. I was determined to overcome that, as well as point out why. When confronted with something like this today, I really push back: *"So you say. Feel free to research and provide reference to the forum supporting your position in the future."* That was my opportunity, which I took full advantage of:

According to Google, I have said that 303 times on this website alone. Who is the market for Volt? It was the question raised each time someone hear claimed Volt was a vehicle for the masses. I pushed to expose the reality that it was not over and over and over again.

Enablers here pushed the idea faster & further was actually the solution, countering GM's original goal of delivering a plug-in with a MSRP that was nicely under \$30,000. When things went horribly wrong with gen-1 Volt sales, we were ensured gen-2 Volt would be different. It was to be targeted at mainstream consumers instead. Upgrades to the design were to make shortcomings just a memory for early adopters.

Who is the market for Volt? As sales of gen-2 struggled, that question continued to be asked. Growth wasn't happening. Sales were flat and attention was shifting away, to Bolt instead.

Volt continues to be portrayed as a competitor to Prime. Why? It makes no sense. Toyota clearly targeted Prime at the masses, their own showroom shoppers. In fact, the price is so affordable (very nicely under \$30,000), that there have been countless claims that Prime is stealing away sales from Prius... which is indisputably for their ordinary customers.

GM doesn't offer anything for their ordinary customers, still, after all this time. Sales of Equinox, Malibu, and Cruze are brought up every month, as a reminder of the audience Volt was supposedly designed to appeal to. Who is the market for Volt?

My position now is the same as it was 10 years ago when the bold promises about Volt were first being made. GM showroom shoppers need something affordable to replace their traditional GM vehicles with.

Two-Mode was a disaster, with *"too expensive"* as its primary shortcoming. Both gen-1 and gen-2 Volt suffer from a repeat of the same design mistake. \$33,220 for the LT (base) model Volt gen-2 is simply too expensive. \$26,000 is the MSRP for the LT (base) model of Malibu and the Premier (fully loaded) model of Cruze is just \$24,820. Shoppers just plain don't care about going faster & further when they can get such a better buy for their money from GM.

My position makes no difference when such an obvious problem persists. Loyal GM shoppers will see that for themselves.

9-03-2017 **Few Days Remaining.** What else can be said? Remember how Volt was supposed the ultimate solution to "*range anxiety*" concerns? It was to be so superior, the appeal of electric-only vehicles would simply fizzle. The very idea of an EV wouldn't make sense... according to the enthusiasts. They went on and on, relentlessly, during the development years that Nissan's Leaf wouldn't be able to sell. People would find it pointless with the fear of running out of battery power so high. It was an intensity they continued to spin, even after sales remained strong. Eventually, they finally gave up and started attacking Toyota's Prius instead. It required a disregard of purpose & goals. It became more a matter of pride. This is when the "*faster & further*" idea got out of hand. Enthusiasts began to obsess with power & range of Volt, focusing entirely on that to make it appear superior... to Prius, since Leaf was selling quite well. It never worked. Interest in a plug-in Prius persisted. They got angry and hostile and resentful... The situation was really quite a profound moment in history... because even GM admitted failure. Even the second-generation upgrade did nothing to promote growth. That's how Bolt came about and has continued holding the spotlight ever since. It was to be the solution to range-anxiety instead. Now, we see Nissan about to reveal a Leaf upgrade so impressive, the expectation of significant sales growth is quite realistic. We have already seen the same potential building up for Toyota with Prime too. Only a few days remaining to remove whatever doubt may remain. Yeah!

9-03-2017 **Rhetoric.** It never ends. What gets posted changes though: "*I was speaking last week in the parking lot with a guy that owns a Prius. He asked me about my Volt in the winter, and I said it does great. He said his Prius is horrible in the winter.*" That was the latest undermining attempt. There's always a confusing & vague message. I used my reply as an opportunity to convey some facts:

Why would anyone compare a regular hybrid to a plug-in hybrid that way? It makes no sense.

Comparing a used gen-1 Volt to a new Prime would be an entirely different matter. You can get a steal of a deal for Volt. Of course, the depreciation of any vehicle makes it a great consideration for purchase... especially when there's technology upgrades and tax-credits involved.

Comparing a Prime to a gen-2 Volt is what will have an impact though, since new purchases are what change the status quo. Prime is more efficient with both EV and HV driving. Prime uses a more efficient electric heater. Prime has a lower MSRP and post-subsidy price. Prime comes with some safety features standard that Volt does not.

I'm quite curious about real-world data that will emerge during Winter extremes. With Prime's battery-pack warmer and ability to pre-condition from the grid, it's going to be a lot tougher than enthusiasts think to position Volt as a better buy.

My commute is 18.6 miles. EV distance observed for Summer months has been low 30's. The Prime will be plugged in at both ends to a 240-volt charger. Errand running in the evening is usually within 3 miles from home. The grocery store, our most frequent stop, has several chargers. Nothing about that fits a "*horrible*" description. In fact, the word "*competitive*" will be quite realistic for Winter.

9-03-2017 **Finally.** The end is drawing near. Having to put up with such desperation. None of the other plug-in vehicles were trouble. It was only Volt with its small group of enthusiasts working damage-control to save pride. They had a great vehicle serving their niche. Mainstream buyers just plain were not interested. Neither generation was able to draw interest. Sales remained flat. Growth never happened, despite all the supposed evidence they had saying otherwise. It was a colossal waste of time... is what I'd like to say. Unfortunately, it was actually a squandering of tax-credits. That money was lost opportunity. What's the good attracting those who move on as the vehicle ages? Most didn't stay loyal to GM when their leases expired. And now that enticing EV offerings are beginning to hit the market, they are abandoning the very concept of "*range anxiety*" solutions. Why be concerned when you can just have a larger battery-pack instead? It's quite hypocritical, especially for it to happen prior to the third year of gen-2. It's the very disaster I had warned about. Unfortunately, they did everything they could to suppress historical references pointing out the pattern repeating. It was amazing how much they fought to prevent discussion of Two-Mode. Oh well. Finally, it just about over now. Posting this will do: Ordinary consumers are the target, not enthusiasts. That's why the obsession by some here with faster & further makes no difference to them. That is also why MSRP is such a big deal. Toyota will use up their tax-credits much faster than GM, but won't get stuck afterward like GM.

9-04-2017 **Charger Progress.** There is a really nice park where we like to bring the kayaks. It is such an appealing destination because there had been an entrance-fee to pay years ago. That money was invested to build recreation paths, provide picnic tables, and for finishing & launch docks. Last year, they added charging-stations. Unfortunately, they were often unavailable due to traditional vehicles blocking the spots. That became a problem often complained about. Park officials finally did something about it... a solution so effective, we can spread this as a successful example others can implement. Sadly, we often see abandonment after the initial setup. Owners of the charging-stations are clueless about what to do when someone who shouldn't park there does. This is the first instance I know of where they actually tried something to improve. All they did was absorb the 2 adjacent parking spots, then paint the entire area green. That made purpose & violations quite apparent. There's no way to make a "*mistake*" parking in one of the charging spots anymore. It is very obvious what that location is for. Interestingly, that location was off to the side, not by anything. So, it was somewhat bizarre that people would park there. Why not by the facilities instead? Choosing far away, rather than close to your destination, should have made the choice to avoid the chargers an easy one. But for some reason, people without plug-in vehicles would park there anyway... until now. We're making progress. Yeah!

- 9-04-2017** **Vastly Superior.** This level of smug is truly amazing: "*HAAAAAAAAAAAA! You bitter and conceited complete fool!*" That type of attitude cannot be dealt with. The person making such proclamations is so far gone, all you can do to address everyone reading it. Lurkers must find it quite enlightening to witness such an extreme. I was rather stunned by the arrogance... but not surprised. The feeling was to be expected. The visible out lash though, I wasn't certain. But with so much stacked against the old beliefs, something was about to peak. I let it go this way: With only 2 days left before another player in the plug-in market makes their big reveal (Nissan Leaf gen-2), the attitude of vastly superior to the very end was expected. That's the way paradigm-shifts play out. There's always someone who wants to go down fighting. When cornered like that, lashing out at a scapegoat somehow makes them feel better. It's sad that the sell for Volt is still so difficult. A simple message of purpose never came about from either GM or owners. Neither made an effort to explain what made the design compelling for a traditional vehicle shopper to consider. The solution ultimately delivered to prevent "*range anxiety*" concerns was Bolt, which left Volt in an position of uncertainty. Who was it for? With a price clearly higher than that expected from Nissan & Hyundai and significantly more than Toyota, the appeal is missing. Drawing GM showroom shoppers over to Volt simply won't happen with a sticker so much higher... and only now enthusiasts are coming to realize.
- 9-04-2017** **Anti-GM.** Lack of commitment on GM's part is causing enthusiasts to spin excuses. The most obvious is to blame reputation: "*The fact that people are still buying Nissan Leafs in decent numbers definitely shows an anti-GM bias in the market.*" That's definitely not the case. It's those killer discounts to clear out gen-1 inventory prior to the big reveal of gen-2 are what's playing a major role in sales recently. The reluctance to address actual quantity is how to confirm the true situation. Enthusiasts are still playing the percentage game, rather than looking at full market counts. Oh well. They know they are in trouble and they know most of their efforts are futile at this point. It's basically a matter of pride now. Thankfully, that should fade away rather quickly. Expectations from Nissan are quite high, from an automaker who doesn't over promise. I sounded off to that spin with: GM is well known and well liked for SUVs. The fact that GM has not endorsed any type of green technology for SUVs sends a message that Volt & Bolt aren't primary products. It's a consequence the lack of advertising... which everyone here complains about... reinforces. Think about how GM thrives on promoting future offerings. We get announcements years in advance. Many have been unrealistic, hence the "*over promise, under deliver*" reputation. GM kept Volt a small car. GM made Bolt a compact. GM chose diesel for Equinox. These are all recent decisions which send a message of uncertainty. Where's the commitment to their core product, a SUV with a plug?

9-04-2017 **Delivery Plan.** Feeling the end of Volt rapidly approach as the reveal from Nissan will soon arrive is strange. We all know the technology itself isn't a dead end, but the vehicle it was put into clearly doesn't appeal to GM's own shoppers and the end of the tax-credit will only make the bad situation with sales even worse. Fortunately, there is now some recognition of the problem. That's far better than the terrible denial of the past. It sure is nice not having to deal with the constant attacks for raising awareness of the problem. Who would have thought getting acknowledgement would be such a problem? Of course, they do say acceptance can be the most difficult stage. This looks like progress to me: *"My brother said he'd buy one...if it was an SUV. And there you go. People want a EREV or EV SUV or truck. GM will get there, but they sure are taking their sweet time."* I was happy to chime in to that, hoping they are all done arguing. After all, much will change tomorrow when we hear about Nissan's delivery plan...

It is with mixed feelings about getting vindication for the *"too little, too slowly"* concern.

The hope was finding an ally in the pursuit of electrification. People warned that GM would undermine battery efforts though, just like they did with diesel back in the 70's. Offering a product that their own customers didn't like would impede the entire market. And sure enough, that is exactly what happened.

It's really unfortunate GM abandoned Two-Mode. A next-generation offering would have reinforced commitment to electrification, as well as demonstrated what upgrades can deliver. Fortunately, we now have few automakers stepping up to overcome the barrier created by GM.

Volt was overkill, engineered without affordability as a priority. That made it an expensive car too small to appeal to GM's own customers. Those loyal buyers interested in another GM vehicle to replace their aging GM vehicle simply purchased another GM traditional choice instead. So much opportunity missed. What a waste of tax-credits.

GM really needs to step up to the plate and commit. None of this rollout of Cadillac & Buick low-volume nonsense. They need to address their primary buyers by announcing a solid delivery plan for an Equinox or Trax with a plug.

9-05-2017 **Gen-2 Leaf.** This evening was the long-awaited reveal. \$29,990 will be the base price, exactly as expected. Range is expected to be rated at about 150 miles. That's really going to stir the perception of 200 miles being required. That was the target years ago, prior to the goal posts being moved. It represents a solid 100 miles of EV travel under basically any circumstance. The fact that claims are now that more is needed is just part of the faster & further rhetoric. More importantly, Nissan did an excellent job of "normalizing" the look. That basis of merit put on aspects without actual measure are much more difficult to battle. Quantitative arguments endlessly go back & forth. Aesthetic appeal doesn't have any basis of measure... so antagonists focus on that a lot. Fortunately, with this next-generation offering for Leaf, that won't matter as much. People will focus on the MSRP being much more in line with what people are willing to pay for a traditional vehicle anyway. So, even without a tax-credit available anymore, it will be competitive. That concern of being able to appeal to showroom shoppers has clearly been addressed. Yeah!

9-06-2017 **Comparison Tool.** I did indeed find that interesting: "*This is interesting, apparently Chevy has a comparison tool for their cars against other competitors. Including the Volt vs. the Prime...*" The webpage link he provided revealed a highly bias list of features... compiled in a fashion to clearly favor Volt. Some obvious omissions were very difficult to claim they had been innocently overlooked. It was blatant marketing spin. To confirm how gullible some people are is disturbing... but understandable. I'm still amazed how some people don't recognize how they are fed specific facts to lead them to draw incorrect conclusions. There really is a sucker born every minute. Oh well. I'll just keep providing the missing information with the hope they'll become better informed, as I did today in response to seeing that so-called comparison:

Whoa! Talking about cherry picking. Notice how the standard Prime safety features weren't included:

- Dynamic Radar Cruise
- Pre-Collision Braking
- Lane-Departure Detect with Assist
- Automatic High-Beams

Also, notice how the efficiency ratings are all missing too:

- MPG
- MPGe
- kWh/mi

9-06-2017 **Bizarre Twist.** It's bizarre to hear some owners asking for exactly what the previous generation owners complained about. Remember the, literally, thousands of times we heard the request for the engine to stay off under all circumstances? To now hear the opposite is bizarre. Yet, that's exactly what's happening. A handful of new Prime owners made the suggestion that the engine should start when the pedal is mashed to the floor. That is in fact what the upcoming Honda Clarity will do. Why? If you want extra power, just switch to EV-Auto mode. That's exactly what it is for. If you use the default of EV mode, you're instructing the system to provide propulsion using only electricity. This twist of want is likely the result of not paying close enough attention. After all, not understanding what the buttons do was a common problem among reviewers. They either guessed incorrectly or didn't even know the option was possible. Oh well. You have to start somewhere and each new generation does bring twists. This particular one wasn't anticipated though. How bizarre.

- 9-06-2017** **It Matters.** I certainly got a kick out of this today: "*It most definitely matters!!!*" Those were always the words uttered when a Prius owner achieves the next level of efficiency awareness. It's amazing how empowered we become upon discovery of how much those seemingly simple displays actually tell us. You really don't know what you're missing until you start looking. The selection of data values to observe is quite plentiful now. Prius has a variety of choices you can configure the 2 small screens for. They all present real-world driving data in easy-to-follow formats. You find yourself poking through them, clicking the buttons to scroll from one to the next to see what else is available. Anywho, there's an obvious passion that develops upon discovering just how much power is at your fingertips. This is why Prius owners end up getting that generic stereotype of being rather obsessive. It gives that impression from those who are unaware just how easy it is to see that information. Imagine if more people knew about that simplicity.
- 9-07-2017** **Random Thoughts.** An article was published with this title: "*Toyota Prius Prime Could Take Chevrolet Volt's Plug-in Hybrid Sales Leader Crown*". That will obviously stir trouble. Sales are the ultimate measure of progress. With the tax-credit phaseout to be triggered the middle of next year for Volt, there's a lot of pressure coming from Toyota & Nissan. Both offering lower MSRP is a clear point of contention. That faster & further approach clearly isn't working. Enthusiasts are getting desperate, which means I need to get ahead of their undermining efforts. With this article, I was the first to post a comment. It was just a series of random thoughts, enough to draw interest and avoid the obvious traps. Fortunately, they have become quite predictable. I know what to focus on as a result: EV mode works great cruising home at 70 mph. I have even passed others at 80 mph without any trouble. The test-drive experience, low sticker-price, and reliability reputation makes it an easy sell for curious shoppers. 8,100 miles so far on my Prime, of which 1,700 were a trip to Wyoming from Minnesota and back. That 80 mph travel with no opportunity to recharge was surprisingly efficient though (upper 40's and low 50's). Overall average so far is 114 MPG and still climbing every day. I've had 2 tanks with about 2,000 miles between fillups. I'm looking forward to winter, when I can take advantage of the pre-conditioning and find out how well the vapor-injected heat-pump and battery-warmer work.

- 9-08-2017 Leadership.** They still don't get it. Now that the shift to electrification is looked upon as inevitable, the discussion audience is considerably larger. The enthusiasts of Volt who obstructed for so many years are just voices in a crowd. Their influences is considerably less. Reducing the faster & further belief they pushed is wonderful. All those arguments with them worked out favorably too. I have refined my approach: Leadership is getting ordinary people to change. Toyota has worked hard not to waste tax-credits on conquest sales; instead, focus has been drawing in their own loyal customers as plug-in buyers. The base Prime comes with unexpected features, like Dynamic Radar Cruise and Pre-Collision Braking. Yet, the sticker price is only \$27,100. That's clearly an effort to attract their own showroom shoppers. Early adopters are low-hanging fruit. What happens when that market is saturated and the tax-credits are used up? Toyota has already addressed that with such a low MSRP. Their effort to address that more challenging audience is clear and had already been delivered. Toyota understands the vital nature of remaining profitable, despite the obvious paradigm shift to plugging in. They aren't rolling out niche offerings to win awards & praise. They are working to appeal to their own buyers. That's leadership. Think about what happens next year when GM triggers phaseout. The struggle for Volt to appeal to GM owners looking to replace their own GM vehicle will become even more of a challenge. How will plug-in growth be achieved?
- 9-08-2017 Get What?** The reveal of Nissan... more like the confirm of what had already been leaked... has really stirred the antagonist posting. The enthusiast of Volt last out at Prime, using it as a scapegoat for their trouble. Ugh. It's annoying, but does offer a nice opportunity to promote what Toyota actually gets: Prius Prime delivers full EV drive. Camry, RAV4, and CH-R hybrids are all Prime-ready platforms. They are clearly pushing their base forward, an undeniable effort to move away from traditional vehicles. Saying they "*don't get it*" makes no sense. Get what?
- 9-08-2017 Changing Definitions.** This was very much expected: "*Big ICE + Small Motor(s) = PHEV (Prius Prime). Big Motor(s) + Small ICE = EREV (Volt)*" Each time a shortcoming is exposed for GM or an advantage discovered for Toyota, there are attacks from Volt enthusiasts. It's so predictable. They simply change the definition of EREV, which has been more of a marketing term rather than an actual identifier... until recently. The EPA actually provided a formal definition which enraged Volt enthusiasts... hence the increased sense of desperation on their part. The lashing out in this direction makes sense. Since actual material points fall apart, like sticker-price, they attempt to divert attention to immaterial points instead. The lack of merit doesn't deter either. They just keep at it. Oh well. I just keep pointing out what they are up to: Changing definitions is just another way of moving goal-posts. We all see the desperate effort to mislead about EV drive Prime delivers. Owners are enjoying their all-electric experience and no amount of labeling will change it. The engine stays off for their entire drive.

- 9-08-2017** **Narratives.** That's the latest way of looking at forced perspectives. References to "*spin*" are using a term of the past now. It's all about telling a story, rather than actually acknowledging all the facts available. So basically, it's the same dance but to a different song: "*I would expect there to be 200+ mile versions of the Clarity EV and Prius in the works, for example, which we'll only see on the market once the companies feel they don't have a choice.*" Portraying reactive steps rather than proactive is much easier. That view of looking back is always easier. True vision means seeing what others don't yet... which often means dealing with a lot of FUD. That fear, uncertainty, and doubt can be intentional too, spread by those attempting to prevent the status quo from changing. With respect to the problematic stance of Volt, that means undermining offerings with greater potential for mass appeal.... hence the recent posts I've been responding to. In this case, it was: That narrative requires the reader to ignore vital facts... Prius already delivers high-volume production lithium cells and Prime already delivers full EV drive. Just because fewer cells are used now to make the smaller battery-packs doesn't mean the rest of the business need to support more later hasn't already been delivered.
- 9-08-2017** **Falling Into The Trap.** One of the highly respected regular posters on the EV blog did today. He unknowingly got sucked into a semantics argument. Forgetting about purpose and get hung up on definition & labels is a trap that's very easy to fall into. In this case, it was in a series of posts about what "*Full EV*" actually means. An antagonist kept posting over and over again how the electric-motor power output must be more than the gas-engine for the full-hybrid to be said to have full electric-only driving abilities. That makes no sense whatsoever... if you take a moment to actually think about what was claimed. Why would that make any difference? I can drive my Prime on the highway at 80 mph with the heater running and not use a drop of gas. How is that not "*full*" in any respect? What makes it incomplete? Not being full means something is missing. Nothing else is needed. You get everything you need for that drive exclusively from electricity. Ugh. It's too bad he fell victim to that effort to undermine. Remember how they used to call it AER (All Electric Range) instead? That shift to something new is the changing of definition & labels. Hide the past by talking about the present in a different way. A clear sign of undermining. I tried the best I could to respectfully point out his oversight: Full EV means you can drive under all conditions using electricity... hot, cold, fast, slow, whatever. The fact that some systems deliver more power from the electric-motor than the gas-engine is simply a configuration difference to target a different audience. It has absolutely nothing to do with the EV itself.
- 9-08-2017** **Goals Reminder.** The attitude from some faster & further pushers goes beyond smug. They clearly don't understand accounting and don't care about economics. To them, it's all about marketing. If you have a good product, people will pay anything the business asks for them to acquire it. All that's supposedly required is lots of advertising. That's so poorly informed of how things actually work, most of the effort expended to explain their incorrect perception is a waste. They aren't interested in learning. It's a decide beside on feeling disaster. Rather proactively educate, they react to feeling. Ugh. You'd think they'd at least recognize goal. Unfortunately, not even a simple message of purpose resonates. So, I continuously remind: Replacement of traditional vehicles is the goal. GM is carefully avoiding electrification of their SUV models so cannibalizing doesn't happen. How does that achieve the goal? LOL all you want to distract from the importance of that low MSRP. No one taking the situation seriously will be laughing.

- 9-09-2017** **Guzzling Reminder.** The faster & further mindset is a truly desperate perspective at this point. With 7 years of not being able to attract mainstream buyers, you'd think that level of failure would be a sign of needing to try something else instead. Unfortunately, that's not the case. In fact, the consumption of electricity for the sake of improved acceleration is still very much a draw... which reveals the current market is still just for early adopters. The ordinary consumer wants something at a fair price. They are unwilling to pay a premium. That's the difference between mainstream & enthusiast buyers. The fact that even with a generous \$7,500 tax-credit sales growth has not been achieved is the only other sign needed for trouble ahead. So, there really isn't much of a point of reminding people that guzzling electricity can be a problem too. I did anyway: Notice how the obsession with power diverts attention away from what's actually important? Using electricity to be green is the goal, not to switch guzzling habits from gas to electricity. Some EV systems are very inefficient. Supporters attempt to justify that waste by focusing on want, hoping that desire will make it acceptable.
- 9-09-2017** **Audience.** Making the discussion about themselves is a common undermining technique. It's all about limiting scope. In fact, that's why the antagonists cherry pick. Looking at the big picture reveals weakness. So, they attempt to avoid that any way they can. I don't put up with that nonsense and certainly didn't today: Audience is who the vehicle was designed for, not who's making comment about it. It doesn't matter anyway. Your actions to defend GM, despite the fact that they are avoiding their own customers rather than targeting them as Toyota has, speaks for itself. In other words, GM can only avoid delivering some type of electrified SUV for so long. Meanwhile, there's both RAV4 and C-HR that are plug-ready and Highlander which could ultimately join in too. The efforts to undermine Prime by claiming it is insufficient are weak & desperate... something this audience won't tolerate. Anything that promotes mass acceptance (affordable pricing and not unnecessarily powerful) of plugging in should be acceptable. Put another way, what will mainstream consumers replace their traditional vehicle with?

9-10-2017 **Antagonist Attacks.** It's quite refreshing when a post like this emerges from the chaos of antagonist attacks: *"What hybrid vehicles does Toyota have? Is it just the Prius, Camry and Corolla? Or do they have some others? I would think any serious intentions to move to EV would start by making all the vehicles hybrid."* That provided an opportunity to get the discussion about Toyota's intentions back on track:

30,593 hybrid RAV4. 11,099 hybrid Highlander. 5,338 hybrid RX 400/450. Those are all the hybrid SUV models those attempting to undermine & belittle Toyota carefully avoid every drawing any attention to. Notice how GM offers nothing in the SUV category, which is their most popular type of vehicle.

Notice how well those Toyota numbers from Jan-Aug 2017 sales look here in the United States. In the European market, CH-R is already available as a hybrid. Avalon is another hybrid which is available here. Corolla hybrid is elsewhere. That delivers a strong message of reaching their goal offering hybrid models of all their passenger vehicles by 2020.

Keep in mind how impressive the Toyota hybrid technology has advanced. The 2018 Camry delivers an EPA rating of 52 MPG. That's incredible for a large sedan. We've seen how easily they are able to adapt their system to offer a plug too, without costing a major premium.

This is why we've seen so many desperate attacks on Prime lately. Antagonists are doing everything they can to impede the momentum building, since their preferred automaker simply has no way to compete... specifically GM. Thankfully, we are seeing efforts by Hyundai, Nissan, Ford, and Honda pushing forward with plug-in hybrids of their own. It's really unfortunate GM hasn't expanded their Volt technology into another Chevy vehicle.

9-10-2017 What's The Problem? The rhetoric claiming time has run out, making it too late for some automakers to recover is a load of garbage. It's just more desperate attempts to keep up a good image. This isn't even damage-control anymore. It's plain old recognition of how much the market still has not accepted plugging in. There isn't anything beyond early-adopter buyers still. That's easy to prove too. None of the automakers have used up their tax-credits yet. That means true competition with traditional vehicles has yet to begin. That subsidy is somewhat of a liability at this point. Dependence on it for too long makes that push to the next stage (high-volume production) even harder. Demand simply isn't there yet. Establishing the technology is still the stage we are stuck on. Dealers remain reluctant. Charger use isn't agreed upon. Configurations remain confusing. Prices are all over the place. Basically, it equate to lack of clear purpose. What the heck are those plug-in vehicles attempting to accomplish? You'd be surprised how difficult that question actually is to answer. Anywho, I got fed up with the spin today and jumped on the most obvious antagonist: What legacy automaker is actually committing to high-volume production right away? Notice how GM is curiously silent about increases, despite Volt and Bolt? Nissan is making a valiant effort. Kudos! Hyundai stands potential in a few years. The same can be said for Honda. With Ford, who knows. VW and BMW have plans in the works, but are also years away. In the meantime, Toyota continues to refine their hardware & software with Prime, awaiting the opportunity to exploit the next-gen battery and building plug-in reputation in the meantime. So... what's the problem?

9-10-2017 Fuel-Cell Rants. Another common antagonism technique is to go off on fuel-cell. The antagonist will rant about how wasteful it has been for Toyota to invest, spinning it as a futile endeavor. Facts prove otherwise. Often, they are unwilling to acknowledge them though. So, when their rants get obnoxious and become too much of a distraction, I fight back. Today, it was:

FCEV = Fuel-Cell Electric Vehicle

Advancement in the electrical system is progress for an vehicle using electricity for propulsion & comfort. That dual benefit is so often overlooked by those against fuel-cell development, it's difficult to take what their lack-of-investment claims of investment seriously.

Hyundai, Honda, Daimler, Mercedes, BMW, and GM are all actively pursuing FCEV work too. How come they don't get the same negative criticism as Toyota? It's not like Toyota hasn't invested heavily in lithium use. Both the regular Prius and the Prime have lithium battery-packs.

The heating system for the cabin in Prime is the automotive industries most efficient electric heat-pump, the first of which to take advantage of vapor injection. How come that mutual benefit is so easily dismissed?

Good business includes diversification. Pushing for a single solution simply does not make sense. Yet, that's what many argue for. It's so short-sighted and quite risky. The market needs variety. Think of how profoundly different each vehicle on the road is used. One size does not fit all.

9-11-2017 **Meritless.** Those last few remaining Volt enthusiasts trying to push vastly superior status over Prime sure are getting desperate. The claims being made are without any merit. They just say whatever the heck they want and don't even bother to provide any detail whatsoever. Today, it started with: "*Toyota is far behind comparing technologies...*" My response was a simple list with a half-dozen items. That stirred quite a bit of lashing out. The extreme anger was obvious. So, I came up with the following list and posted it. Unfortunately, the fourth category didn't even occur to me until long after. But rather than post that "*innovation*" design, I figured it may work out better to save that for later. I'll put it hear though. It's ok on the blog to reveal that I'm still holding a wildcard:

Prime technical advantages:

- EV is more efficient
- HV is more efficient
- Heater is more efficient
- Price is more affordable
- Dual-Wave glass
- Carbon-Fiber hatch
- Charge Mode

Prime standard safety features:

- Dynamic Radar Cruise
- Pre-Collision Braking
- Lane-Departure Detect with Assist
- Automatic High-Beams

Prime advanced tech options:

- Predictive Efficient Drive
- Sonar Parking Assist
- Rear-Cross Traffic Alert
- Blind-Spot Monitor
- Vehicle Proximity Notify
- Rain-Sensing Variable Wiper
- Active Grille Shutter
- Color Heads-Up Display
- 11.6-inch Touch-Display
- Charging Cable Lock
- Heated Steering-Wheel

Prime innovation design:

- Directed Heating & Cooling

- 9-11-2017** **Hate.** The irrational behavior of some still in denial about having lost such an extensive battle was summed up with a final insult: "...an arrogant, smug, self-righteous jerk." It was truly remarkable to read that. After having read so many posts about how great Volt would be, it was beyond hypocritical. That's exactly how they sounded. Having so many pages of their own quotes documented in these blogs is vindicating. I have an extensive log of exactly how they behaved. The hate was truly remarkable... something to not be forgotten. Learning from such profound errors is progress. When their hope began to crumble, the response was to lash out at a scapegoat. That's sad. I responded to that ironic situation with: Years of "vastly superior" spin from those here set the precedent for pushing facts and reminding of goals like that. The double-standard has been truly remarkable. It's your choice whether or not to make it personal. The faster & further marketing didn't work out. Time has come to move on. Focus back on the original price & volume targets is essential.
- 9-11-2017** **Stuck.** The fate of Volt is obvious at this point. GM's own customers are not interested and neither is GM itself. So much attention has shifted over to Bolt, there really isn't anything to say about plug-in hybrid expectations. There simply aren't any anymore. Those nasty enthusiasts who feared mainstream acceptance would never come are feeling the sting of being wrong now. They know the tech won't actually die. GM will obviously give in at some point, finally offering a plug for a vehicle the "Who?" will want to buy. Catch is, it won't be vastly superior. It will just be another player on the team... exactly what I wanted all along. We should all be in this together. So what if fulfilling the need isn't exciting. Most mainstream vehicles aren't. I knew that from the start. They were in denial. To sum of the lengthy voyage they took to reach the same destination I was at many years ago, I posted: Sales have always been the ultimate means of measuring progress. Conquest was the first stage, where the new technology is subsidized and often attracts buyers from outside the normal customer base. Cannibalization is what follows. That's when the new technology attracts loyal buyers, convincing them to upgrade rather than replace. Volt is stuck in the first. The faster & further approach simply isn't working anymore. Prime clearly targets that second stage instead. It delivers a wide variety of purchase priorities appealing to mainstream consumers. Reaction to today's post about sales clearly confirm that. Negative votes won't conceal that inconvenient truth.
- 9-11-2017** **Worldwide Sales.** The total count for the year as of July for Prius Prime (known as Prius PHV everywhere but in the United States) was 31,856. That official count is hard to get, since sources aren't readily available. I was able to find the August numbers for here and Japan. They were 1,820 and 1,870 respectively. We also have the September value for here, which was 1,899. What that tells us is there's a trend of at least 3,600 per month which is likely to continue. That means, without any growth or even finding out what the counts are from Europe or Canada, we can still reasonably expect a total of 50,000 sales worldwide for the year. This is why we are seeing signs of panic now. That's quite a debut. Potential for much more once the initial rollout concludes is strong. I wish more than just 1 or 2 available per dealer around here doesn't drag on. Unfortunately, being in the middle of the country means waiting longer. But then again, that doesn't tend to be an impediment of any sort. People await real-world data from the first Winter anyway... and I am well prepared to provide it. That cold season is on the way. My cameras are ready. Meanwhile, a slow but steady growth of sales while we wait would be nice.

- 9-12-2017** **47 Miles EV.** Honda Clarity will be offered as a plug-in hybrid, in addition to EV and Fuel-Cell models. Range has been officially estimated at 47 miles. You can imagine the stir that has caused with Volt enthusiasts. Ugh. I like how it paves the way for a Camry plug-in. Think of what a Prime model would draw for interest? Honda's efficiency rating for hybrid operation is 42 MPG combined. The newest generation Camry hybrid delivers 52 MPG. With a smaller battery-pack, it could be more affordably priced than the expected base of \$35,000 for the Clarity. Note how Toyota strived to deliver a system able to compete directly with its own showroom floor offerings? It's unclear how Honda will actually market this new choice. The expectation is that Clarity plug-in hybrid will become a high-volume seller. That seems reasonable. But then again, there's Hyundai attempting to undercut everyone else on price. Clarity is a full-size vehicle, not cramped like Volt. That lack of compromise is obvious. I'm intrigued. 47 miles of EV is easier to justify with that larger interior, especially when power isn't sacrificed. However, there isn't a to-the-floor approach like with Prime. That will actually start the engine. Hmm? This is a head-scratcher. We'll find out next year when sales begin.
- 9-13-2017** **Undermining Efforts.** Ugh. It's really annoying to have to deal with rhetoric like this: *"Does the battery have a thermal management system?"* It seems reasonable. But in reality, it's a greenwash campaign where some intentionally undermine and others simply spread the misconception without even realizing what they are partaking in. All I can do is play along, but interject some information with the hope of it making some notice what's going on. Sadly, the idea of narratives influencing decisions isn't as wide spread as you would think. There are people who truly don't realize that's even possible. Being naive is dangerous... and we've seen fallout as a result far too many times. Perhaps this though, we can intercept early: The more informative question is what kind is provided for cooling, since there has been quite a bit of confusion between the ACTIVE and PASSIVE types. Nissan chose PASSIVE, which basically means the heat is not dispersed by any forced removal. Toyota chose ACTIVE, which was achieved by pushing cooled air from the cabin through the battery-pack casing. That's a very big difference. Lots of people assume they are the same though, since neither uses a liquid.
- 9-14-2017** **LEV III.** Most people have absolutely no clue what emission ratings are. Of the people advocating green technology for vehicles, few of them understand the categories of "clean" are setup to follow a progress improvement schedule. Every decade or so, the bar is raised, making criteria more stringent for the next stage. We are now approaching the level-3 stage. California establishes the standard. Other states agree to accept & follow. CT, MA, MD, ME, NJ, NM, NY, OR, PA, RI, VT, WA, and DE are those joining in for this round of air-quality improvement. All you need to do is remember there are people like me who bother to read up on detail of the provisions ratified. This is how cheaters, like diesel, get caught. Remember my blogs entries complaining about the suspicious behavior of diesel supporters? Things just didn't add up. How could such a supposedly dramatic level of clean be delivered at so little cost or tradeoff? There's always some type of compromise required. No penalty of any sort made no sense. Study of what is measured and how was what brought about the questioning. We understood the challenges of cleansing emissions and preventing them in the first place.

- 9-15-2017** **Acceptance.** It's not happening for some. This was what a Bolt owner posted about the gen-2 Leaf: *"Besides the very different driving experience, much longer range, better acceleration, faster charge rate, liquid cooling, CCS charging instead of Chademo. all the check marks at a modestly higher price."* I was dumbfounded... and not about to put up with it: \$6,630 is modest? MSRP starts the shopping process. Too high, the customer simply moves on. Reasonably competitive, they take a closer look. The catch is, mainstream interest will focus on creature-comforts & conveniences, not technical design or performance aspects. That shift from enthusiast to mainstream will be painful for some. Accepting the purchase-priority difference won't be easy. But that's what this stage of rollout is all about.
- 9-15-2017** **Chargers.** It's not all bad. There are new opportunities to advance discussions beyond the old rhetoric: *"My wife actually mentioned "what if we get a Bolt when my car needs replacing" while we were talking about putting a 240V circuit into the garage for L2 charging."* I took full advantage of this particular opportunity, knowing that a number of the original Volt owners either just stuck with their factory 120-volt charger or invested in a low-power 240-volt. Neither is enough for Bolt... and they know it. But rather than argue to justify the obsolete position, they are receptive. The reason is simple. The shoe is on the other foot. Irony can be cruel. I don't succumb to it though; instead, I use the change to stir excitement about what's available. In this case, it was with: We just installed 2 JuiceBox chargers with Wi-Fi, each on their own dedicated 40-amp line with individual sub-meters and NEMA 14-50 outlets. That provides extremely convenient usage tracking and time-of-use discounting, as well as capacity for the future. That was the ideal setup... especially with the \$1,000 rebate from our electric provider. 3.6 kW charging for the Primes now. 7.2 kWh potential continuous from both chargers simultaneously.
- 9-16-2017** **Work Trip.** Jumping into an airplane to travel halfway across the country for training isn't a normal experience for me. Work trips simply haven't been necessary. I try my best to achieve all that's needed remotely. In this case though, it couldn't be avoided. The visit for some in-person interaction would be greatly beneficial. So, that's what I'm doing. All things considered, that is the most efficient means of travel. It's certainly faster; though, I do enjoy road trips with the Prius. I'll be away from home for almost a week... no car, no cats, no wife. Fortunately, the online world isn't any further away. It's as if nothing changed in that regard. In fact, I will keep my eyes roaming with the hope of noticing something here on the East Coast that I wouldn't usually encounter in the Midwest.
- 9-17-2017** **Advanced.** It's quite bizarre how some people think having a liquid-cooling system for the battery-pack is advanced design. Requiring a more aggressive heat dissipation system is more expensive, more complex, and more weight. Dealing with that much more makes no sense. Yet, we hear the argument that it is happens all the time. Who are those pushers trying to convince? It seems a step in the wrong direction. The idea of plug-in simplicity is negated by requirements like this. Thankfully, both Nissan & Toyota continued with lithium chemistry development to avoid the need. This is a reason why they have potential for winning over their traditional buyers. That's the type of advancement we require... not some EV supporters telling people that without, they'll suffer terrible consequences with their battery-pack.

- 9-18-2017** **Behind.** How many times have I had to endure the claim of Toyota being behind? The best response was always to push for an explanation of what they thought was still needed. Pretty much every single time, the reply was with respect to EV range. All the enthusiast cared about was battery capacity. Sadly, nothing else mattered... until now. Reality is setting... finally. I'd then point out the benefits of electrification. So much of what gets put into hybrid & fuel-cell vehicles can be reused by a plug-in, you'd think it would be an obvious that those investments were good ones. Instead, they were mocked, belittled, and scorned. So, seeing this emerge from plans GM just revealed has been quite vindicating: *"By 2025, nearly all of GM's brands sold in China – Buick, Cadillac, and Chevrolet – will have an electrified option."* Several years ago, Toyota set a similar goal in the United States... but for 2020... which puts them ahead, way ahead. Hopefully, this news will help end the antagonist posting. Focus on mainstream electrification, rather than faster & further, is long overdue.
- 9-19-2017** **Reasons.** It's getting much easier to see how attitudes differ now. What an ugly past. It's unfortunate we have that mess to deal with still, but acknowledging the problem is progress. This indeed fits: *"What troubles me in reading this article is why this innovation isn't being done in this country. What circumstance, or group of circumstances, makes GM look to China for its future, as opposed to the USA. Is it the EPA, the dealer network, the unions, what?"* I actually got a compliment from a recent foe with this post: Welcome to the world of those who raised concern years ago for listing out the very reasons you now seek. The advice is to not dwell on the problem sources... since you'll get nothing but negative votes. Focus on providing strong solutions instead... something all audiences will embrace. In this case, we really really need GM to announce intent to deliver a Voltec based Equinox or Trax. Offering a SUV with a plug-in option is what will shift the paradigm without upsetting the market.
- 9-19-2017** **Denial.** I didn't even need to respond. He said it well. This was yet another former poster who had countered me on a regular basis. The turn is so nice. True, writing was on then wall for a very long time. They've known Volt was in trouble. I reminded him and several of the others directly, pointing out the gen-2 year-2 situation. There's nothing else to deny. Reasons he provided should have an impact: Are we still in denial about this topic? 1) We are no longer the largest growing economy. 2) We are a debtor nation. 3) There is no consistent "Pro EV" federal policy to encourage investment. 4) Americans (many) are more interested in trucks and willing to take on 8 year loans. 5) High cost US workforce still working through quality control issues.

- 9-19-2017** **Change.** It's dramatic from my perspective. Agreement from antagonists is amazing. Their change is as if it happened overnight. Too bad it actually dragged on for years and years. They'd fight diversification. Asking the "Who?" question all those times eventually got the message through. Volt clearly wasn't designed to appeal to GM's own loyal customers. It was never going to reach mainstream sales levels as a result. That's why conquest was always the focus. They understood the problem, yet refused to acknowledge it. Now, they see how those suggestions for spreading the technology to vehicles like Malibu & Equinox really weren't efforts to undermine or dilute. They really were in the best interest of growth. All that wasn't a twisted way of promoting Toyota. I really was trying to promote plugging in after all. Of course, I'll never get any type of apology. But that's ok. Their steps for change in the right direction is all I wanted anyway. That stupid trophy-mentality had terrible consequences. After 10 years of suffering, no need to drag it on any more. Let's move forward. It will be odd though, knowing Volt will be left behind in the process. But then again, they do now recognize it as a niche. That change is progress. It's not like all the tech will be lost. Reconfiguring it for mass appeal is quite realistic.
- 9-19-2017** **Cold Soak.** It's interesting to throw a term out there to see if any newbies bite? That's the kind of trolling with intent to educate. What a concept! Trying to help people by stimulating the learning process. In this case, it was: "What is maximum cold soak? I only ask because I rarely ever use the timer. What's the advantage of it?" That came about with a random reply on a thread about recharging. I set the hook: That's when you allow the battery-pack to rest as long as possible before the recharge begins. It's for longevity. Toyota conveniently gives you the scheduling feature to make that easy. I have mine set on weekdays for charging to complete by 7 AM in the morning and 4 PM in the afternoon. That makes the process basically brainless. You just plug in and let the car figure out when to start charging and pre-conditioning. To override the schedule, just click the "Charge Now" button when powering down. It's a simple way to get the most out of your investment. Coming out to a car that's warmed or cooled for your departure is rewarding in itself. Knowing it's also taking steps to extend the life of the battery-pack is a great bonus. For those of you who decide to take advantage of time-of-use discounts from your electricity provider, it requires setting the schedule anyway. So, why not?
- 9-20-2017** **Voice of Reality.** This isn't likely to be greeted with enthusiasm: *"If GM keeps building small cars for the US market they are going to be in trouble. We are all screaming for a real SUV/CUV based EREV with AWD, but that falls on deaf ears."* Too many of the Volt enthusiasts were fiercely against anything that would upset the precedent they set in terms of faster & further. That status quo is painfully deafening now. So much was built up to prevent change, they have backed themselves into a terrible corner. This is why so many simply gave up on Volt and directed loyalty toward Bolt instead. It's bizarre to have so much silence now. Unfortunately, that is why the voice of reality gets so much grief. The possibility of getting called out as hypocritical damages their fragile sense of pride. Ugh. Again, the goal is to replace traditional vehicles. Since GM primarily sells SUV/CUV choices, it makes no sense pushing a compact hatchback like Volt. They tried for 7 years. It didn't work. Let it go. Move on to the next. The fact that enthusiasts still don't agree is mind-boggling. They scream, but then go back to Volt support the very next post. There's no substance. It's just empty talk. Without any effort to help promote something supportive of a SUV/CUV offering, how do they expect interest to grow? Remember all the hype they managed for Volt while it was being developed?

- 9-21-2017** **Efficiency Credits.** If they ever do get renewed by the federal government or new ones comes about from some states, it sure would be nice if actual efficiency were taken into account. That importance aspect of measure is currently ignored entirely. All that the big tax-credit focuses on is battery-capacity. It doesn't matter how much electricity the vehicle guzzles, as long as it has a larger size than others. Such a crude perspective of worth made more sense way back in 2008 when the legislation was first drafted. But all these years later, we know understand the importance of using electricity responsibly and should award accordingly. Simply switching from wasteful gas vehicles to wasteful electrics is not enough of a step forward. This is why EV operation with a vapor-injected heat-pump should earn more credit than one with just an old-school resistance heater. One uses far less energy than the other to operate.
- 9-22-2017** **Less Complex.** Being less complex than traditional vehicles has been the selling point for battery vehicles. Cooling the battery with liquid is not a step in that direction. This is why advanced chemistry for cooling with air is a step forward... as well as a cost reduction. Volt enthusiasts absolutely hate hearing this, since GM didn't try that. GM stuck with the overkill approach... which is a carry over from gen-1 design. The hope was drastic cuts for gen-2. In fact, there were some who celebrated that apparent victory far too early. It's a wise move when trying to deliver a robust product that will deliver extremes. But that's not what customers actually want to pay for. There's a balance. That's why those buyers are part of the mainstream. You want more, you pay more. That's what the specialty market is all about. More complex is fine for that audience. Ordinary people are not in that category. They benefit from less complex by not having to pay a premium. Long story short, Nissan & Toyota are well aware of this... hence their efforts to deliver a battery chemistry able to deal with heat better. Higher tolerance that can be cooled with air is far less expensive and less complex. So, with the Honda getting into the game, I was quite curious. Rather than a dedicated liquid cooling system like GM uses, their new Clarity will share coolant with both the engine & battery. One radiator instead of 2 reduces components. Less piping and only 1 pump is less complex. I'm quite curious how the Volt enthusiasts will accept this new approach.

9-22-2017 **Progress.** It's odd to see some still fighting. The world is moving on, overcoming the strange barrier GM erected with Volt... then shifted over to Bolt. What exactly were they trying to accomplish? We see a whole lot of nothing. The technology worked, but their heart didn't seem to be in it. Who was it for? Both plug-in offerings had a very high price and were not targeted at their own loyal customers. Yet, that was always labeled as progress. GM was pushing more than any other automaker. So, even though that didn't actually accomplish much in terms of actual change, it was given recognition as leadership. None of those enthusiasts bother to consider that bad leaders are possible. Heading off quickly seems impressive, but in the wrong direction... Anyway, I'm still a bit irked about so much time & resources having been so poorly used. It's no hopeless though. Progress often includes waste. You try something. It doesn't work. You try something else. Success of Prime isn't what Volt enthusiasts want to hear about. They hold that particular configuration with too much importance. Rather than focus on diversification of the technology to other platforms, it's the compact hatchback or nothing. That's why when Camry hybrid or RAV4 hybrid are brought up as next candidates for getting a plug, they go silent. Needless to say, I couldn't be silent about the situation. So, hopefully this was at least somewhat tactful: Toyota will have increased the population of plug-in vehicle owners this year by 50,000. Rolling out the world's first affordable plug-in hybrid, to several different markets, all at the same time is undeniable progress... especially considering how vital it is to not be dependent on tax-credits. When will GM roll out something similar on that scale?

9-22-2017 **New Ally?** It's rare to have a new ally emerge, especially in the belly of the beast. That daily blog is getting pretty nasty as the end draws near. This stirred that pot: "*GM please give us Volt/Bolt customers a vehicle to grow into, do not squander all of those conquest sales. And just to be clear, throwing a diesel in any vehicle is not an alternative. No plug no sale.*" With the very encouraging news from Nissan and the undeniable conflict GM must resolve, it's difficult to know just how receptive enthusiasts who seem to be losing everything will accept change... especially coming from someone who could say "I told you so". That's why letting someone else do it instead is so interesting. I jumped into that mess with: This audience works hard to hide information that upsets the status quo. It's really sad how much has been squandered as a result of their denial. This time next year, phaseout of tax-credits for GM will be a grim reality. Intent of those subsidies establishing high-volume sales never materialized over the past 7 years of trying. Lack of growth confirms it. Something to appeal to mainstream buyers still isn't offered. What draw will there be for a plug-in SUV that's \$7,500 more when it is finally rolled out to attract GM's own loyal customers? Notice how much of a challenge it has been to grow sales even with the tax-credit?

- 9-22-2017** **Pack Upgrades.** This particular information published today summarized the outlook well: *"In mid-2016, BMW introduced the current 33.84 kWh battery which was an upgrade from the 21.6 kWh battery previously available. That bumped the i3 BEV's 81 mile range to 114 miles per charge. The new battery, which is being introduced sometime later in 2018, is rumored to have a total capacity of 43.2 kWh and offer an EPA range rating of 150 – 155 miles per charge."* At some point, that should become an expectation, rather than a special situation. When Prime was first revealed, I pointed out how the raised floor in back served as a market test to find out if the perception of usable cargo space loss would be more of a deterrent than the increase of capacity mid-cycle would be as an encouragement. Toyota gave itself the option to adapt design without major rework. Increased battery-capacity, due to increased energy-density, could easily be provided. Increased cargo-storage, due to increased energy-density, could easily be provided. It's a choice they don't have to make until mid-cycle. They'd let the market decide which is more important. An interesting twist is that could be an upgrade for existing owners as well. Imagine many years later a buyer of a first model-year plug-in trading in their battery-pack for the newest available, rather than the entire vehicle. There's an interesting profit venue yet to be explored. Why let the aftermarket sellers have exclusive opportunities? Why not the automaker itself? Needless to say, technology for batteries is advancing faster than generational upgrades.
- 9-23-2017** **Selling Points.** That lengthy list of Prime advantages I posted a few weeks ago has turned into the new *"selling points"* document. Just like with previous generations of Prius, identification of standout features of what Toyota delivered will occur. You end up with a list of strengths. That's exactly what I ended up getting out of the antagonists. Their push to exploit what they consider weaknesses will end up exposing the best points to highlight. That's how we sell Prius... letting those who want it to fail most help stir what sells it the most. The ironic backfire is something well worth patiently waiting for... while tolerating the onslaught of attacks. Today though, I got this: *"Where is Toyota's actual, technological leadership?"* That was an unexpected opportunity to share the entire list, rather than draw attention to each point individually. The feedback to it was intense too. Rather than even trying to argument, it was an admission of defeat. He just blew it off entirely. Running away is a dead giveaway. The usual response is to just cherry-pick wasn't attempted. I was thrilled. Knowing the list had been so carefully researched and so thoughtfully assembled, that first test of worth was very encouraging.

9-23-2017

Full Circle. Recognition of the pattern by the antagonist is a very encouraging sign: *"Your protests are awfully convenient to your case, aren't they? We try to hide you with negative votes..."* He didn't understand what was wrong, but knew it looked a little too much in my favor. The problem comes down to realizing there's agreement, but not wanting to admit it. I've seen that before. When I depart, posts will start conveying the very same thing I had been saying all along. Knowing that I'm not there anymore makes it a simple next step. That's why I'm making sure to wrap up everything. The reveal from Nissan brought an end to rhetoric of the past and lost enthusiasts are looking for a new focus. So, I remind them what's important prior to moving on: "NICELY UNDER \$30,000" is the target GM set for Volt. So no amount of hiding my posts or asking alternate questions will change that. It was a goal set for good reason by GM, not me. Traditional vehicles must be replaced quickly. That makes sense. If my reminders of the importance of it is considered a protest, too bad. What difference does opinion make anyway? A goal is a goal. Working to maintain the status quo doesn't accomplish anything. It is just enabling. Protest is a push for change. The reality of sales growth being the measure of progress is just something you'll have to accept... an inconvenient truth. As this discussion points out, competition is expanding. We need high-volume sales not dependent upon tax-credits right away, hence NICELY UNDER \$30,000.

9-24-2017 **Wrap Up.** It took awhile to sort through all the crazy lately, as a result of the impending change, to come up with a fitting analogy. Knowing that it's not an end. Knowing the game is far from over. Knowing that pride often creates barriers. Knowing that taking the next step is hard. Since you've got the upper-hand from having studied and made better choices, it's difficult not to sound condescending. Those struggling simply don't want to listen to you. So, we go through the usual personal attacks and false history. Just like with our president, wild statements are made without providing any detail whatsoever. It's just a vague claim that results in instant gratification. Ugh. The expectation is someone will stand up as a peacemaker, saying whatever it takes for the loser to shut up by addressing the winner suggesting they take a different approach. It's a physiological move that can actually be rather effective. That guy with the upper-hand has to play along though. Thinking about that is how I came up with the game analogy for the wrap up:

Too expensive to compete with traditional vehicles was the message conveyed from Toyota all those years ago, back when Volt was still being developed. Volt enthusiasts didn't want to accept that message, so they changed it to too dangerous instead. It made them feel better. All these years later, there's the same behavior. The upcoming phaseout of tax-credits is really pushing that denial. So, they do what they can to suppress information, rather than accept it.

Rhetoric intensifies the situation when new offerings emerge. Toyota is always a thorn in GM's side, so they don't count. They're just treated as a scapegoat. Panic comes from other automakers. With gen-1 Volt, it was Ford's plug-in hybrid. Wow! It got very intense when C-Max Energi became available. Enthusiasts of Volt would post whatever they could to defend. Despite the lack of substance and obvious desperation, it made them feel better.

Honda's new offering is doing the same thing to gen-2 Volt. There's that same pattern of panic again. It's very easy to see too. Rather than take the situation seriously, the behavior is to use Toyota as a scapegoat and last out at those providing the message of concern. But as difficult as it is to accept defeat of a move, it's just a failed play in a very long game. No need to panic.

GM took a step in the wrong direction. It's not the end of the world. It's just a fumble. The technology is still sound. The configuration doesn't meet consumer requirements though. It's not like adjustments aren't possible. Getting back into play is just a matter of trying something different.

Too expensive continues to be the fundamental barrier for mass acceptance. A compact car like Volt has far too high of a price tag to draw interest in the showroom. Shoppers simply don't want to pay that much. More EV range and more power has proven ineffective for sales growth.

In a game when throwing the ball repeatedly to the same player fails to advance the team, you send in a different player. It's not a big deal. There's no need to panic. With the case of GM, they finally need to call in their most popular player. What are they waiting for? It's long overdue. The appeal of offering a plug-in SUV had long been known. Even before Volt, there was strong interest. Yet, GM hesitated.

We need to hear from GM that they plan to offer a plug-in SUV. Fans of the game (Volt enthusiasts) should be screaming for that at this point, rather than hiding posts and spinning history to pretend all is still ok. Things are obviously quite bad, but the game is not lost. Don't enable GM to continue with the wrong player. Shout out for the favorite to finally get a chance play.

- 9-25-2017 Teaching Moment, part 1.** Attempting to hide posts by negative voting them out of view is bizarre. All you have to do is click on the link to make it visible again. It doesn't actually go away. In fact, the act draws attention to them as a form of highlighting. I couldn't care less, since the goal is simply to get the message across. Posting again achieves the same thing: *"Being less complex than traditional vehicles has been the selling point for battery vehicles. Cooling the battery with liquid is not a step in that direction. This is why advanced chemistry for cooling with air is progress forward... as well as a cost reduction. Explain how such a straight-forward sentiment could cause such an uproar."* The discussion just happened to have drawn attention to teaching moments anyway, so I jumped right in. The point was to get those intentionally trying to mislead about active cooling to finally acknowledge that doesn't mean liquid only. The push to get that misconception to become a major source of disappointment is getting intense. They simply don't care about getting caught. They just repeat the same implication over and over. Passive cooling doesn't exist as far as they're concerned. So, when I point out Prime is active and Leaf is passive, despite but using air, they get very angry. They don't want me to expose their efforts. Finding out there are 2 very different approaches to cooling battery-packs with air can be used will undermine all the worked they've done to create a misconception. Well, too bad.
- 9-25-2017 Teaching Moment, part 2.** Here is what I ended up posting: A teachable moment, in education, is the time at which learning a particular topic or idea becomes possible or easiest. The count of negative votes was a clear indication that not only did the post have everyone's attention, it also was understood well enough to result in a participatory act. It was directly on topic and a relevant response as to which the topic was presented. The reaction though was for Volt enthusiasts to panic. I had pointed out a factor of advancement they were unwilling to acknowledge, providing a reason for which competition could indeed be stronger. There was a major effort to suppress the information, followed by indication of a shift away from plug-in hybrids. That abandonment of Volt in favor of Bolt is not a total surprise. Change on such a scale due to business realignment is a good thing when sales are not as expected. You try something. It doesn't work. You try something else. This is the learning process. Sharing that information is how we are taught.

9-26-2017 **Abandonment.** How it would end was a mystery. I have been witnessing abandonment of Volt. Enthusiasts who pushed "*range anxiety*" concern are now claiming this outcome was inevitable. All those excuses for so much defending has paid off in their minds. It's interesting to witness such damage-control playing out. When pride plays such a major role in their actions, it was quite clear nothing with "*failure*" as would be part of their message. That would make sense if it was just a matter of moving on with a generational upgrade. But that's not the case. Volt is only now starting its third year of sales for gen-2. That's not even mid-cycle year. The product is too new still. There's no diversification either. It would be easy to justify if that long awaited SUV with a plug was finally announced. But there's no sign of any intent from GM and no support whatsoever from enthusiasts. They have simply moved from EREV to EV. The idea of a vehicle with an engine of any kind has abandoned entirely. It's really strange. There isn't a voice for Voltec anymore. The hope of any plug-in hybrid choices from GM is gone. Believe it or not, that's actually a good thing. That terrible group-think from those faster & further pushers was holding back opportunity. With them turning favor to Bolt instead, the ability for GM to finally announce (or even reveal) a Trax or Equinox using an augmented hybrid system is far easier. Barriers of the past are no longer there, now that there's a 60 kWh battery-pack available. An affordable system with a smaller (right sized!) capacity can be offered without loss of pride. Phew! That's long overdue. Want to make a bet that will happen in Detroit early next year?

9-27-2017 **Extreme Variety.** Now that the market barrier Volt created is gone, there's an extreme variety of plug-in hybrids emerging. Those terrible enthusiasts of Volt did indeed become the antagonists we feared. Claiming GM was a leader, when in fact it had become an example of what not to focus. Rather than focus on improvement to emissions & consumption, there was an obsession with faster & further. It was good technology spoiled by foolish management decisions... based primarily on what the enthusiasts were rallying for. They are who I blame. We knew the executives would cater to what they hear from GM supporters. That was how Two-Mode became such a disaster and why I knew Volt would suffer the same fate. That pattern of mistakes was easy to recognize. But every time I brought up the parallel, pointing out how closely the history matched, I was attacked. It was relentless. They took it very personally and tried to humiliate me in response. Their retaliation was an epic fail though. It made no difference. I wasn't impacting sales, they were. Belief that the market would sway in their direction was a fundamental effort. The idea of "*if you build it, they will buy it*" doesn't actually work... since the approach isn't actually that simplistic. They were too naive. They took that literally. Ugh. Oh well. Long story short is that we are now hearing from even the most quiet of automakers, like Skoda. They are even making plans to offer a plug-in hybrid. The catch is, each automaker's offering will be different. The standard Volt enthusiasts hoped would become ubiquitous by now has totally collapsed. In fact, very little of what they tried to push actually survived. The precedent they attempted to establish was far too unrealistic. It's one thing to set an ambitious goals. It's another though to ignore & dismiss evidence as you discover the goal wouldn't work. In fact, that's why a target is so heavily scrutinized. You evaluate milestones along the way to confirm that it can ultimately be reached. What was the point of the goal those Volt enthusiasts were supposedly pursuing? It certainly wasn't sales growth. That failed miserably and left a disastrous mess in its wake... leaving very little for them to work with now... hence others now carrying on as if it was never there.

- 9-28-2017** **Noticed A Pattern.** This statement of closure provided a great sense of vindication: I noticed a pattern with the obsession to hide posts. There are attempts to rewrite the past. Asking why reveals a disturbing revelation. Some are now agreeing with me. The pest who kept providing goal reminders now getting vindicated is terrible. Can't have that. But after 7 years of missed opportunity, what can be said? Other automakers are stepping in to fill the void GM created. The latest is what we all had expected from Voltec advancements, a SUV. The very popular Mitsubishi Outlander PHEV is finally on the way to the United States. \$35,535 is the base price with a 12 kWh battery-pack. Why so much silence from GM still? Who wants to make a bet there will be an announcement at the Detroit autoshow? Who wants to acknowledge it won't be up the standard Volt enthusiasts pushed so hard for, despite knowing that wasn't actually what GM customers were looking for? Spin all you want. It doesn't change the reality that we have new offerings from previously silent automakers. And with the inevitable triggering of phaseout for the GM tax-credits, it doesn't matter what happened in the past anymore. What happens in the next 6 months will be quite significant.
- 9-28-2017** **Missed Opportunity.** You have to wonder what the person knows & thinks when asking this: "*Is it a missed opportunity though?*" With so much change recently and more on the way, it's difficult to recognize what their perspective actually is... especially with what just transpired. So, I went with: Look back at how many trade & conquest posts there were. It was overwhelmingly clear that Volt didn't attract GM's own loyal customers. That's why I gave up on the second model push. Even those cost-reduction was absolutely essential, another model of Volt with a lower sticker price wouldn't appeal to showroom shoppers. Those potential buyers were looking for a high-efficiency SUV... and many of those who opposed me came to realize that same thing. This is where the missed opportunity comes. That plug-in hybrid SUV won't benefit from the tax-credit. It will start sales without ever having that purchase incentive... which will make rollout that much more difficult in a market with a variety of choices at a time when gas is still cheap.
- 9-28-2017** **Too Late.** The time has come! I posted: Some are now in the awkward position of finally coming to the realization that even though I was clearly anti-Volt (large-pack config) that all along I was always pro-GM. The quest was to find an ally in the effort to promote plugging in. What's so difficult about accepting the desire to replace traditional vehicles? This is why I repeatedly kept bringing up Two-Mode. It was that I saw the potential in Volt technology, but understood how easy it would be to fall into the same traps as GM's previous attempt. I was looking for those who also wanted to embrace electrification and had valuable experience to share. Unfortunately, those former lessons learned fell on deaf ears... only to be heard now. It is sad that tax-credits were used in such an unproductive manner. Building up a supportive dealer & salesperson network while educating GM customers didn't happen. Opportunity missed. Now GM has to entice potential SUV plug-in buyers by some other means... which is going to be much more difficult.

9-29-2017 **Prius Problem.** We know that it is truly over because Prius is no longer a problem. Volt enthusiasts were painfully aware that GM sacrificed affordability for the sake of fulfilling want instead of need. That was a repeat of the mistake GM had made with Two-Mode. Making it again with Volt was, in their mind, manageable though. They just figured some effective marketing to emphasize performance instead would be the solution. It wasn't. Ordinary consumers never placed that much importance on acceleration. I knew power wasn't a purchase priority. You can't study mainstream behavior for that many years and not notice it. So basically, the only true way of winning was to wait. Eventually, they too would see it. Toyota's effort to deliver balance would become apparently. Oddly, that wasn't from Volt though. The lesson was ultimately learned about from Bolt. To make it affordable, some sacrifices needed to be made. GM's choice to deliver an interior often described as "*cheap*" and missing some obvious standard appeal features (like dynamic-cruise) exposed shortcomings with the Volt approach. Far more than just better advertising was needed and simply making the vehicle more basic wouldn't be enough. Toyota's approach was correct all along. Agreeing with me wasn't acceptable though; however, hiding what I said would conceal what was actually happening. Admitting the mistake meant swallowing their pride... which is why it never happened. Of course, Prius continues to lead the way regardless. New York just began a new rebate program for plug-in vehicles. 40 percent of the vehicles registered were Prius Prime. Only 10 percent were Volt. We're seeing that not only is the performance acceptable, so is the distance. Selling a vehicle based on the desire for faster & further isn't working with non-early-adopters. It should have been obvious that all the low-hanging fruit had already been picked. To reach the next audience would be considerably harder than just flaunting specifications. Now they know what "*vastly superior*" actually means.

9-30-2017 **Progress.** There are some winners. There are some losers. Seeing them emerge is how you know progress is being made. Advancement of technology shakes out the better choices and leaves behind what couldn't compete. I summed it up this way: It's unfortunate some are still trying to rewrite history. Details about what was actually said and when are well preserved in the blogs, so there's no need to rehash or clarify. What is undeniable is the fact that Two-Mode had a plug-in prototype of a SUV. All those years ago... and we are still waiting. Looking forward, there is a growing expectation of that long awaited plug-in SUV from GM to come as Volt reaches the end of its product-cycle. Hope is that this will come much sooner... especially since we see a variety of plug-in SUV offerings on the way from other automakers. In the meantime, the Volt enthusiasts can say whatever the heck they want. Spin about Toyota having been against lithium is an outright lie. The word from way back when Volt was first being developed was that it was TOO EXPENSIVE to compete. And sure enough, even in 2017 with tax-credit subsidies, there is still a struggle to grow sales beyond niche. We are seeing progress in terms production-volume increasing. Toyota is using lithium in both the Prius and Camry hybrids, as well as in Prime. First year sales of Prime look to easily be in excess of 50,000 worldwide. That's a great start for such an AFFORDABLE plug-in. Let's hope other automakers are able to jump into the game with their own priced low enough to actually compete directly with traditional vehicles.

9-30-2017 **Camry Hybrid.** Speaking of hiding things to pretend they don't exist... that was the strategy of Volt enthusiasts that is no falling apart... finally! Ever notice how they kept focus exclusively on Prius, never acknowledging the existence of other hybrids? That's because Prius placed more of an emphasis on efficiency than power. To get more, you have to pay more. That made Camry hybrid a bit too much of a tradeoff... until now. The new one offers that next step without a MPG penalty. Toyota did an amazing job of making that affordable. My wife and I took one for a test-drive the other day. What a great experience. There's a clear distinction of approach. Yet, you still get great performance... that one aspect of argument the Volt enthusiasts can no longer exploit. It's over. This next-generation upgrade truly delivers. Remember the "*too little, too slowly*" concern? Those antagonists claimed Toyota was resting on its laurels, only to discover the opposite was true. Toyota wasn't. It was actually their own GM who got caught up in misplaced priorities. That's why this fallout from Prime success and the very likely success of Leaf is becoming so apparent. They are now stuck in a hypocritical situation. Watch for the spin. That's an inevitable outcome. They hope to confuse readers enough to protect their damaged pride. Ugh. Why not just focus on goals instead of letting ego get in the way? Remember, it's all about replacing traditional vehicles. That makes GM's own offerings on Chevy showroom floors the competition, not what Toyota offers. When will they get a clue? Perhaps Camry will provide some perspective. It's not Volt verses Prius!

10-01-2017 **Simply Not Worth It.** Attempts to mislead & undermine aren't working anymore. The come off as desperate. For example: "*The awful 0-60 times of the PP also qualify it as sub-par. But, it's the small battery that really makes it a joke. Especially given that it's their second attempt to make a PHEV.*" Remember how Prius owners were supposedly smug? That role is exclusive to a few Volt owners doing everything they possibly can to hold back the advancement of Prime. Knowing sales results for September will be out soon, and they are anticipated to heavily swing favor in Toyota's direction, this childish behavior is to be expected. It's the enthusiasts perspective taken to an irresponsible level. There's nothing at all wrong with having an appreciation for performance. Misrepresenting it though is an entirely different matter. I'm not going to put up with it either: Same thing every time. A few are so focused on faster & further that they completely overlook the market as a whole... and end up laughing alone. It's somewhat of a surprise at this point that the "*vastly superior*" attitude continues with a few. Everyone else has seen the importance of sales. Growth is essential. Catering to a small audience by highlighting power & performance is a waste. Mainstream buyers are unwilling to sacrifice their purchase priorities for that. Toyota nailed it with the balance of price & features. Ordinary consumers have taken notice. The motor & battery are right-sized for the price, allowing them to get a nice assortment of standard safety & comfort features too. For them, the extra power & capacity is unnecessary, simply not worth the tradeoff.

- 10-01-2017** **If You Build It.** Just how naive some supporters were about dealer & salesperson interest is becoming quite apparent. They were beyond clueless. Assuming that if the automaker would build a plug-in vehicle, the customer would buy it is far from reality. It's far more complex of a situation. Enthusiasts shunned & ridiculed me for being what they thought was pessimistic. Turns out, I was being realistic. Simple, it is not. Reading a financial article about GM dealership support for Volt & Bolt, the findings were glum. It was summed up with: "*No interest and no demand.*" How much did you encounter from GM about their plug-in hybrid over the past 7 years? There's no message of support, no message of direction, no message of intent. They are just a "*halo*" vehicles. Isn't that ironic? Knowing GM's history, that fate is well deserved. It's unfortunate though, since this could have been prevented. Watch what Toyota does as the worldwide rollout of Prime takes hold. Having targeted ordinary people, its far easy to get dealers to take interest. That sets the stage for salesperson interest... if inventory is ordered. With a MSRP of just \$27,100 and Prime not skimping on standard features, it is realistic to see sales not requiring much initiative. That should be enough to attract a customer with a basic understanding of plug-in benefits. This is very much like how hybrids were first marketed. There was just enough awareness prior to shopping to draw attention to them. The same should for plugging in too... far more than just building it... but not difficult if you properly identify audience.
- 10-01-2017** **Mini Countryman Plug-In.** 7.6 kWh battery. 221 horsepower. 12 mile range. Those specifications sound promising for the market supposedly targeted. But the fine print says the electric-motor will the car up to speeds of 55 mph. That isn't encouraging. Then it turns to true discouragement when you see 27 MPG after depletion. Who will this appeal to? With a sticker-price of \$37,650 in the United States, it seems like a very small audience. Potential buyers can't be plentiful in any regard. Remember how we had relentless spin from Volt enthusiasts who did everything they could to paint a rosy picture for GM? Is there anyone to speak up for this? Mini doesn't sell that many vehicles anyway. But with such an expensive and strangely configured choice, it shows the market is all over the place now. The old days of "*more is better*" are long gone. Whether it be plug-in hybrid or electric-only, the preferences for buyers is far from clear cut. Configurations can be anything at this point. Makes you wonder what automakers will try next. Makes you really wonder how consumers will respond. Thank goodness its easy to see how Prime is a natural progress from the regular model Prius. Adding battery & plug is a next step that's very easy to understand.

10-02-2017 **Arbitrary Divisions.** People are drawing lines without any rhyme or reason: "*With a minimum AER rage of 40+ miles for PHEVs, none of these 20 mile PHEVs.*" Seeing an arbitrary division intentionally being made without any clear explanation of why that particular value was chosen is a dead giveaway of trouble to come. When they just choose a number that sounds sensible, but has no merit based on any obvious measure, it is clearly a defensive maneuver. In this case, it's the result of California making a consideration of banning the combustion engine at some point. That puts plug-in hybrids in an awkward position... for Volt enthusiasts, anyway. That AER value is coming back to haunt them. Now that Prime drives "*all electric*" just like Volt, the only argument remaining is to claim that more capacity is necessary. They know that isn't true. But there's nothing else to argue. I'm doing my best to expose that weakness too: Establishing a plug infrastructure at home is the goal. Any size battery-pack will achieve that. To plug in, you require a dedicated line in your garage. Most can find an outlet to use. Delivering electricity for a second vehicle is no where near as easy though. Notice how everyone is focusing entirely on the low-hanging fruit (only 1 plug-in) and overlooking that dilemma? It's a very big problem for most households, since they typically have at least 2 vehicles. With my household, there are 2 Primes. Each has its own 40-amp line, complete with L2 chargers and individual time-of-use meters. That wasn't a cheap upgrade, but it was totally worth the investment. The first 1,000 miles of travel with my most recent tank only used 3 gallons of gas. So the "*rage*" about AER (funny typo!) doesn't have much merit. You can achieve outstanding MPG even with a smaller battery-pack and it forces owners to start the upgrade process at home. That is a very real step toward banning traditional vehicle sales.

10-02-2017 **It Begins, Again.** Right on schedule. Exactly what we've seen in the past. When 3 year begins, GM makes an announcement of something new on the way... Two-Mode, Volt gen-1, Volt gen-2, each having predictable & recognizable turning points. The pattern is undeniable. I bet there will be quite a bit of denial though. It will start with the usual vague & ambiguous nature of the announcement. GM states there would be 20 new "*all electric*" vehicles delivered by 2023. For the past 7 years, we've been hearing that Volt is an "*all electric*" system with an engine for when the battery-pack is depleted. In fact, that's what all the AER hype was about. The "*AE*" stood for "*All Electric*". Remember the thousands of posts claiming Prius PHV had only 6-miles of All-Electric-Range officially, but that the AER rating should actually be zero since you couldn't accelerate onto a 70 mph highway using only electricity? And now that the upgrade to Prius Prime can, they changed the argument to a required "*40 mile*" minimum AER instead? I can't imagine the spin that will emerge from this. But then again, that should be easy to foresee. The nature of GM announcements are that way to stir online posting and contribute to hype. We've seen this so many times in the past, how can anyone deny it isn't beginning again?

- 10-02-2017** **Instant Tension.** Reaction was immediate. Volt is getting pushing into the plug-in hybrid category by EV supporters. It should have been obvious to them that anything with an engine would not be welcome. All that enthusiast fighting against Prime, only to find out they are looked upon as the same. Heck, just a few hours ago I posted how the two plug-in hybrids yield similar results in real-world driving. Hype of further range doesn't mean better MPG in return. It all depends upon how the technology is actually used. That's a very hard lesson learned, now especially. This isn't a sucker-punch to all the enthusiasts though. Some changed loyalties recently, jumping ship when they saw sale results. In fact, this is why the announcement was made today. We'll be getting September counts tomorrow. The expectation is that Volt's struggle is getting worse. GM targetted a niche audience, which is now totally saturated. Opportunity has shifted to mainstream buyers... which Prime is configured to directly appeal too. It's much lower price and generous collection of safety & comfort features make it much more appealing. Who is the market for Volt? Watch the tension build as that question becomes painfully obvious of a problem. Volt is suffering an identity crisis now. It's not an "*all electric*" vehicle as previously hyped and enthusiasts have been dead set against ever calling it a plug-in hybrid. Why?
- 10-02-2017** **The Trap.** It's amazing how gullible some people can be. My guess is it's a combination of not paying close enough attention combined with a blind hope of enthusiast dreams coming true. Whatever the case, I'm seeing the pattern and posted about it: Notice how the "*at least 20 new all-electric vehicles that will launch by 2023*" follows the GM reputation for ambiguous statements? It's so vague, interpretation will be all over the place. That's what GM did countless times in the past. It generates hype without obligation. No actual quantitative measures are provided with respect to production. There's an obvious absence of detail. People easily fall into the trap anyway. As a result, the same old rhetoric starts up, yet again. And sure enough, that's exactly what we are seeing. Watch how dealers react. Will the potential for greater variety help with their lack of interest shown for Volt and Bolt? If so, when and how?
- 10-02-2017** **The End.** Rhetoric ramped up remarkably fast. Fortunately, most of it was obvious trolling. Antagonists found their bait didn't work well anymore. Reaching the masses means fulfilling needs they don't find appealing. Their focus on want was clearly misplaced. I'm delighted how much of a mess the situation has become. Lack of any message on their part makes consumer confusion far less of an issue. You cannot undermine when there is no direction to mislead. Put another way, this new twist of having vaguely announced a variety of "*all electric*" vehicles wrecks the faster & further mantra. There's no way to push a one-size-fits-all approach when there's variety. It really is that simple. Where do you draw the line of acceptability? I brought the day's nonsense from spin to chapter closing with: In the end, it boils down to the argument about leadership. Some firmly believed it was all about breaking new ground, rather than getting ordinary people to change. Now, they're discovering the ground is already broken and the work to appeal to mainstream consumers is a much bigger effort than they imagined.

10-02-2017 **Changing Definitions.** That is a clear indication of having moved on. This new chapter in history is odd. There's outright denial of the past, which is recognizable. The part that's missing is having a goal. What the heck is it? Claims that "*all electric*" wasn't used differently ends up just being a red herring or a moot point, depending upon who responds. There are some frequent posters that will end up feeling lost... especially when a supposed newbie like me chimes in on websites they previously had strong control over. Disruption to the stability they had enjoyed is difficult to accept. Seemingly simple things like the changing of definitions shake up expectations. I come from outside with lots of information about how things were viewed and acted upon elsewhere. Their instinct is to dismiss, assuming my claims are knowledge limited to personal experience... not well researched material collected over the past 17 years. It's a shake up they are ill prepared for. The abrupt alteration of posting content is quite a shock. So... they change definitions to help deal with a new set of circumstances. Hopefully, most of this won't become yet another episode of moving goal-posts. Sometimes, their outright dismissal makes moving on easy. We'll see.

10-02-2017 **Innovator's Dilemma.** Typing up and posting this sure was an intriguing outcome of the crazy chapter that just started in vehicle efficiency history:

Ironically, some of what innovator's dilemma highlights is why you and I have been clashing.

My focus is entirely about the masses, those mainstream consumers are who the first-generation plug-in offerings were not able to reach. I couldn't care less what enthusiasts have to say at this stage about the past. It's all about looking forward to grow the market. A significant increase of sales quickly is essential. That requires change.

Those potential buyers have very different purchase priorities. Some of what had been a compelling draw to early-adopters may have little to no impact for this new audience. The failure to appeal the same way is harsh reality to deal with. Unexpected new problems emerge as a result and former strong players end up struggling to adapt.

Think about how welcome a disruptive technology is when it first enters the market. Those willing to embrace it readily accept change. That most definitely isn't how you'd describe an ordinary customer shopping for a replacement vehicle. Somehow, the new technology must be made available in an entirely different manner than it had been introduced.

Are you ready to take on this next stage, willing to accept an approach necessary to rollout on the grand scale with little reward in return? Successful ubiquitous implementation is a thankless job. Few will recognize how much was truly accomplished, simply dismissing it as an "obvious" next step... even though you know that is anything but the true situation.

10-03-2017 Overnight Chaos. I went to bed having the knowledge that GM's announcement to introduce "*at least 20 new all-electric vehicles that will launch by 2023*" was already a confusing mess. It left so much to assumption that even former allies were now foes, simply because their interpretation of what had actually been said was different. Personally, I wanted to find out what "*all-electric*" actually means and what the production intent was. That makes sense and seems reasonable; yet, there was backlash anyway. The attitude was quite surprising, in fact. Well, overnight, things went from uncertain to chaos with this: "*GM Will Go All Electric, Will Ditch Gas And Diesel*". That was the title of the article. It opened with this sentence: "*General Motors plans to go 100 percent electric, the Detroit automaker announced Monday.*" Where did all that come from? Needless to say, I recognize the pattern. We've seen this so many times before, there's no surprise anymore. My blogging has become a chronicle of announcements gone wild. Ugh. What's most interesting is not that there's an complete absence of any timeline or volume expectation, it's the fact that GM's plan for the future clearly included fuel-cell vehicles. That really upsets those who I rubbed the wrong way in the past, saying FCV will co-exist with EV. The one-solution-for-all has completely fallen apart. They cannot deal with multiple outcomes. For me, that's been the foresight all along. A quick study of real-world driving is all it takes to realize there's a wide variety of need. Wanting one particular thing simply doesn't work. Anywho, the uncertainty of what "*all-electric*" is telling us has really made a mess of things. There is an element of certainty though. Later today when September sales get revealed, expect the situation to get worse. I anticipate a number of Volt enthusiasts looking for a scapegoat, doing whatever they can to feel better about the lack of sales growth.

10-03-2017 September Sales. As anticipated, Volt is stuck at a low with 1,453 for the month. Remember how we saw gen-1 sales between 1,600 and 1,700 for nearly two full years? The rollout of gen-2 was supposed to usher in a growth boom. That didn't happen... not even close. In fact, sales are struggling so much, few have wanted to talk about Volt. There are too many other plug-in hybrid choices emerging... none from GM though. We have arrived at a turning point. There is no denying the paradigm shift taking place. With sales of Prime at 1,899 for the month, there are encouraging signs of strong growth potential. My dealer only had a single model in stock. Others locally are very limited too. But with such an appealing price and an array of draw factors, discussions are stirring. That's exciting. I can't wait until inventory does finally get built up. In the meantime, we're stuck with focus on GM rather than Toyota. I'm working to change that though: Volt needs more than just a price reduction to be competitive. Remember, there's serious competition on the showroom floor. The sales numbers for Equinox, Malibu, Cruze, Traverse, and Trax are all harsh reminders of what GM has placed Bolt & Volt against. Toyota worked really hard to get in front of the entire industry to deliver an affordable plug-in hybrid that also offers a variety of other appeal factors. This list highlights some of those potential draws to deal with the pressure from all parts of the market.

- 10-04-2017** **Poorly.** That new blogging website I have been frequently posting on recently has quite a few of the same problems that Volt blog had: "*That's the only way I can imagine someone who frequents this site not understanding how poorly Toyota has done with EVs & PHEVs.*" It was the assumption that I worked for Toyota. How could I possibly have an interest in the well-being of many automakers, with a focus on plugging in instead? It's absurd that a website supposedly trying to promote EVs would not have an attitude of cooperation. Unfortunately, we're seeing a quite a bit of bickering based upon battery-capacity. Everything from charging speed to blocking charger spaces comes up routinely. The supposed problems with small are quite an issue for them... hence the "*poorly*" attitude. They are very much of the "*more is better*" perspective. That's sad. I fired back: Coming to that conclusion requires a disregard for profit and a dependence on tax-credits. Anyone can slap in a larger battery-pack for good show. Making real change though requires an effort to actually target the masses, instead of just trying to please those who frequent this site. True leadership is often difficult to understand, especially when economics must take precedent to engineering.
- 10-04-2017** **Other Perspectives.** Pushing the belief that I must work for Toyota is mindboggling: "*It's the only way I can wrap my head around someone advocating a sub-par PHEV in an EV enthusiast forum.*" You'd think at this point in internet history, the realization that motive beyond being paid exists. I want to contribute something to make our world a better place. What a concept! Ugh. I finally replied to the nonsense with: I'm a customer representing ORDINARY CONSUMERS, which is why the enthusiast opinion make little difference. You can "*sub-par*" until the cows come home. It won't make any difference. Mainstream buyers just plain don't care. Enjoy your niche. That's perfectly fine, but is in no way representative of what someone shopping the showroom floor is looking for.
- 10-04-2017** **Who?** For crying out loud! He still either didn't understand or didn't want to accept that I could just be motivated by a desire to help. Why is there such a blindness to anything other than financial gain? I tried to provide more information: I wasn't dodging the question either. I was stunned to find out that this ENTHUSIAST venue showed such little interest in the mass market. KNOW YOUR AUDIENCE. Mainstream consumers are much more difficult to reach. The faster & further is great, but lacks balance. There are many other issues to address still.

- 10-04-2017** **Too Late.** Waiting is truly a terrible choice. Yet, that is the preferred approach: *"We'll deal with the post-credit prices when we reach that point."* Over and over again, we have witnessed reaction following something prove to be a great loss. Remember the dramatic price reduction for Volt when inventory pile-up became a huge problem? After the initial surge of sales faded, owners were discovering the value of their vehicle had plummeted. So, on top of having to pay more in the first place, they now had a vehicle worth much less. Ugh. Unintended consequences come from not planning ahead. Being proactive is always the better choice. How many times has the "rested on their laurels" comment come up lately about Toyota, yet that's exactly what enthusiasts are advocating for GM. Again, ugh. Annoyed, I posted: Waiting to react is too late. Getting caught mid-cycle without a plan already in place is costly mistake. Think about how close the GM is to triggering phaseout. If price can be lowered without serious profit loss, great... no change in price won't help at all though. Growth needs to be promoted somehow. Notice the struggle Volt is already having? Be proactive. Don't wait.
- 10-05-2017** **The Push, ironic.** Celebration about Bolt says with no regard to what that does for Volt is really getting big. That hypocritical response amazes me. They don't care. As long as there is some type of victory to celebrate. Ugh. I started my push on the Volt enthusiasts with: Isn't it ironic that *"too little, too slowly"* ended up being competition from within? Concern about showroom shoppers should have never have been dismissed. Bolt cannibalizing Volt sales... So much for *"range anxiety"*.
- 10-05-2017** **The Push, bickering.** Choice of response to my push was: *"Did you happen to notice that the RAV4h outsold the Prius this month? Dealers steering buyers from 52mpg to a 32mpg?"* What do they hope to accomplish with bickering like that? It doesn't achieve anything. It does make them feel better though. I wasn't about to put up with it: Toyota adapted to the market favor for SUV. GM still hasn't. What's your point? Toyota also upgraded Prius to Prime, another planned adaptation without mid-cycle interruption. Tit-For-Tat all you want. The point is progress forward and the enthusiast here fought against the very move GM has made. That's incredibly hypocritical. All the *"range anxiety"* hype, for what?

- 10-05-2017 The Push, diversion.** Hope is that diversion of attention will somehow make the situation better: *"Did you happen to notice that the RAV4h outsold the Prius this month? Dealers steering buyers from 52mpg to a 32mpg?"* I know that isn't the case, having got confirmation of it directly from my local dealer. People looking to purchase a RAV4 anyway end up seriously considering the hybrid model. A surprising number of them end up getting one too. So, the claim of switching from Prius is a stretch, at best. I pushed back with: How many of the potential RAV4 hybrid buyers will look at the 52 MPG rating for the sporty new Camry hybrid and give pause? I could understand GM seeking a balance with Bolt and Volt, offering diversity for their customers. In fact, that makes a whole lot of sense. Unfortunately, that isn't the message being conveyed. Instead, it's abandonment. Volt is struggling due to lack of attention being given. Neither GM nor enthusiasts are showing interest anymore. This time next year, the expectation is for tax-credit to have dropped to \$3,750. How is that going to help Volt, which is stuck with gradually falling sales already? My point is GM and enthusiasts better get their act together quickly. Come up with a concise marketing message. Wasting precious time (too little, too slowly) on pointless tit-for-tat arguments is an incredibly poor choice. Though, ironically, that same behavior actually favors Toyota. More attention given to its array of complimentary offerings is beneficial. The day of reckoning has arrived. How will you proceed?
- 10-05-2017 The Push, message.** Timing is interesting. Kickoff of the autoshow season usually is. I continued my push using some of that new information just released: Speaking of the message GM is sending, notice their eAssist plans for 2018 pickups just announced? 15 kW electric motor. \$1,125 for an upgrade providing what? 123 kW (front) and 50 kW (rear) electric motors from the current generation of Highlander hybrid. The next generation should deliver a decent upgrade and will be built in the United States. GM history & experience with Two-Mode should put them on course for delivering much more. Why is there no push for that? Why is the eAssist plan considered good enough?
- 10-05-2017 The Push, serious.** It continued: If GM is at all serious about pushing Bolt sales, the tax-credit eligibility tally will hit 200,000 phaseout in the first half of 2018. If sales are slower, by the end of third quarter. Either way, this time next year it will be reduced by 50%. Why squander those precious few tax-credit opportunities on spin with pointless misquoting? What a waste. Notice how vague that *"all-electric"* talk was the other day? What did that really tell us? We need a concise message of intent now.
- 10-05-2017 The Push, waste.** I was accused of wasting their time. Ironically, the push is to get an opposite outcome... to get them to finally shake the "good enough" attitude. It's so frustrating to watch the goal-posts get pushed every time monthly results are posted. Each effort to excuse lack of progress is pointless. Yet, that's what gets applause anyway. Praise is given for technical achievement, regardless of whether or not it actually advances mainstream penetration. Ugh. Oh well, that's why the push is so important. I punched back: Yet, I end up with reams of information as a result. The feedback here is fantastic! Replacing traditional vehicles quickly is the goal. Having to put up with spin & rhetoric is totally worth figuring out how to effectively do that. What would you like to see happen with Bolt and Volt over the next 12 months?

- 10-05-2017 The Push, behind.** Watching the tortoise and the hare play out is fascinating. Simply being ahead at this point is reason to celebrate a victory? The race has barely begun and enthusiasts are calling it already. Wow! I kept pushing for perspective, hoping to prevent a Two-Mode abandonment... though, it doesn't look promising: Behind what? The economics don't support your claim. GM squandered credits by not using them wisely. They were wasted on conquest, rather than trying to lure in their own customers with a sustainable product. Toyota adapted, saving credits until they had a product capable of high-volume profitable sales. That makes the credits available a tool for mainstream penetration, rather than just proving a technology. In the meantime, Toyota also rolled out a platform in 4 different bodies capable of supporting a plug. Each can deliver a full EV driving experience. Each is establishing a reputation ahead of that market. The architecture is already in place. All that's needed is more cells to make the battery-pack larger. Claims of behind have no merit.
- 10-05-2017 The Push, overlook.** The heart of the problem comes from living in the now, only seeing what's happening at the moment. It's a "*worry about it when necessary*" attitude. Rather than plan ahead and prepare for the next stage, it's all about enjoying the moment. That can be a horribly costly mistake. But when dealing with someone who clearly never took an economics class, it doesn't matter. They have no idea what you are talking about. I do keep trying though: You have completely overlooked the phaseout period. During that time, there is no sales quantity limitation. Vehicles experiencing strong growth could exploit the opportunity. To achieve this, demand must already be established. For GM with Volt, we're seeing a decline. Interest is fading, since conquest sales are over and no plan for EREV advancement has been proposed. Instead, focus is shifting over to EV. For Toyota, the preparation for ramped up production is obvious. They are clearly working to attract their own loyal customers to a plug-in hybrid purchase. Dismiss all the evidence. Spin lots of excuses. Do whatever you want. It's just wasting time... the very thing Toyota has carefully planned to take advantage of.
- 10-05-2017 The Push, production.** With judgment of progress clouded to an extreme, it's easy to see how audience is misunderstood. Over and over and over, I remind about the ultimate goal of replacing traditional vehicles... since getting lost in sales is far too easy. Each month it's the same thing, enthusiasts will cherry-pick data. In other words, they isolate counts to just that of the plug-in market. Completely ignoring the market as a whole is the only way to stay positive. Ironically, there's always complaints about how slow Toyota is supposedly moving, yet GM isn't going any faster. In fact, it was from the GM crowd we've had to endure the "*just be patient*" posts, yet they won't heed their own advice. We all know GM will announce, then proceed painfully slow... hence the "*too little, too slowly*". It's becoming increasingly difficult to say the same about Toyota. We see the Prius, Camry, RAV4, C-HR potential already... hence all the denial lately and my push. Anywho, I was somewhat surprised the spin is still going on about conquest sales being all that matter: That goal is about changing vehicle PRODUCTION, reducing the number of traditional vehicles being PRODUCED. If 0% of the customer base doesn't change and all those "*lure*" vehicles represent are new customers, the outcome is only compliance sales. Selling the same original count of traditional vehicles means no progress... no replacement yet. GM electrification "*plans*" don't actually tell us anything.

10-06-2017 The Push, journey. Providing a positive outlook for those who only see hate really doesn't accomplish much. It may not be futile, but it seems like just a waste of time. In reality, attempts to summarize do help if some type of "*what's next*" is included. What good is a push if you don't supply expectation? Remember how the hate originated. There was a resentment for Prius being so far ahead and so popular. Toyota had research need so well, you couldn't do anything but follow. The formula for success had already been proven. GM certainly tried. Two-Mode was a disaster though, so bad the next step wasn't acknowledged until that too had failed. It was Volt. Their ambition was to deliver a series hybrid with a plug so efficient, the death of Prius would be painfully quick. Instead, the design ending up being a series-parallel similar to Prius, but no where near as efficient. In fact, Volt efficiency in HV mode was so bad, enthusiasts shifted focus entirely over to EV mode operation. That could have worked too, if battery-capacity had been higher and cost significant lower. Unfortunately, that isn't even realistic now, a decade later. To make matters even worse, the next-generation Volt was only a minor upgrade. That really hurts when you look at Prime and see how significant that upgrade became. Dramatic cost reduction with a undeniable class-leading efficiency. HV is so impressive, there's nothing to say. EV is only now getting recognized with a "*we're in trouble*" realization. That's why whenever any type of design discussion starts, it ends with a Volt enthusiast angry due to the approach resembling something Toyota has already delivered. This is why the GM announcement for "*all electric*" vehicles on the way came about... right on schedule too. Literally, it was the first day of the third year. Talking about being predictable! Needless to say, I was happy to bring this chapter to a conclusion. This has been a wild journey: It does seem reasonable of an expectation. We've had quite a journey getting there though... Two-Mode = start. Volt gen-1 = upgrade. Volt gen-2 = refine. Bolt = almost. Each of those steps had peril, but not an end. It's really too bad so much conflict came along the way. Missing important milestones is a problem, but you learn from that and move on. The finish line is mainstream acceptance. Measure of that has never changed. Sales of 5,000 per month (the ordinary type, not subsidized) is a clear indication of having achieved that goal.

10-06-2017 The Push, Why? The senseless waste continued on until this was posted: "*After years of FUD against all plugins that aren't branded Toyota, you've painted yourself in a corner, and no one wants to listen your nonsense.*" That abruptly brought it all to an end:

I can put up with the false claims of my past. Distorting position by exaggeration and mixing up when things happened is tolerable. The internet is filled with incorrect information and having a good laugh (even at my expense) is useful to keep discussions going. But there's no escaping this. You crossed the line.

Everyone knows I've been active in our local plug-in owners group for years. My push for lithium battery use in plug-in cars was well known. Even with that small pack in the Prius PHV, an outspoken endorsement was obvious & undeniable. 5 full years of real-world data, including detailed video. Then I upgraded to a Prime Prime... larger lithium battery-pack along with an upgrade to 240-volt charging and Time-Of-Use discount meters at home for 2 cars at the same time.

Everyone knows how much I worked with the other owners of other plug-in vehicles. They know how much I've enjoyed the car gatherings and was able to develop friendships, despite our different plug-in vehicles. Lots of stories have been shared. We've had lots of good times. It was all an effort to find genuine solutions for ordinary people, figuring out the next step beyond early adopters.

What are you trying to accomplish? All the "*late*" claims without explanation are bizarre. Now this. Why?

10-08-2017 **Being Observant.** Yesterday, we got back home from a trip up north. After unloading the Prime (which holds far more cargo than the raised floor leads you to assume), I plugged in. It had been a whole week with only that single original charge, which I used sparingly while away. There was no place to recharge. Yet, overall efficiency for the 618 miles of driving was an amazing 61.8 MPG. That's especially impressive when you realize the temperature varied between 47°F and 65°F, which meant no more warm-season engine startups and running the heater. We had to deal with rain a few times too. Anywho, after a little bit of plugging in. I grabbed my phone to check on charger status. Nothing. Huh? Turns out, I needed to reset the extender for my Wi-Fi. No signal. For some reason, the channel for the garage was out. After that quick fix, the charger displayed status. I took a quick print-screen, not realizing the significance of that moment I just captured. An hour later, I got a notify that charging had finished. Again, I wasn't paying close attention, but took print-screens. After all, I had gone an entire week without recharging. My desire for a full battery-pack had peaked. It was especially interesting, since that was the first time my wife had actually plugged in to recharge at the very same time. We installed 2 independent 40-amp lines for that benefit, why not take advantage? That full recharge (5.8 kWh) only took 1 hour and 17 minutes to complete! How could it take so much less time? It usually requires about 30 minutes longer and my history log clearly confirmed that. Nothing looked out of the ordinary. I routinely see a sustained charge-rate of 3.6 kW. Faster didn't make sense. So, I shared all the information I had online. Our guess is that I uncovered a bug in the software for the charger. It pays to be observant. I wonder how many others have run into odd sets of circumstances like that? Writing software myself, the experience doesn't surprise me. There are many unknowns that are difficult to predict. It's nice knowing the fail-safe worked. Despite the signal loss, the charger worked anyway. I wonder if the newer model would have worked differently or if the addition of a Wi-Fi signal indicator was the solution. After all, that's ultimately what you want fixed, since the charger has no control over that.

10-09-2017 **New Chapter.** Remember what got repeated relentlessly when antagonists were attempting to portray Toyota as lost and going in the wrong direction? They certainly don't... yet their posts are so abundant, it's effortless to find. The mantra they kept pushing was fuel-cells. Rather than them being a complimentary electric-propulsion technology that would co-exist with electric-only vehicles, it was claimed to be a complete waste of resources. All that time. All that money. Poor Toyota. They wouldn't acknowledge any of my facts posted about GM's fuel-cell past and their on-going effort to advance development of fuel-cell vehicles. Each time, I was attacked. Each time something praising Toyota came up in the news; sure enough, someone would start a rant about fuel-cells. It all changed abruptly with that announcement a week ago. It's amazing how that has all been forgotten. None of that ever happened... Ugh. This is how the 7 years of trouble from Volt sales struggle will be looked upon too. I can see it slipping into discussions already. Volt was simply a "*stop gap*" only intended to serve as a temporary bridge to electric-only vehicles. The fact that interest faded so dramatically mid-cycle is something that GM planned all along. Ugh. It is well documented that wasn't the case. Of course, evidence of this change being unexpected isn't necessary. Economics of a premiere product don't support it. Remember how Volt was to lead to a paradigm-shift, where Voltec would be spread among the fleet to be profitable & abundant? They don't. It's so hypocritical, but in no way a surprise. This is why Toyota is now being portrayed as "*late*" with electric-only vehicles. It comes down to pride. They don't want to admit having misunderstood the market. They don't want to admit that it is actually more difficult to build a plug-in hybrid than it is an electric-only vehicle. Both are obvious huge challenges financially, but technically not having to integrate a combustion-engine is obviously harder. In other words, Toyota already had an electric-only vehicle. When I accelerate onto a highway at 70 mph and know I can accelerating all the way to 84 mph, what else is there to prove. That requires far more energy than simply maintaining that speed afterward, which Prime easily does. GM failed at their attempt to replace traditional vehicles, again. But rather than do what can be done to learn from the mistake, there's an effort to pretend this was the plan all along. This is how mistakes are repeated. We have no idea what the plan is now. All we know is a new chapter has begun. GM, their supporters, and their enthusiasts all see forward now. Whatever happened in the past is in the past and doesn't matter. Ugh.

10-09-2017 The Last Word. After the hell they put me through, a harsh reminder was of what's important is appropriate. You don't just say whatever you want for 7 years of sales, they walk away without giving thought to the loss... pretending none of it ever happened. These blogs extensively document the mistakes they made... as well as the ways they came up with to torture the messenger... the one who stood true to purpose. I ended it with:

Remember that "*5,000 per month*" goal ?

Look at annual sales of Volt, excluding 2011 due to rollout and ramp-up inventory limitations:

2012 = 23,461

2013 = 23,094

2014 = 18,805

2015 = 15,393

2016 = 24,739

2017 = 19,848 (15,348 thru Sept 2017 plus 4,500)

That lack of growth, despite all the years of hype from enthusiasts with blinders on unwilling to see the facts, is the real problem. No amount of hiding posts or ignoring the messenger changes that. They were who set the precedent. They were the ones who smugly claim "*vastly superior*" status.

Now the tables have turned and reality of the economics is becoming undeniable. That mainstream minimum value was set as a goal to ensure the technology could not only sustain itself, but follow a course for significant growth.

That didn't happen. New choices from other automakers filling the void Volt did not are getting attention. This is why focus has shifted over to Bolt instead. This is also why there is such intense resentment for the reminder of goals.

Like it or not, that's the way things turned out.

10-09-2017 **Looking Back.** That crazy thread was about Bolt sales. They didn't take off as hoped. In fact, they lagged in the shadows of Tesla all year. Rather than being that runaway hit that revolutionized the industry, interest was tepid. Breaking the 200-mile distance milestone didn't end up stirring much interest. Supporters are learning the hard way that there's much more than faster & further when it comes to sales. Range-Anxiety wasn't the biggest hurdle to overcome after all. That's what made my favorite quote from the so-called discussion so meaningful: *"Hybrids? Why are you talking about old technology? We are talking about replacing these vehicles with plug-ins, not more gassers. This is the problem with Toyota, innovator's dilemma, thus: too little too late."* It confirmed a complete lack of understanding of how Prime actually works. I had wondered if the hate had grown so intense that there was no intellectual exchange anymore. Toyota's brilliant next step of adding a clutch to allow the 2 motors to operate together to provide additional electric propulsion-power basically meant nothing. It was a innovation so subtle, providing such a great return, that there was no real notice. It was assumed just a gimmick... rather than a stroke of genius... since it was a remarkably inexpensive upgrade. That's exactly what the industry needed. GM wasn't able to deliver that \$10,000 cost-reduction the enthusiasts had boasted about for years. They counted their eggs far too soon. Clichés are often convey a profound teachable moment. This was it. Cutting corners on Volt to make its price competitive turned into an epic fail. Meanwhile, Toyota was able to improve Prius to make Prime bay enhancing the existing design. In other words, they started with an affordable platform. Looking back, that's what I said would be advantageous right from the start... hence the enthusiast hate. My study of the industry took far more than just engineering into consideration. Having a background in marketing, accounting, and economics really paid off. Who knew a computer science bachelor's degree with a minor in business would be so beneficial in this. I understood far more factors were at play and correctly assessed their impact. I guess that means all that study in system design made difference. College was really fun. I got more out of it than I ever realized. Anywho, my prediction of Toyota being right on time with the right approach looks very promising. Cautious consumers will take notice; ironically, they'll notice the subtle those terrible troublemakers did not.

10-10-2017 **New Attacks.** They were expected. It's an unfortunate reality. The rapid fade away of Volt is stirring new discussion on the other forums. Prime is getting much more attention now. Fortunately, I'm fairly well prepared for it too. Dealing with stuff like this would be a challenge otherwise: *"Cherry picked list. Where is all the performance metric? That is right. You ignored it. You started to sound like a Toyota sales person."* It was in response to me posting that extensive list of Prime strengths. I know the antagonist was looking for acceleration speed... since that's all I had left out and all that he cared out. The first two items listed were about efficiency. He doesn't count that as *"performance"* though. He only cares about power... which is why I kept my response to him short. His opinion doesn't matter. He's clearly not representing the interests of mainstream consumers. So, it was just: That's called understanding audience. In this case showroom shoppers.

10-11-2017 **New Anger.** Whoa! Seeing that the Volt enthusiasts are now playing a hypocritical game of double-standards and moving goal-posts, there's quite a bit of new anger to deal with. They are claiming Toyota was caught totally off guard and without anything prepared. It's an effort to create a narrative that just plain doesn't work. Yet, they try anyway by claiming none of the hybrid advancement contributes to the delivery of an EV. Then in the very next post, we get a long story of how GM had used their own hybrid technology to deliver an electric-only vehicle. It's an act of desperation to portray past history in a different way, knowing evidence to the contrary is so easy to find. Why in the world would GM work so hard to deliver a second-generation plug-in hybrid with an expectation of it being replaced just 2 years later? That makes no sense in itself. Claiming that was the plan all along for GM, but a long-term strategy from Toyota along a similar path but without such massive sacrifice, is just so obviously wrong. Ugh. Oh well. It presented me with an opportunity to point out the true situation, via reply to a post comparing Equinox to Prius sales within that crazy thread:

RAV4 >> RAV4 hybrid >> Camry hybrid

Prius >> Prius Prime

Why anyone would compare a SUV to a hatchback? It makes no sense. The natural progression from traditional to hybrid to plug should be obvious. Each model will get an upgrade, though the path may differ though based on market.

C-HR >> CH-R hybrid >> CH-R ev

China will be getting that EV upgrade. Here in the United States, hope is C-HR will get a Prime upgrade to start with. The first EV model for here may be a dedicated electric-only platform, rather than an upgrade.

10-12-2017 **Cheese Emergency.** Gasp! We didn't have any parmesan cheese. Since the grocery store is just a little over a half-mile from the house, I saw no reason not to dash over there with the Prime. After all, the chargers are nice front spots that are usually available. For someone like me, that's easy to understand why. The entire visit, which included parking, plugging in, walking to get the cheese, wait in line at the register, paying for it, then unplugging took a total of 5 minutes and 28 seconds. That was enough to provide 1.7 miles of electricity. In that seemingly short amount of time, I had recharged enough to drive triple the distance required to get home. Just think what could have been possible with the Japan-only option of CHAdeMO charging for Prime. That connection delivers electricity in DC format, rather than AC. It's quite a bit faster as a result. Normal shopping takes 20 to 25 minutes. Imagine how incredibly convenient a visit would be then. After all, most visits won't be an emergency. A simple 10 minute stop for coffee could really make a difference for some people with longer commutes... who would be getting a morning coffee anyway. The grocery store hopes you'll also pick up a donut or something for lunch, as long as you are there. That sounds like a viable business plan to attract plug-in drivers.

- 10-13-2017** **Dead?** I asked the question: Volt is dead in favor of Bolt? That was met by an obvious act to spin history: *"That was the plan, Stan. All along. Volt has been described here and elsewhere as a gateway drug."* Knowing there are literally thousands of posts easy to find contradicting that claim, I was a bit taken aback. Knowing there would never be an admission of how hard GM fought against EV on so many fronts, it seems pointless to argue. Remember all that *"range anxiety"* campaigning? That rhetoric of how superior EREV was to all PHEV and EV offerings was intense. They had been so hostility in the past to defend Volt, it makes total sense how they'd try to distance themselves from that past as much as possible. After all, this is why the supporters vanished. They wanted no part of the terrible things enthusiasts were doing. Now, the enthusiasts don't either. Pretending this was the outcome hoped for all along reveals a different story though... since the actions don't make financial sense at all. So, I provided a brief and difficult to argue reply: That plan was for it to struggle with sales growth in gen-2, then die off mid-cycle as the tax-credit phased out! No.
- 10-13-2017** **Behind.** Spin about Toyota being far behind is the only recourse available to those still trying to portray GM as being far ahead. With the fallout of Volt becoming so difficult to conceal at this point, that makes sense. What else could they say? So, we get this: *"However, Toyota will be so far behind they will need to go to full third-party supply or buy drive trains from a competitor."* Reading that brings a huge sense of relief. Those few antagonists have nothing left, certainly no enthusiasm for Volt. It's too bad things came to this. Hope of diversity fell apart. Too much was sacrificed for faster & further. Oh well. I'll keep pointing out what Toyota did right and ask questions: Huh? RAV4-EV and Mirai already have electric-only drive trains produced by Toyota. Prime reuses much of that technology, including the high-end EV stuff... like the vapor-injected heat pump. Camry hybrid delivers the latest & greatest for their higher horsepower affordable electric-motor. And the lithium cells are being used in a variety of hybrids now. What is missing?
- 10-13-2017** **Other Reasons.** Trying to see from the perspective of an antagonist is odd. There is nothing else beyond just faster & further. From their point of view, what else is needed? They simply don't see the value in other vehicle traits or features or even price. Remember how with hybrids there was no value given to reduction of smog-related emissions? That was annoying. But to dismiss so much more, that's entirely different. It's all about being *"vastly superior"* still. That's really sad. At least they don't actually say *"vastly superior"* anymore. In the past, the smug really was that blatant. Toning it down is good, but in no way an improvement when it comes to sales growth. In fact, accepting the decline of Volt demand is far from a reality. That means there is very real potential for mistakes to be repeated, yet again. Oh well. I keep focusing on strengths. That's how you draw interest. This is how I handled the situation today: Think about all the plug-in shows I participate in with other owners of other types a battery vehicles. Do you honestly believe those checking out the cars are focused that much on acceleration and handling? Answer is no. Instead they ask about the very things I listed... the other reasons to buy a vehicle.

10-14-2017 **Audience.** We're getting back to basics. When a newbie posts this, you've got confirmation of that next chapter being well underway: *"I think you're fighting a losing battle. You should drive the Volt and find out how much better it is over the Prius..."* He had no idea I have and was not impressed. The reason why is simple, my criteria for *"better"* is much different. Mine is a close reflection of what mainstream buyers see as a priority. How could he not see that? It's another example of the *"other reasons"* problem. Obsession with faster & further blinds them from see the obvious. You'd think with so many years of struggling to grow sales based on that approach, they'd finally figure out what wrong. But then again, even though the enthusiast mindset is shared, the experience is not. This is how mistakes are repeated. Again, oh well: Convincing enthusiasts that ordinary consumers are not interested in paying a premium for *"better"* is a losing battle, but they do a great job of validating that point. 7 years of sales failed to attract GM's own showroom shoppers. Conquest wasn't enough. That's why they've moved on, from Volt to Bolt. That list represents aspects of Volt not addressed which that bigger audience would find of interest. It's a matter of growing sales now, not appealing to early adopters.

10-14-2017 **That's Reality.** The ironic nature of this posts left me beside myself: "*The reality is, in a market that only has a 1% share of the entire auto sector, GM is the sales leader. You need to compare plug-in sales among their peers to gauge success.*" This antagonist has been harassing Toyota with claims that they are stuck in an innovator's dilemma situation; yet, he's forcing that very perspective to make GM appear to have the upper hand. My definition of leadership requires breaking out beyond the 1%. He's doing everything possible to ignore the 99%. That's overwhelming confirmation of being stuck. When someone says we need to consider the forest and you insist only the tree directly in view is all that matters, that's a big red flag. You've become the problem. He still doesn't see it though. So, I climbed up on the soapbox:

Volt gen-1 was highly specialized, targeting enthusiasts directly... the 1%. Gen-2 wasn't able to overcome that barrier. Rather than reach a larger market, it remains trapped within a very small group of potential buyers. In other words, it's an innovator's dilemma situation.

Struggling to move beyond initial audience is a difficult problem to address. Toyota recognized the situation, which is why their gen-1 model was not rolled out beyond the initial 15 states and stopped production well over a year before revealing to gen-2. Figuring out how to configure a plug-in vehicle to appeal to a wide consumer base became meant patience. Change took time.

Signs of success from that gen-2 are emerging already. Beside the forecast of 50,000 to be sold the first year in 3 major markets, there's disapproval from enthusiasts. They don't like how it draws ordinary customer interest for ordinary customer reasons. Rather than a focus on faster & further, there's a nice balance of purchase priorities.

The other 99% don't need your approval... or even your opinion. Wanting to purchase a Toyota means an indifference to whatever GM is doing anyway. Those loyal customers are looking to replace their aging Camry, Corolla, Prius, or Scion with a new car. Prime will become a serious consideration for that audience.

That's reality.

10-14-2017 Shutdown. We're seeing an inventory pile up again. The slowdown of Volt sales has become so bad, there's a 4-month supply now available. Production will be reduced next week, then after a month of that, shutdown entirely for a month. Imagine that with Prime? Right now, my dealer only has 1 in stock. What a drastic difference! Think about who the customer for Volt actually is. It's the dealers, not mainstream consumers. GM must make their vehicle enticing enough to dealers to order them. If they are difficult to sell, the dealer won't. What consume limited lot space with a car that will sit there for months... especially if it's a challenge to get salespeople interested in showing it. What's the incentive? Selling an expensive car returning a very small profit means a very small commission. Why bother? Think about all the extra work it requires to explain charging. The larger battery-pack doesn't share the simplicity of Prime. Rather than 5.5 hours using 120-volts, which is no big deal overnight, Volt takes 13 hours. Do you really think a salesperson wants to bring up the purchase & installation of a 240-volt charger? Needless to say, the shutdown of production is no surprise. In fact, it was very predictable. Volt is a small hatchback. GM likes to build SUVs. GM customers like to buy SUVs. GM dealers like to sell SUVs.

10-15-2017 Continued Attacks. He's just making stuff at this point. What do you do when someone is so desperate they turn dishonest? His lack of understanding basic business principle combined with a desperate need not to be proven wrong is a recipe for endless posts. He just keeps attacking me. It's bizarre. Everyone else sees what's going on. You'd think he'd back down at some point. My next step is to make it personal. That's how you let everyone else know they are not part of it. You don't want to accidentally make the situation any bigger. State the situation with the hopes of ending it, then move on:

That isn't at all what I've been saying. You're making up stuff yet again. Fortunately, it is a great confirmation of status... more feedback I couldn't get from any other source.

The tax-credits are only for the sake of introduction, that 1% market you're still so hung up on. To exceed that, the technology must not have a dependency on subsidies. This is why the design has to be profitable. This is also why it must sell in high-volume.

As for Toyota losing money on each, there is nothing to support such a wild claim and an large collection of evidence to the contrary. In fact, even some here have repeatedly stated Toyota went "cheap" by leveraging the regular Prius to make Prime. That's exactly how profit is achieved.

With respect to not understanding either economics or accounting, that's your problem. There's no reason I have to even bother explaining why sales must grow to that mainstream minimum, especially after 7 years of Volt's struggle to grow. It's a basic business principle for the sale of a sustaining product.

- 10-16-2017** **Acceptance.** It's finally beginning to happen: *"This news is like the death of a good friend. Pretty hard to take, but we all could see the handwriting on the wall."* The reality of Volt's sales struggle leading to its demise was foretold. Accepting that wasn't easy though. Wow! The enthusiasts fought me with everything they could. It didn't work though... since I wasn't the enemy, nor was I the customer. They knew mainstream consumers should have been the target, but didn't want to accept a niche status. It didn't matter anyway. This is why I kept mentioning the showroom floor. To attract potential customers there, the dealer would have already had to buy into the idea. The dealer's purchase of inventory to sell is what made them the true buyer. Not understanding the actual business is why these engineers fighting me were doomed. They were fighting the wrong battle... and only now see the losses. It's too bad. Of course, Toyota will gladly enjoy the spoils. No more market confusion is a huge barrier removed. Yeah! This is what I had to say about it: Who is the market for Volt? I asked that question literally hundreds of times, trying to get it through to this group that those here are not at all representative of what's needed. GM catered to enthusiasts to prove the technology. It was a good audience, very receptive, very vocal. Unfortunately, moving on to that stage beyond early adopter is easy to misunderstand. Mainstream consumers are very different. Requirements were not correct. Sales didn't materialize as a result. Gen-2 should have had a very different configuration to make it appeal to such a different audience. This is where the hate emanated for Toyota. They targeted mainstream consumers from the start, skipping the *"early adopter"* stage with the plug-in Prius... since the technology was essentially proven already by the hybrid. Instead, a mid-cycle rollout to just 15 states was used to study the target market closer. It worked too. We see Prius Prime much closer aligned to ordinary customer appeal. Who cares about enthusiasts at this stage? Faster & Further isn't a strong selling point... as gen-2 Volt has clearly confirmed.
- 10-16-2017** **Cold Weather.** We're starting to see the first signs of Summer becoming a distant memory. Reports of morning frost have become a reality. That's messing up some data logging owners have been doing: *"What's going to do that list in is the ICE going on while I'm defrosting. Just starting to see temps in the 30's around here."* We haven't discussed Winter yet. That's an entirely new topic for the big Prius forum. Prime rollout didn't happen in the northern states until Spring arrived. I only saw a very brief snow fall with mine. Cold weather driving opportunity simply wasn't possible. Warming has already begun. I do have experience from the PHV though. That's a good background to leverage from. We can at least start posting thoughts. Real-World data will come in just a few weeks. Here's my contribution: Have you actually found the need to use that defroster (the dedicated physical button)? Choosing the blower option for the windshield with the electric-heat instead is all you should require with temperatures that warm. Even here in Minnesota, I don't expect to use that forced ICE option unless the car has been sitting outside in much colder conditions for hours without the ability to grid pre-condition. btw, it is interesting to see that Toyota selected an aggressive strategy with the ICE warm-up. The result is a net gain with the EV range as a result of it running to generate heat.

- 10-16-2017** **Spinning History.** Giving Toyota credit for planning a strategy consisting of a series of small steps with limited risk and the potential for huge gain won't ever happen. Instead, we'll get stuff like this: *"I guess battery technology has now advanced to the needed level. Amazingly, overnight, now that Toyota plans an EV."* The problem originates from the cultural difference. Continuous improvement has been a part of Japanese business since things were established after World War II. That's at least 3 generations with the mindset of no step forward is too small. Every advancement is progress. We don't think that way here. We analyze return and decide whether or not the effort is worth it. That's missed opportunity. Not seeing that does indeed make success look sudden. When the competition finally takes notice, quite a bit has already taken place. Oh well. All I can do is point out what hasn't been noticed and what's to come as a result: Is that like the *"overnight"* success of an artist who has been working hard for the past 20 years? Prius Prime offers EV driving up to 84 mph, complete with a high-efficiency electric heater and CHAdeMO charging. That sets the stage nicely for taking the next step. Looking closer at the new C-HR, you can see why it is expected to become their first BEV offering for China in 2019. In other words, that carefully planned progression is amazing... but in no way overnight. We have witnessed battery improvement from each hybrid upgrade leading to this point.
- 10-16-2017** **Looking Forward.** I don't expect this to be well received, but that isn't the point. You post something like this solicit feedback. Anything in return is confirmation of having read it. That's the point. So, I posted: We're starting to agree. Gasp! Looking forward, there's concern about getting households upgraded to handle that type of demand. How does a home with multiple vehicles? How do they even pay for the upgrades. For that matter, how do we educate people about what upgrades are needed and what the process is? This is why I place far less priority on faster & further and simply want to get plug-in decisions going. We have to start somewhere. Waiting for the ideal capacity, size, speed, etc is wasted time.
- 10-17-2017** **Inevitable Outburst.** I got my confirmation: *"That your posts are pathetic..."* Clearly, he got the message. Too bad there are some who refuse to simply be part of a team. Why must Volt be vastly superior? Why can't it just be a player helping to win the game? It's that homerun thinking. Rather than small advances for the chance of scoring a single, there's the hope of gaining a lot from just one hit. This is why there is so much mocking & belittling. Our culture teaches us to always fight, that winning is more important than just being part of the game. Ugh. There's so much waste with that approach. You don't place the entire game on just the fate of one hitter. Being a team means having a variety to "cover all the bases". It's really unfortunate that I have to interact with people online who don't notice the world around them. It doesn't require formal education in business practices or even that much study. They just have to observe what works and what doesn't, then make changes accordingly. Oh well. It's their loss. Meanwhile, I just keep providing my observations: Is being correct about Volt sales that difficult to accept? It's not like the technology itself was ever a sales concern. It was always the choice of configuration. For mainstream sales, a small hatchback with that much battery was doomed to struggle. It simply didn't match GM's consumer base. You made that sustain worse by supporting the decision for so long. Glad you're now seeing the technology would be a better fit used another way. Diversity support is long overdue.

- 10-17-2017** **Baseball Analogy.** It's quite remarkable having to deal with someone who just plain doesn't care. You are wrong. He is right. Period. Even with overwhelming evidence to the contrary, there is no compromise, no meeting in the middle. That stubborn attitude is a very real problem. If the person is unwilling to budge under any circumstance, what do you do? The advice I was given is to keep replies simple and use analogies. The response back will be an analogy that doesn't apply to the situation, but that doesn't matter. Everyone else will see that it doesn't apply and how desperate that person has become. It's sad that principle blinds some. Most people do tend to become set in their ways, far less open to change than when they were younger. It usually isn't a barrier to progress though. It only limits choice. In this case though, it's causing him to be left behind... hence all the "behind" references. That's the textbook reflection response I keep getting. Anywho, I did keep it simple with this analogy: GM keeps trying to hit homeruns. Toyota continues to hit singles to fill bases. The game isn't over, but the score is adding up.
- 10-18-2017** **Market Expectations.** We are still very much in the "early adopter" stage. It ends when the tax-credits end. In other words, when people are willing to pay full price, you know a true milestone has been reached. Meanwhile, we are getting into the gen-2 rollouts. That will create a nice used market for those looking for a bargain on a plug-in vehicle. That gives early adopters an excuse to upgrade. I'm obviously one of them. Of course, I sold my old plug-in to a friend, so that didn't contribute to the used market at all. However, it does still serve to influence more people. That's a new audience getting exposed to the benefits of being able to recharge at home, instead of a gas station. For the new market, we have lots of work to do still. Think of all the garages without level-2 support. Being able to take advantage of level-1 in the short-term is great, but ultimately upgrading from that ordinary household 120-volt outlet to a charger with a dedicated 240-volt line is a big improvement. There's also the complexity of households typically having 2 vehicles. How will those be accommodated? It's education about the technology, combined with cost-reduction, required to get growth to happen in the next stage. Whatever we can do now will help make it easier later. Right now, there's the basics to address still. We aren't even far enough along to set decent expectations. What should happen at public charging-stations? That seemingly simple question doesn't have any simple answers. So, even when we overcome the sales aspect, there is that to deal with too.
- 10-19-2017** **Wasted Space.** An owner pulled apart the back cargo-area of their Prime. I was surprised to find out how long it took for a thread of that nature to finally be started. I had my battery-pack exposed within hours of purchase. Of course, I needed that information to confirm I wasn't going to interfere with any of the sensors by taking so much apart to install that receiver-hitch. Anywho, this ended up as a comment posted: *"Before you say it's for cooling, there are TWO substantial blowers there for that purpose, ducted from the left and right rear passenger seat-backs."* He was talking about the unexpected void underneath. Like most, the expectation was that the battery-pack was consuming that entire area. It isn't. There's about 4 inches of empty space. Naturally, many theories are being shared about why that is. This was my contribution to the discussion: Air is an isolator. Radiant heat from asphalt and extreme cold are battery enemies. Having an extremely lightweight layer of protection like that makes a lot of sense.

10-19-2017 **Prius v Gen-2.** Toyota doesn't like to rollout too many new vehicles all at the same time. There's nothing to gain and lots of extra overhead doing too much at once. So, we get staggered introductions. The new Prius and RAV4 hybrid was enough, last year. This year, it's C-HR and Camry-Hybrid. Between those with staggered distribution was Prius Prime. Back in last 2011 thru early 2012, we had the rollouts of Prius v, then Prius c, then Prius PHV. Understanding why, it's easy to see how the very first spy photos of the next-gen Prius v are only now emerging. Toyota kept silent, hiding its development until just yesterday. We hadn't heard a peep. Nothing at all, even rumor. With a vehicle style so popular within the service industry and a strong choice for families not interested in an SUV or minivan, you'd hope there would be an upgrade of some sort. It now looks like there is one on the way. The snapshot of the camouflaged vehicle is clearly a large Prius. It doesn't look wagon-shaped anymore. The style appears to have taken on some aspects of being a CUV, but without anything resembling heavy-duty suspension or all-wheel drive. That would seem an excellent design for our changing market, especially if it were to get the hybrid system of Camry hybrid. The added power, while still delivering outstanding efficiency, is what Toyota needs to keep the product-line strong. That sets up their customer-base for an easier transition to plugs. Dealers & Salespeople will especially like that. My guess is that we'll have detail by the Detroit autoshow early next year. Perhaps, we could get a little bit of teaser information in the meantime. Whatever the situation, news of this first sighting spread like wildfire across the internet. I was able to find several instances of the photos attached to articles in other languages. And with the power of Google Translate, reading them was a snap. Like all things Prius related, patience is required. For now though, let the rumors spread. That helps raise awareness. I'm sure there are many who were not aware that a wagon model of Prius was even offered.

10-20-2017 **Reality Check.** When I bring up having a Prius Prime in a random audience, even when in context, the response is typically some type of "wow" and nothing else. That happened this week in a class I was attending. It was about process improvement. Our education was an in depth look at how. General Electric and Toyota are industry leaders in this, each with an extensive list of success stories. Naturally, the dialog came around to a topic related to Prius itself. So, that was an excellent opportunity to share my own real-world experience and how it related to exactly what Toyota had strived to deliver. Anywho, I only had them captive for a few minutes. Like most people, they weren't interested in much detail because they were not shopping for a new vehicle. I see that trait a lot. Consumers don't research unless they are in the market to purchase. So, there isn't anything to gain by providing that detail. You offer a few well thought out basics, share what they express interest in, then move on. That usually last anywhere from 30 seconds to 2 minutes. Rarely will I even get asked anything beyond the basics. We simply aren't at that next stage yet. Early adoption is pretty much just a phase which you raise awareness. Teaching more isn't realistic until the market has advanced. Fortunately, Toyota is making a lot of small steps. It will be easier to draw attention when lots of hybrids have already replaced traditional vehicles. It makes the step to a plug that much smaller. For now though, patience.

- 10-23-2017** **Priorities.** Some people don't understand how to deal with complex issues: "*They were shoe-horning a big battery into a car not designed for it so they just threw it in the trunk.*" Part of it is the internet culture. Taking the time to analyze all the points rarely happens. The venue isn't supportive of that. You cannot convey complex information into a simple post. I keep trying though: You can't do it all in a single upgrade and we know there are more to come. Toyota chose to deliver a robust battery for an affordable cost, at the tradeoff of it not fitting as well. The result was an impressively efficient vehicle so competitive, it makes you wonder how likely a next-gen model without a plug will be. Successful business requires a balance of priorities. As much as the engineers here would like more, it simply doesn't make sense after you come to realize the actual customers are dealers. Think about it. What incentive is there for a dealer to purchase and stock Prime on their lot? It won't return much of a profit and their staff must do more to prep & sell the vehicle. Battery design doesn't even come into play. Dealers are much better off simply selling guzzlers. Why spend extra resources knowing you'll get less in return? People here need to step back and look at the bigger picture.
- 10-23-2017** **Nope.** I liked reading this: "*Except actual customers are required, and therefore they need to actually consider the packaging...*" It was easy to say "no" to: I just finished taking a class on business process (six sigma) where we analyzed the how's and why's of large-scale success. We learned about seemingly sensible conclusions like that having cost some companies billions in losses. Toyota was brought up on a regular basis with unexpected examples of success. Who is buying vehicles from the automaker? It is dealers, not the people who will end up driving the vehicle. Lego is an example of having failed to understand that, suffering from an entire decade of serious financial trouble. They also thought their customers were the people that used the product. Turns out they were wrong, very wrong. It was the retailer. When places like Target & Walmart didn't get what they wanted from Lego, they chose to fill their shelves with something else instead. That was a painful lesson learned. Ordinary showroom shoppers want a well-balanced vehicle at a reasonable price that's very reliable. It doesn't have to be perfect. In fact, the expectation is that in years to come that next offering will be better. They want to have a selection of them available for immediate purchase. That only happens if you have a dealer pleased to carry them. Business is not as simple as it seems.

- 10-24-2017** **Continuous Improvement.** I said it was always the plan, as is cost containment. That was confirmed correct. Our official Toyota representative posted the following about the generation design of Prius Prime: *"The two main options to reduce the gap - either redesigning the traction battery to fit in a different space, or using a separate under-floor assembly unique to the Prime - both would drive up the cost of the vehicle pretty significantly. It was a difficult tradeoff, but we stand behind the decision that we ultimately made on this version of the vehicle."* That priority of keeping cost in-check, to ensure affordability, rings through as strong now as ever. That was always essential with each generation of Prius. Sure, they could enhance performance, but the cost increase wasn't ever worth it. That's not how you design a vehicle for the masses. Instead, you provide continuous improvement. That's why each generation is so much better. You deliver what makes sense for that time. This has proven a very effective approach for Toyota. Unfortunately, the bottom-up mentality makes for great ridicule material. The top-down pushers love to mock & belittle that opposing method. They don't see their smug either. The view of *"vastly superior"* is something I know all too well.
- 10-25-2017** **Solid-State Batteries.** Elimination of the electrolyte in lithium batteries would allow for both greater energy-storage density and faster recharging. It's what Toyota has stated they are working toward for their next-generation plug-in vehicles, including their first EV for the masses. It's a challenge for the battery industry which many battery-powered devices will benefit from. Think about how great it would be to replenish the battery in your phone with just a few minutes of charging. Technology leaps forward like that are what we need to stir interest for plug-in vehicles. What we have now proves they are worthy of consideration, but the need for improvement is obvious. At least it sets the stage for realistic expectations. This isn't a miracle. It's a matter of getting the chemistry refined for mass-production. There's enough potential for serious development work to deliver a paradigm-shifting return. In the meantime, platforms are being proven for this upgrade.
- 10-26-2017** **Gen-2 Leaf.** Since early September in Japan & Europe, there have been 9,000 orders & sales. That's a great start, very encouraging. It will be exciting to see what happens here in the United States. Production isn't even expected to begin until early next year. That's a little later than expected, but no surprise. Toyota took a multi-market approach with Prime for first-year rollout too. That resulted in understandable, though annoying, delay. Hitting a wide variety of customers right away makes planning for production ramp-up more accurate. That challenge can be risky, since profit-margins are razor thin still. Getting a better idea of true demand really helps, especially when you know supply will be thin for quite awhile. However it plays out, this serves as the rude awakening GM enthusiasts have needed. With all of their promises being proven false hope, we can finally get down to addressing what the business truly needs. Their want obsession has caused far too much delay. Nissan deserves a kudos for the push forward. The rut Volt got stuck in was getting rather ugly.

- 10-27-2017** **New History.** We get a lot of history rewrite attempts. But now things are changing. The upcoming plug-in hybrids open new questions. Today's came about from this: *"60 hp electric motor? Sounds like it'll behave more like the first-gen plug-in prius where the engine really is necessary for almost every trip unless you plan on holding up traffic."* I stated, then asked: Prius PHV didn't actually work like that. Basic merges onto the highway didn't trigger the engine. Though, it wouldn't have mattered anyway, since the design was for it to optimize blending, not to act as an EV. Prius Prime has a different purpose. It was indeed designed to act like an EV, so you can drop the pedal and do an high-demand merge without need for the engine. You can switch to EV-Auto mode for additional power, but owners say that pretty much never triggers the engine. The new clutch that allows both electric-motors to provide enough power. With my Prime, I'm always in EV mode. The only time I ever switch to HV is for saving EV when on long highway trips. (Of course, I have taken advantage of Charge-Mode a few times on trips.) I'm just about to 10,000 miles and a need for EV-Auto still hasn't come up yet. Something to keep in mind about new plug-in hybrid market entries is heating. There are a variety of electric heaters, some more efficient than others. That obviously impacts the range available for EV driving. When an electric heater is drawing load from the battery, will that cause the engine to start sooner? So, this begs the question... does Kia even have an electric-heating option?
- 10-27-2017** **Troll Attacks.** Enablers like to call you out as a *"troll"* when you post anything that doesn't support their narrative. It's really annoying; however, the emergence of *"enabler"* as the term to identify their activity is redeeming. They can't just cry wolf anymore. That rebuttal label is quite effective. I dealt with today's related situation this way, saving the label for later: To be a troll, posts are off-topic and have the intent of stirring emotional response. Quite a number of Volt enthusiasts attempted trolling with me. Most of their bait was entirely wasted. I kept my broken-record approach staying on-topic and polite with posts about goals. It made them crazy. That's called irony. Their own posts stirred emotion in them, not the person they were provoking. Anywho, one of the die-hard Volt enthusiasts abandoned Volt in favor of Bolt. The hypocrisy of being so anti-EV, then buying one. Ugh. Despite his focus now entirely on electric-only driving, he's been attacking Tesla supporters. It's really caused quite a bit of anger... even within the Volt forum. A thread was started to point out his activity and it went on for 52 posts before getting locked. It a case of just wanting to fight, without any interest in a common cause. That's why I had so much trouble. The idea of cooperation was never acceptable.
- 10-27-2017** **Dropping Temperatures.** It has begun. Snow fell today. That was the first for the cold season. Temperatures for the morning commute had been in the low 50's. Yesterday, after driving 19.7 miles in EV with the electric-heat set to 65, there were 10.8 miles of estimated EV remaining. That was 36% of the overall EV capacity available. It represents a clear impact to overall range; however, that reduction from the dropping temperatures clearly isn't so much that it would cause range below 25 miles. Delivering that distance in all be extreme cold conditions says a lot for the approach. Keeping the design affordable by trading off battery-pack fit clearly didn't mean sacrifice to overall efficiency. Yeah!

- 10-27-2017 Freezing Point.** It's 32°F here in Minnesota now. We've been getting very wet snow here all day. Just a few minutes ago, I was at the grocery store giving the remote-climate feature a test for the first time using the "Max Heat" setting. Plugged in, I wanted to see how much electricity could be used to recharge the battery-pack with that much demand from the heat-pump. Knowing that max uses far more electricity than just at setting of 65°F with ECO, having to wait so long for this test was a big deal. Way back in 2010 when Toyota provided me with a prototype plug-in Prius to play with, it was August and the decision had been to not include a heat-pump. Anywho, in the 12 minutes I was away from the car, the charger provide 0.64 kWh of electricity (at a steady rate of 3.16 kW). That resulted in only an estimated 1.3 miles of electricity being added to EV range, but the interior of the Prime was toasty. Sweet! And yes, interior heating takes quite a bit more electricity than cooling. Fortunately, we get a high-efficiency heater... a vapor-injected heat-pump, which better than both the regular type of heat-pump and quite a bit better than the resistance type.
- 10-27-2017 Still Not Getting It.** That problem Bolt owner is drawing a lot of attention now. A comparison was made to me, sighting the narrative that all my posts were only about blind loyalty to Toyota and Prius. That portrayal of exclusivity was a diversionary tactic to draw attention to the problems I was pointing out about GM... and the sensible suggestions I was providing. Knowing that and not wanted to bite that bait, but wanting to join the discussion, I chose this to respond to: *"Just like john1701a, --- is illogical and irrational in his Tesla bashing and partisan boasting."* Until that point, I had remained silent. The invitation from being specifically called out was too good to resist: I was correct about GM's approach. The concern about *"too little, too slowly"* that I echoed from the bankruptcy recovery plan was right on the money. Volt struggled for 7 years and 2 generations without achieving the goal of high-volume profitable sales. The promise of a plug-in SUV never happened. Hope for diversification has faded away. GM delivered an expensive system in a small package that was neither an efficient EV nor an efficient HV. It was the worst of 3 worlds. But since it performed so well in terms of power, supposedly that factor alone would be how sales growth was to be achieved. That failed and enthusiasts have moved on to Bolt. Nothing about that is illogical or irrational. Pointing out the opportunities GM continues to miss is not bashing, it's constructive. Just think if one of those suggestions had been followed. Rather than Volt becoming a forgotten chapter in the early years of plug-in history, the potential could have been exploited. Instead, the problem of *"range anxiety"* now has a different solution.
- 10-28-2017 Winter Conditions.** 82°F back in June, the 7.5 mile drive to the coffeeshop took 19% capacity. 34°F a few minutes ago, that same 7.5 mile drive to the coffeeshop took 29% capacity. Increased resistance from outside air, reduced efficiency from the battery, combined with the electric-heater set to 65°F in ECO revealed the harsh effects of Winter. For me, that means my 19 miles of commute each way should remain in EV. The catch is that drive-time can be dramatically longer in on snowy days. Fortunately, those don't actually happen often. It's mostly just continuous sub-freezing temperatures for many weeks in a row. Obviously on those days when it dips down near 0°F and below, running the engine will be a welcome addition to heat provision. Regardless of Winter conditions, the resulting MPG will be outstanding. Also having the benefit of pre-conditioning the interior using electricity directly from the grid will be a very nice bonus.

- 10-28-2017** **Outright Lies.** Having a president who says anything he wants, then doubles down when it is proven untrue, it's no surprise people online feel comfortable posting outright lies. Despite knowing that, I was flabbergasted seeing this today: "*If you search for Volts online, you will find only black ones! Does this tell you anything?*" It's so easy to disprove, why would anyone take such desperate measures? Oh well. I let him have it: Yes, it tells me you can say anything you want on the internet. That doesn't make it true though. Using cars.com search, I found 5,933 Volts available for sale. All were new. All were not black. 2,713 of them were last year's model. That tells me GM is in a world of hurt. Having that many still in stock the last week of October is a very real problem. Over supply is a costly mistake for an automaker. Dealers get upset with that much old inventory to still sell when shipments of the new continue to fill precious limited lot space. Here's the color counts I found... Beige (6) Black (1,165) Blue (651) Brown (1) Gray (1,222) Green (89) Red (379) Silver (724) White (1,515) Other (181).
- 10-28-2017** **Claiming Superiority.** That Volt enthusiast so desperate to undermine Prime, we're getting stuff like this: "*GM is too far ahead of consumer comprehension of Voltec Superiority, as you fully well know.*" I remember dealing with posts like that when there was little data to back up the unrealistic expectations. But now that those events have come to past and we now have proof, it's rather bizarre to still be seeing them. Oh well, again. I followed through with: That claim of superiority has proven meaningless, since it didn't result in needed sales. In other words, the extra work GM did attempting to hit a homerun didn't result in a homerun. All they did was get a runner on base. That's it. As for your on-going attempts to somehow make this about Toyota and Prius, stockholders couldn't care less and neither could Volt supporters. Both hoped for high-volume profitable sales... which didn't happen after 7 years of trying and unsold inventory is now piling up. To make matters worse, that \$7,500 tax-credit GM relied so heavily upon will trigger phaseout next year. With sales of Volt well below mainstream level and slowly dropping, achieving the significant growth that's needed looks quite unrealistic. This is why most interest from enthusiasts and attention from GM has shifted over to Bolt instead.
- 10-28-2017** **Not Paying Attention?** You have to ask yourself that after reading this: "*I suspect that TOYOTA will join the push for pure EVs rather than much further development of the Hybrid concept, though almost certainly they'll keep PRIUS going for at least another generation.*" It could also be that people posting comments like that have no engineering background. It's easy to see how assumptions could be made about design. You'd think that motor & battery would be recognized as transferrable. Perhaps not. But with Prius and Prius Prime co-existing, you'd think they'd recognize the situation. I pointed out: They already have. Prime is a full EV in every respect. Efficiency, Power, Heating, Cooling, Charging... Now they are heading down the path of lowering cost and increasing capacity on a larger scale. Solid-State battery technology is the solution they're investing heavily in. That level of EV advancement is what the entire industry yearns for. None have anything resembling such a paradigm shift... yet. In the meantime, continued improvement with the EV technology deployed in Prime and Mirai helps advance the overall electrification effort.

10-29-2017 **Heat Power Usage.** We're getting questions now that reflect more than just basic interest: "*Any sense of how much power the seat and steering-wheel heaters use?*" That's how we get newbies to stay in discussions. They wonder & ask. We do our best to figure out how to get answers. Early on like this, there isn't much to work with still. At least I had this to contribute, related to the use of the heater to pre-condition the car for you prior to driving: Nothing for seat or steering, but I measured one full cycle of remote climate on MAX HEAT. It uses 0.37 kWh.

10-29-2017 **Runaway!** I found this hysterically amusing: ">>>> *EVERYONE PREPARE TO ABANDON THREAD* <<<<" The hypocrisy has become so bad, all they can do is runaway now. There is literally nothing left to say that won't be called out as contradictory with past statements. History has exposed their mistakes and they don't want to be reminded. I remind them anyway:

Ironically, there is no "*everyone*" here to direct that statement to anymore. This explains the extreme measures taken to keep what remains going. Notice how there aren't any topics about Volt now on this Volt blog? Virtually all focus has shifted to Bolt, the very antithesis of Volt.

Remember all the "*range anxiety*" propaganda? It was the solution to fear of running out of electricity and becoming stranded. Volt was far too complicated though, making it unable to compete with the traditional vehicles it was intended to replace. Bolt is quite simplistic in comparison... still too expensive, but better for long-term investment.

This is why when discussions are entirely about GM, some Volt enthusiast will ultimately end up shifting attention to Toyota... the automaker who actually figured out how to deliver an affordable plug-in hybrid. Resentment of having succeeded reminds us of the original definition of trump: to outrank or defeat someone or something, often in a highly public way.

Moving to Bolt is a welcome improvement. Ever since the concept reveal of Volt, far too much emphasis was placed on making a statement... rather than actually changing the market. At least with this attempt to deliver something offering a plug, there is focus on a larger audience. The cramped rear seating for Volt never made any sense and was made worse with gen-2.

Sadly, the typical GM customer still won't be interested. Bolt does nothing to appeal to SUV buyers, the dominant market for GM. Those shoppers have literally nothing green to choose from still. Equinox & Trax are only available as traditional vehicles. No plug. No hybrid. Nothing. That lack of electrification progress continues to be the concern.

- 10-30-2017** **For Example.** The Volt enthusiast didn't like reading this at all: "*A sale is a sale, but automakers historically dislike it when one product in the portfolio cannibalizes demand from another, because it can erode profit margins and frustrate marketers and production planners.*" All along, I kept pointing out how conquest sales were a terrible means of advancing a technology. True, it proves worth, but there's no long-term gain if you all you do is attract non-loyal customers. They just take advantage of low lease-rates and tax-credits, then move on to the next bargain. There's no interest in purchasing another GM product. We've seen that play out too. They don't become loyal supporters. In fact, many couldn't care less. It's a waste. I called it out as squandering subsidies, an obvious missed opportunity. Now, we see Bolt taking interest away from Volt almost entirely. Are any of those sales attracting loyal GM customers? This is how I stated it today, upon providing that example article link confirming what I had been saying all along: My supposed bashing was about GM's continued terrible business decisions. At times, there can be a reference to Toyota's formula for success, but focus is still very much on GM. After a decade of claiming high-volume sales and 7 years of attempts falling well short, what do you expect? GM executives admitted the Volt's biggest hurdle for many of its seven years on the market was an inability by the automaker and its dealers to effectively convey how the technology worked.
- 10-30-2017** **FULL!!!** It was a sweet sight today. For the first time ever, I got to see all 6 charging stations used at the ramp where I park for work. 2 Prime, 2 Leaf, 1 Volt and 1 e-Golf were all plugged in. That's great. Someday though, I won't have a place to recharge. Gasp! Imagine that as a problem. It will help support the plans for offering more plug-in spots in the future. We have to start somewhere. The population of vehicles able to take advantage of the opportunity is painfully small still. You spot a handful of them on the road each time you go for a drive. That gives the impression of progress... until you realize just how many guzzlers were also seen. It goes to prove how early in the transition to electrification we are still. There's a long way to go still. Any claim of "*late*" is totally inaccurate, an obvious attempt to not take the situation seriously. Traditional vehicles totally overwhelm still. 6 plug-in vehicle seems great... until you realize just how much non-plug-in vehicle fits on the 8 levels of parking there.
- 10-31-2017** **Charging Prices.** There are a lot of napkin calculations taking place now. We are far from any type of pricing pattern or consistent message. There's lot of variety out there and the prior generation of plug-in vehicles certainly didn't establish any type of expectation. I jumped into a discussion about that when this came up: "*Guess 240VAC public charger (rate of \$1/hr)*". Hopefully, it will help stir interest: Keep in mind that public-charger pricing varies dramatically. The ones just a few blocks down the road from me are free. The ones further off at the park have a flat per-use fee along with a per-hour rate. The ones at the mall are per-kWh. The ones at work are for an 8-hour span with a single price, but there's a fee if you exceed the time. Electricity rates will vary dramatically too. I pay 0.0710 per kWh (tax included) for overnight charging. During the day (non-peak, tax included) the price is 0.1204 per kWh. For the after dinner hours (peak, tax included), the rate jumps to 0.4180 per kWh. If you want to take advantage of pre-conditioning, rather than getting into a cold car, that electricity must be accounted for. However, that is a luxury feature many would be willing to pay a premium for. Running MAX-HEAT on the 10-minute remote climate cycle will consume 0.37 kWh.

- 10-31-2017** **Spinning History.** You've got to like this: "*This was the plan all along.*" That quote emerging out of the shift from Volt to Bolt is most telling. When reality of the situation first became apparent, reaction was to suppress information to that affect as quickly as possible. It was a state of panic. Enthusiasts were about to be exposed as hypocritical for now supporting the very thing they had for years fought so hard against. To change perception, they instead claim that was the plan all along. Clearly, it was not. It is heavily documented in these blogs, confirming otherwise. There isn't any need to look backward though. Knowing that past isn't necessary. Just look at what's happening now. 3,053 available 2018 models in inventory waiting for the 2,614 remaining 2017 models to be cleared out speaks for itself. Clearance time should have been over in August. Dealers don't like getting stuck with so many unsold vehicles, especially the ones that are low-volume. Claiming that was the plan all along requires disregard of some important factors. Looking forward makes the claim even more difficult. Production of Volt has been shutdown and won't resume until early next year. What will expectations be for dealer interest? Why would anyone believe the waning interest will encourage ordering more? With the upcoming phaseout of tax-credits, it is reasonable to see Volt becoming a sold-order vehicle rather than keeping them in stock. In other words, we're seeing a shift of priorities. This topic of labor practices is undeniable evidence of that. The days of "*vastly superior*" engineering focus are over. Business is taking precedence. That's good in regard to support, but it reveals much about what GM still must address to make Bolt a success.
- 11-01-2017** **Oversimplification.** Certain names pop up from time to time. They are the antagonists. Their intent is to undermine in any way they can. Today, it was the subtle approach: "*There are no free power conversions. So, using gas to charge the battery will always be less efficient than using gas to drive the wheels directly.*" This would seem reasonable... to the uniformed. That means direct confrontation would halt the assault, but leave those newbies confused or misled. That meant I had to be subtle in return: Oversimplifying efficiency equations is a common problem. It's very easy to overlook the opportunities the power-split system exploits. Using an aftermarket gauge, watch RPM of the 3 components at play all at the same time: gas-engine, traction-motor, generator-motor. You'll see the flow of power being redirected several times per minute. That's because roads aren't really ever flat or straight; traffic isn't constant either. Those tiny variations are losses. The hybrid system takes advantage of them, reducing their impact. The result is an efficiency gain. Each opportunity adds up to a noticeable overall MPG boost.

- 11-01-2017 Targeting.** It's interesting to read comments on the new venue, one for plug-in supporters of all types. There, the well rehearsed debate material can be presented to a new audience. Results are dramatically different than that of the Volt blog prior to 2017: There's a fundamental misunderstanding of market still at play. Who is GM targeting? Looking back to the beginning of the plug-in hybrid offerings, the most common trade-in for getting a Volt was indeed Prius. But with those Prius at high miles and with GM leases so cheap, who wouldn't choose that? Volt never appealed to the masses, only early adopters. It was low-hanging fruit though, now all picked. When the leases expired, they moved on. Fast forwarding to the gen-2 rollout, we found out that GM decided to leave the rear seating cramped and only modestly improve HV efficiency. That left Volt in a difficult position with the "*range anxiety*" sales strategy. Why not just buy a Bolt instead? After all, most Volt owners did everything they could to avoid having the engine start. We now see Toyota & Hyundai/Kia targeting the void GM was never able to fill, offering an affordable plug-in hybrid for the masses. Prius Prime is loaded with safety features standard and is more efficient in both EV and HV modes. MSRP is so low, the phaseout of tax-credits won't even be an issue. Volt's is far too high still. Success of Bolt is great, but it does leave you wondering if GM plans to compete in the plug-in hybrid market.
- 11-01-2017 History Exposition.** It's difficult to slip in details about the past on that new venue, since the response is quite unpredictable. You have to try though: Prius PHV never remotely shared the same purpose as Volt. Toyota rolled out a mid-cycle upgrade to 15 states, testing the waters with real-world market research before going mainstream. Watching GM struggle made the decision to postpone expansion until the next full-cycle easy. That meant not having to deal with gen-1 differences at all in 35 states. The gen-2 model would be new to dealers, mechanics, salespeople, and customers. Prime is what ended up being the first with mainstream intent, with a worldwide rollout all in the first year. The total sales for 2017 will end up exceeding 50,000. Growth is absolutely essential. We are no longer dealing with early adopters. Appealing to ordinary consumers is very different. Toyota was well aware of that situation. GM clearly was not.
- 11-02-2017 Grow Sales.** Reminders of what's important need to be provided too: AFFORDABILITY was always a top priority for me and no amount of Volt enthusiast rhetoric could break that priority. It was a very real concern that sales would struggle from high prices, even with heavy dependency on tax-credits. APPEAL to mainstream consumers was the key and still is. If you can catch the interest of someone casually shopping the showroom floor, you have a product able to please consumer & business need. Volt never could achieve that, despite all the faster & further hype. REALITY is crashing down with an onslaught of guzzler support. We don't want to lose momentum on plug-in vehicle acceptance. That means making hard decisions and acknowledgement of a changed market. Let go of the past... otherwise, I'll just remind you of my concerns having been validated. Look forward. What do we do now to grow sales?

- 11-02-2017** **Enthusiast Obsession.** Sometimes the blindness from faster & further makes even the basic understanding of how ordinary customers approach the process for selecting a new vehicle impossible to see. They simply have no clue others don't share their priorities. For example: *"Are you suggesting that 'showroom shoppers' look for Dualwave glass, Predictive Efficient Drive, and Directed Heating & Cooling? Sounds like a bunch of buzzwords to me to detract from less electric range, less seating, fewer airbags, less horsepower, slower 0-60, etc."* A mainstream consumer wouldn't even encounter that information until it is stumbled across right there on sight. Ugh. All I can do is point out their oversight... which I don't expect to do any good: Not understanding the "buzzwords" will do that. This is why the in-person experience plays such a vital role. Also, use of "less" and "fewer" and "slower" is an indication of not properly recognizing mainstream audience. As much as people like to believe the marketing of those traits is the bulk of what buyers actually buy, it simply isn't true. The masses go for balance and don't obsess about wants like early adopters. None of those standard safety features listed draw in customers from whatever they may stumble across prior to going to the dealer. But once they are there looking at what's on the window-sticker, things like Dynamics-Radar-Cruise pop out as a strong want. As for the dual-wave glass, in-person compliments are plentiful. Most people say "Whoa!" when they see it, then start asking questions... which is exactly the type of showroom reaction salespeople want. Know your audience.
- 11-02-2017** **Halo Effect.** Each month, slipping sales brings out rhetoric so effective, the people spreading it are clueless as to what they are actually saying: *"Brings people into the showroom so they at least consider Chevy."* Remember how that used to be a bad thing? Now, the misdirection is thought of as a normal part of the purchase experience. Sadly, that's the perspective I have come to expect from the Volt enthusiasts. They simply don't care about actually replacing traditional vehicles. It's a matter of pride now, protecting reputation by putting up a good show. That's such a disappointment... and such a waste. Oh well. I keep providing those reminders: When a person is shopping the showroom, we want them to actually purchase the vehicle that catches their attention. Having a "halo" vehicle instead is in no way what I posted. As for the rest of what you posted, it indicates being a "niche" vehicle. That is a problem too. We want to sell lots of the vehicle, not use it as a technology showcase. Sales in high-volume is a necessity for the automotive business. Simply selling lots of guzzlers instead, like Equinox (25,722) and Malibu (14,647) and Traverse (11,098) in October, is not the outcome we want. And with the possible abrupt end to tax-credits, it's going to be even more difficult to sell Volt... and for that matter, Bolt. Think about the anti-plug movement that's growing. Search the internet. You'll find articles stirring FUD about batteries. The best defense against that is getting more plug-in vehicles on the road as quickly as possible.

11-02-2017 **Continued Attacks.** This is all you need to get an idea of what I encounter routinely still: *"...are admitting the weak position of the Toyota Plug-in entry? What a flake car."* That smug attitude of being *"vastly superior"* from some enthusiasts is alive & well still. The difference now though is their voice is beginning to get drowned out by other plug-in owners. There's power in numbers. The voice of ordinary consumers can be rather loud too. This is very much a welcome change. I jumped in with: Production capacity is key to making prices competitive with the fierce challenges of overcoming guzzler appeal. Toyota is looking to deliver 50,000 worldwide this year. That's a very clear push toward sustainable high-volume sales. How is that a weak position? This is what I pushed for Volt, hoping gen-2 would take on an affordable design approach. But rather than doing what was necessary to achieve that much lower cost, GM stuck with the *"strong"* position and ended up delivering a vehicle only appealing to early adopters. Face the reality that the ability to appeal to mainstream buyers requires more than just delivering faster & further design. GM has a very real challenge approaching with the loss of tax-credits and much lower MSRP choices from other automakers on the way. Are you really going to waste time posting stuff like that, rather than providing constructive suggestion? Bolt had a strong sales month. What are you going to do to help promote it to sustain that success?

11-03-2017 **Being Warned.** What can you say to this: *"Did no one believe us when we warned everybody that this would happen?????"* You spend years showing concern. They spin it to make those posts appear to be attacks. Anything a Toyota owner says must be an effort to undermine GM. They were too ignorant to believe an partnership among plug-in owners would be possible. That has cost them dearly. Mistrust is such a waste. What did they have to lose? Was it really that much of a risk to not even try? Ugh. Oh well. Turns out, they lost far more than ever imagined. All I can do now is remind them of those mistakes to help prevent them from repeating... yet again: Sadly, no, it was quite the opposite. When I brought the topic up, there was an enormous amount of effort expended to assure people this wasn't anything to be concerned about, that I was just spreading FUD. So now, it's long overdue to acknowledge the reality and come up with suggestions about how to proceed. My suggestion was originally to offer a second model of Volt with a smaller battery-pack, which would make it both more affordable and more efficient. Upon the realization of how misaligned gen-2 was with needed audience, the suggestion became a switch to just focusing entirely on getting a plug-in choice for GM's primary buyers... SUV shoppers. In other words, find a solution that doesn't require tax-credit help ever. Make sure the initial rollout MSRP is relatively competitive with other GM offerings. Set a target premium. For example, design a Chevy Trax to deliver a plug with a price no higher than \$5,000 above the median traditional package price.

11-03-2017 **Flag Waving.** Knowing how much of Bolt is from Korea, reading statements like this is annoying: "*Only change i would make is, STOP giving american taxpayers rebates to FOREIGN car companies.*" The irony is rather redeeming though. They blindly wave the flag without bothering to actually do any research. The fact is, we see LG supplying GM with battery cells, the completed pack, the management system, the power electronics, the traction motor, and the transmission. That's a major portion of the vehicle. What non-foreign components make it worthy of stopping subsidies? We benefit from reduced oil-dependency and cleaner air regardless of where the business headquarters are. Manufacturing of vital components is clearly not in America. Annoyed, I posted: There are many clichés to describe the unintended consequences of such a decision. Instead, define a clear purpose. With a precise goal, it's much harder to take away. In this case, there was no obvious intent. Was it to prove the technology? Was it to attract mainstream buyers? Was it to help establish infrastructure? Was it to get automakers to try something new? Fundamental clarity is essential. Notice how we still have no idea what purpose public chargers are intended for? There is no agreement of any sort about who should use them, for how long of a duration, and for what price. It's so confusing ever to us. What message does that send to those considering a plug-in vehicle. Heck, we don't even know how to deal with a ICE'd charging spot. It's time to step back and ask what's really important. Disagreement about petty things, like battery-pack size, have been a massive waste of resources... our own brains about how to effectively entice new customers to buy.

11-03-2017 **Leadership.** Refusal to acknowledge facts leads to cherry-picking so well accepted, you don't even notice the altered perspective of reality: "*...awards those manufactures who have taken the risks and are now established as the leaders.*" Leading people in the wrong direction is not good! This is why stating goals has always been vital. Yet, many absolutely refused to. Volt turned into a disastrous waste as a result. Delivering a great product to for such a small audience was a terrible plan. They endorsed it though, assuming the leaders knew that path was the correct one. Clearly, it was not. Now, there's a mess to deal with. Thankfully, we're still in the early stages. So, despite the disaster, it's not a total loss. The situation remains a matter of stating goals. This is what will put GM back them back on the right path. Unfortunately, it points them in the direction of Nissan & Toyota, who already have sizeable head starts. Their pride will likely make the next step harder as a result. But any step forward in the right direction, even a small one, is progress. My words this time were: Leadership in the early-adopter phase (defined as gen-1 offerings dependent upon tax-credit subsidies) is very different from leadership in the next. The struggle to overcome this new barrier is known as innovator's dilemma. To be a successful in the mainstream phase (defined as high-volume profitable sales able to compete directly with traditional offerings) requires cost to be low enough for competitive pricing. In other words, no manufacturer is actually an established leader yet.

11-04-2017 Denial. Encouragement isn't always welcome. The barrier of pride is difficult to overcome. These words of mine prompted yet another head-in-the-sand reaction: *"In other words, find a solution that doesn't require tax-credit help ever. Make sure the initial rollout MSRP is relatively competitive with other GM offerings. Set a target premium. For example, design a Chevy Trax to deliver a plug with a price no higher than \$5,000 above the median traditional package price."* It never ceases to amaze me how attempts to ignore a problem are the most common reaction. How does running away from the issue help resolve it? I ended up following that with:

Lots of negative votes from that post. Why?

There has been a lot of spin & rhetoric from me having pointed out the importance of understanding audience on a regular basis. But it was for good reason... we'd see the end of tax-credits after the early-adopters used them all up. Ordinary consumers would have nothing as an incentive as a result.

The original plan from GM was to reach mainstream minimum sales volume by the end of year 2 for the first-generation offering. That's 60,000 per year... which meant there was an expectation of sustainable sale without subsidies prior to second-generation rollout. It was a strategy with the intent to make the technology as high-volume offering.

Is everyone here just going to abandon the idea of GM offering any type of plug-in hybrid in favor of only EV choices?

There seems to be no interest anymore, when attention should be the highest. Volt worldwide sales through September for 2017 only come to a total of 19,748. The month-to-month decrease in sales and the continued build up of unsold inventory is a clear indication that a significant decision must be made. This new concern of federal incentive loss highlights the vital nature of timing even more.

More pressure is about to be added too. Hyundai will soon be rolling out an plug-in hybrid sedan with an emphasis on affordability. Kia will be doing something similar with a SUV. From Chrysler, we already see a boom in sales for their plug-in hybrid minivan. And of course, there's Toyota with Prius Prime already at 39,369 sales worldwide for the year, as of September.

What should GM's plan be for plug-in hybrids?

11-05-2017 **Extreme Reaction.** That post wasn't well received, as this simple reply clearly conveyed: "*Are you high?*" I fired right back at that:

No, I'm pointing out what was hoped for and supported to happen... not the reality of the situation. The who, when, and how much details often get distorted when looking back. This is definitely the case. For example, what exactly does "quickly" actually represent?

People with sound business & engineering background were constantly fighting those who saw the situation as only needing a simplistic "if we build it, they will buy it" approach. Spin started right after the reveal, claiming the "*40-mile, 50 mpg, nicely under \$30,000*" delivery criteria for late 2010 was totally realistic. Any mention of "vaporware" was met with hostility. Yet to this day, 10 years and 2 generation later, that criteria still has not been achieved.

Failure to deliver can be argued away by addressing market change. That's acceptable; however, an alternative must be viable then. It is not. Bolt replacing Volt doesn't actually achieve the overall goal of offering a competitive choice for the masses. GM's other vehicles are far more appealing to their loyal customers.

This is why enthusiasts of Volt continue to drag Toyota into discussions, attempting to make it look like I did. They see how Toyota designed Prime with that loyal customer audience in mind. The configuration has been given a balance of price & features with the intention of swaying over their traditional buyers without the need for a paradigm shift.

We all knew GM wasn't using federal incentives for the purpose they were intended. Conquest sales wouldn't change their own loyal customers' purchase behavior. The term GM had coined for the modern version of "bait & switch" to insult Toyota with had become GM's own business practice. Talking about self-fulfilling prophecy. Saying "*halo vehicle*" for so many years made it their own reality.

Tax-Credit phaseout was supposed to occur at a point which high-volume sales had become established and sustainable profit without the subsidy would be realistic. That wasn't going to happen even with the anticipated time-table. GM's abandonment of Volt being a range-anxiety solution to Bolt leaves Volt in a world of hurt mid-cycle. Will that supposedly "*vastly superior*" technology just die as a result?

- 11-05-2017** **Top Speed.** It's nice when questions come about from discussions trying to uncover technical detail. I provided an answer for that today: Top-speed of electric-only driving is based upon kW draw. If demand exceeds capacity, the engine will simply start up to provide that additional power. This is why you get a wide variety of answers when asking about maximums. People make anecdotal observations rather than use an aftermarket gauge to figure out what's really happening. Long ago, it was a 10 kW draw. That would allow a decent amount of power up to 25 mph. Faster, power dropped off significantly until the max of 46 mph. But with the larger battery for PHV, despite also being a gen-3, max was increased to 62 mph (that's 38 kW or 51 hp). With the gen-4 Prius, you can see even faster electric-only speed. That is also dependent upon power demand, but is a little more squishy than the hard limitations we saw with prior generations. Basically, the engine will shut on & off during the course of ordinary driving. It's among the methods used to deliver outstanding efficiency without plugging in. With Prime, you've got the much larger battery along with the clutch to include the second motor for quite a bit more overall power... enough to accelerate all the way to 84 mph (that's 68 kW or 91 hp) using only electricity.
- 11-06-2017** **Climate Change.** It's a bizarre situation when political stance on the environment takes such a drastic viewpoint, one blatantly contradictory to what scientific data shows. The administration doesn't like it, so they don't accept it. They just plain don't care. Despite a long report released today overwhelmingly proving we are having a direct impact on climate change and must take immediate action to prevent worsening damage, there's just an outright dismissal. It's not even an effort to discredit. The evidence is simply ignored. Treating it as unimportant is what we see now. When it is brought up, they just move on to the next topic or bring up a diversion. The disregard as if it isn't even an issue is so odd. You wouldn't think that level of complacency would even be attempted, since it would be so obvious. Yet, that's what we are seeing anyway. This level of selfishness, to preserve the status quo, is truly amazing. Greed is a powerful motivator and there's lots of money to be made when the effects of climate change are not taken into consideration. Pretend it's not a problem...
- 11-07-2017** **Why?** Clearly, purpose of the federal subsidy was not understood: "*Maybe having the credit extended would encourage GM to continue offering the Volt, which is an AMAZING car. I'd like THAT!*" Of course, most people posting nowadays don't have any knowledge of the history. Not being aware of the past makes a difference. I wonder if my injection of information will: Remember the tax-credit for hybrids? That \$3,150 for the first 60,000 purchased was intended for market growth, since the technology had already been established. Toyota triggered phaseout in just 9 months too. Goal achieved. The \$7,500 for the first 200,000 was far more generous, yet had much lower expectations. Why should such an offering be continued? Volt is still a small hatchback, the type of vehicle GM customers simply aren't interested in. Subsidizing that doesn't make any sense, especially when it took so much longer to reach the trigger volume. In other words, what should the goal be now? With the technology so well proven now, there must be some type of timeline & quantity requirement. Why reward any automaker not committed to rapid & significant growth?

- 11-08-2017** **Tank Refill.** The act of going to the gas station to refill the tank is becoming so rare, I have a hard time remembering when it last happened. Typically, it's due to an upcoming road trip where I'll need to do some long-distance highway driving. Otherwise, I'd likely see a pattern of every 6 weeks or so. That's around 2,000 miles per tank. It's an interesting statistic I hadn't considered. The assumption was being closer to the much celebrated 1,000 miles per tank we heard GM so often promote for Volt. Perhaps it will and my driving circumstances just happen to be ideal. But then again, I expected the frequent trips to be out of the ordinary. Whatever the case, it has been interesting to watch the overall MPG average continue to climb. I suspect it will plateau around the upcoming holidays. Approach of the new year often brings a bunch of unplanned running around in extreme cold conditions... which can be quite significant, here in Minnesota. We'll see what happens. I'm certainly looking forward to the experience, even if it does send me to the gas station more often.
- 11-09-2017** **4K Video.** I've filmed a few videos, capturing my commute to & from work, using the new camera. But all that footage was in HD still. The setup up to 4K resolution requires a new approach. Even though I had worked really hard in the past to refine the rigging, simplification was still needed. It took too long to get everything in place and there was no guarantee of consistency. So, I began my experimentation today. No more anti-glare blanket. That was a pain to get in place... too many soft & firm pieces to assemble. The camera mount itself was still presenting challenges as well. How could I get a quick & easy process in place to deliver even higher quality than in the past? Today was my effort to give it a try. Hopefully, this first drive will deliver some obvious improvements. I'm willing take apart what I had in the past to see if a new approach will work. After all, anything I can figure out now... prior to the arrival of the extreme Winter weather... will be a welcome change. Wish me luck.
- 11-10-2017** **C-Max Energi.** It was rolled out in October of 2012. Today we found out, 5 years later, production came to an end last month. Ford delivered 40,690 of that plug-in hybrid. That was between 7 and 8 thousand per year, which wasn't much. Odd configuration of the battery-pack may have contributed quite a bit to the disinterest. It's hard to tell. That protrusion into the cargo area was much more than the floor lift we see in Prime; however, that is a factor to keep in mind. Though, we could see Toyota finding a way to condense stack density to make it smaller for lower placement in back. So, it could end up a non-issue anyway. Efficiency wasn't as good as Prius. Lower MPG for HV makes sales harder. People expect hybrid performance after depletion. There was that scandal too. Whatever the case, it wasn't a SUV and that's what Ford shoppers would like. We know there's one on the way. So, this discontinuation isn't a big deal. Of course, it draws even more attention to audience targeting.

11-11-2017 Closure. Summarizing the chaos and hostility over the years isn't all that difficult. Volt failed to attract GM's own loyal customers. With Toyota striving to draw in their own loyal customers using Prime, the reaction certainly has been intriguing. Antagonists see the potential and try their best to spin away the position outlook. It's not working though. I stated why:

The point of all of this was to draw attention to the bigger market, to finally look beyond the initial audience. It's obvious this group does not want to, that they are not ready to take the next step. So, I'll simply end by restating points of a nicely balanced offering and why we will see those sales grow...

\$27,100 for a high MPG hybrid that also offers 25 miles of EV along with:

- Dynamic Radar Cruise
- Pre-Collision Braking
- Lane-Departure Detect with Assist
- Automatic High-Beams

That describes a well thought out vehicle appealing to a very wide base of consumers.

11-11-2017 Reaction. Going down without a fight isn't acceptable. Some absolutely insist on getting the last word in. That gives me the opportunity to continue stating purpose... as well as point out observations: The desperate reaction of participants on this thread to spin & suppress information is amazing. They see that year 8 of Volt is off to a terrible start. Inventory is currently at 5,800 unsold. That's an undeniably bad sign, especially knowing Bolt will be the source of conflict to come. Adding to the growing pressure is the reality that there are a number of plug-in hybrids on the way, all with tax-credits still. The crutch Volt depended on will vanish in the meantime. Negative vote posts to make them disappear. Sticking your head in the sand won't fix the problem though. It's too bad those who dismissed it didn't take the situation seriously. That concern of "*too little, too slowly*" has been validated.

11-11-2017 Waste & Avoidance. The perspective of someone refusing to accept defeat brings out interesting comments: *"I find it odd that you consider GM developing several different plugins architectures, and selling 160,000 of them, as a waste... and I bet Toyota is kicking themselves. Now they have to play catch-up."* They simply never see the bigger picture. Acknowledgement of the market as a whole doesn't seem important to them. That's a vital mistake, but the effort to justify poor decisions of the past is even worse. It's avoidance to the extreme, as I pointed out:

Shortsighted perspectives will do that. 160,000 is the typical sales expectation of a core-product mainstream vehicle for just a single year. That's right on par for GM's base... Malibu, Cruze, Equinox, Trax, etc. Use of tax-credits to not support a technology to replace them, but to rather be a niche offering primarily for conquest sales, is certainly not what they were intended for.

Call the missed opportunity anything you want. I will call the *"behind"* narrative a waste, knowing the affordable configuration Toyota delivered is what was needed to appeal to their own customers. GM can continue with their *"halo"* vehicle. It's just more time wasted if it doesn't get their traditional buyers to switch over to something with a plug.

Continued spin that this is really not about GM, that it is somehow a defense of Toyota, has no merit. EV efficiency delivered in Prime is among the top. 4.7 kWh with the heater running makes it a very worthy contender. 60 MPG averages on the highway (and even higher on suburb roads) is among the top too. Claiming Toyota is kicking themselves and having to catch up simply makes no sense.

7 years later, there still isn't a Voltec offering available that appeals to the typical GM shopper. Even with the generous \$7,500 tax-credit, Volt struggles to draw interest. It's too expensive and doesn't come close to appealing to GM shoppers who favor SUV choices. Opportunity missed is waste.

We all saw the writing on the wall. GM would shift efforts from Volt to Bolt... because what they delivered for a plug-in hybrid wasn't enough to appeal to their own loyal customers.

11-11-2017 **Goals.** The denial runs quite deep when you actually have to ask, after all those prior exchanges: *"Why would someone shopping for a Prius go with a PP when they can save \$3000 by buying a regular Prius that comes with those same features, and they get 5 seats instead of 4? How is Toyota going to attract its own customers with a more-expensive vehicle that offers less?"* Oh well. That's how you go about closing a chapter:

About a decade ago, Toyota set out to deliver a plug-in hybrid based upon the premium their customers would be willing to pay. The price targeted was \$3,000 to \$5,000... which is exactly what ended up being delivered. They stayed true to the goal that was set.

As for offering less, the loss of a squished middle seat doesn't ever come up as an issue anywhere except in arguments online. If you truly need it, you'll just end up buying another plug-in later. Prime is only the first model to be offered... and it won't take over 7 years for the next.

That \$3,000 buys the customer roughly 25 miles of EV along with the plug-in benefit of pre-conditioning. The result is absolutely outstanding MPG combined with a comfortable smooth & quiet drive. Whether or not the quad-led highlights or the dual-wave carbon-fiber hatch come into play is just a bonus. They are getting quite bargain on the efficiency boost.

Appeal isn't just directed to those shopping for a Prius. Think about those considering purchase of a traditional Camry. There are many models more expensive, including the hybrid. Excitement from the EV experience Prime delivers on a test-drive can be a powerful draw. No special equipment needed for an overnight recharge either, just an ordinary household outlet. It's a simple, affordable choice.

11-12-2017 **Serious Change.** The message from Toyota is beginning to emerge as a significant investment in hybrids... without anything being said about electric-only vehicles. It's the typical short-sightedness combined with a big dose of forgetfulness. Toyota already stated plans to move away from traditional vehicles with an "all hybrid" plan. We have also heard about the EV intentions. But since those are focused on 2020, there's that absurd panic to deal with in the meantime. It's the same old spin that started when PHV was halted and we heard nothing about Prime. Looking back at long-term strategy that had been shared didn't happen. People just jumped to conclusions based on only the information available to them at that very moment. Ugh. I tried to provide the voice of reality:

- Camry
- Avalon
- RAV4
- Highlander
- Corolla
- C-HR

All are vehicles we recognize as common choices here in the United States. All are offered as hybrids somewhere in the world. Other models not known here, like Estima (small AWD minivan), are available to other markets as hybrids too.

The point is that Toyota is striving to end production of traditional vehicles by pushing all those non-trucks into the hybrid category. The next step of adding a plug for the masses will come easy then, with the majority of vehicles on the lot already having a battery-pack.

None of the other non-luxury legacy automakers are pushing for such change. Only Toyota is looking to alter a large portion of their fleet in the not-too-distant future. That grand-scale thinking should not be so easily dismissed.

Think of the message it sends to both customers & dealers. That is serious commitment to change, not a token or uncertain effort as we see from others. It's an effort to reach beyond the barriers all automakers must face to end their own traditional production.

11-12-2017 Quick. The antagonist posts were shift & plentiful. None actually addressed the "*quick*" reality though. As if overnight, with no resistance at all, the automakers will magically shift over to EV offering. No challenges, issues, or concerns from dealer or consumer. It is obvious. It is painless. It is about to happen. Ugh. What it really is can be stated with one word: "*unrealistic*". It's like when a politician promises quick restoration after a natural disaster. Again, ugh. Oh well. All you can do is provide "*I told you so*" information, since they won't bother to listen to reason until it's too late: Why don't believe in a phased approach? That has been overwhelmingly successful in the past. Are you really expecting the other automakers to drop all traditional vehicles and go straight to BEV as quickly and on the same scale as Toyota with hybrids? Our infrastructure can handle a rapid next step from hybrid to plug-in hybrid, which would dramatically reduce emissions & consumption. How will BEV be handled? Think about where & how people park at home. Setting that up for overnight charging to support large battery-packs for 10's of millions of vehicles quickly is not realistic. In other words, emergence of a wave of anti-PHEV sentiment is going to faced a harsh reality. What is the true goal for the next decade... dramatic improvement or elimination? I don't see legacy automakers stepping up to high-volume, multi-model BEV offerings that quickly and the thought of allowing new non-hybrids to continue to populate our roads is very upsetting.

11-12-2017 Too Late. The rhetoric that Toyota is hopelessly behind and will never catch up is an act of pure desperation, since statements like this aren't followed by any reasons why: "*By the time they realize EVs are the future, it will be too late for Toyota.*" They just chant that mantra over and over and over. Lack of anything to support the claim should be a red flag. Unfortunately, the internet is filled with enablers. They want to believe it, so they validate by agreeing. Those enablers do a great deal of damage. It's really unfortunate. But then again, the support of true supporters can fall victim to being naive enough to believe that doesn't ever happen. It's makes for a seemingly hopeless situation... hence the success at conveying a "too late" message. You see no obvious reason to question the claim and reputable data is difficult to find. I try to share the knowledge. Though, it is challenging. Today it was: Using the identifier of "*PHEV fan*" but not actually understanding how a Plugin-Hybrid-Electric-Vehicle actually works is rather ironic, especially when making comment about Prime. That offering from Toyota provides a full electric drive experience. Everything operates using electricity. The smaller battery-pack is all that really sets it apart. That combustion-engine is not necessary. There's 2 electric-motors for propulsion and a heat-pump for warming & cooling the cabin. A claim of "*too late*" doesn't make any sense. Too late for what? Toyota will have invested heavily in high-volume production of battery-cells, traction-motors, controllers, and heat-pumps. Isn't that exactly what you need to build an EV? Nothing is missing. What is the supposed problem? Think about the economy-of-scale benefit. Think about the massive build up of easy-upgrade customers. Think about the reputation for abandoning tradition vehicles across the fleet.

11-12-2017 Past & Future. Closure gets weird. Witnessing the end of such a troublesome failure can make it even stranger. You sometimes end up with distorted history and strange perspectives. Oddly, it wasn't that way this time. It was nothing but a spin attempt to make the first Volt appear to have been a complete success and Prius a terrible failure: *"What's your, I mean Toyota's, excuse for the Prius Plug-in vs Gen 1 Volt?"* That's just plain old damage control, nothing special. Things are sounding like it is indeed over. So, I jumped in with:

Toyota designed gen-1 Prius PHV to deliver a significant MPG boost to the hybrid system. Exactly what they intended is what they rolled out. The message to consumers was obvious too.

GM stated intentions for gen-1 Volt to deliver series-hybrid operation, a full electric experience without ever using direct-drive for propulsion. That most definitely is **NOT** what they rolled out. People had no clue what in was and still to this day are uncertain of purpose and how it operates.

Neither had the potential for high-volume profitable sales. So, looking back doesn't serve much purpose. However...

Toyota had the good sense to restrict availability to just 15 states, so real-world data could continue to be collected without influence to the rest of the national market. Consequently, they don't need to re-educate the untouched locations. Gen-2 would be the first, a design modified specifically for mainstream buyers based upon real-world data findings. They took the time to analyze the market. Measure twice, cut once.

GM simply dove in head first, using their precious limited supply of tax-credits and muddling up their own customer base. Gen-1 was a disaster with respect to market acceptance. Too expensive. Too small. GM shoppers simply weren't interested. Many buyers ended up being those lured from other automakers by incredible lease offers. Why not take advantage of such low payments for a vehicle you only had to commit 3 years to? Gen-2 improved range & power while delivering a modest price reduction... no where near enough to stir demand. GM shoppers still aren't interested.

2018 brings about new plug-in hybrid choices from other automakers, in addition to triggering the tax-credit phaseout for GM. Along with so much emphasis now being focused on Bolt instead, demand for Volt will continue to drop. Will the idea of a plug-in hybrid from GM just fade away as a result?

11-12-2017 **It Happened.** Hints in the past became a full blown declaration: "*Volt has been replaced by Bolt.*" Exactly as what had been feared about the past repeating happened again. GM rolled out diesel and made a mess of the market, almost killing it entirely. GM did the same thing again with plug-in hybrids. They messed up so bad, their sales struggle just about destroyed the possibility of any other automaker successfully rolling out their own. It was nasty. For 7 years, nothing could be said about anything from Toyota without a direct comparison to GM. That wouldn't have been a problem if Volt actually sold in high-volume. It didn't though. Interest never grew beyond niche. That meant a mainstream offering like Prius PHV was doomed to have to deal with Volt fallout. It would be held back by hype. The idea of "*better*" soured potential. That's the trademark "*over promise, under deliver*" problem GM still has yet to overcome! They mess up everyone in the process. Fortunately, they move on from failure rather quickly. Remember how the Two-Mode disaster was quickly pushed aside in favor of Volt? We now have the same thing happening with Bolt... which is what I stated would happen when the name was first revealed. The confusion would make the transition easy. I joined in to help the process along: Do you think GM will actually send that message of intent? Lack of clarity has been a fundamental issue since even before Volt was rolled out. It would be nice for all involved to understand purpose & goals.

11-13-2017 **Really?** The dramatic change having taken place seems to have gone unnoticed. It's so extreme; yet, there's no acknowledgement or even a sense of awareness. The hypocritical nature of such contradictory behavior seems good reason not to bother even addressing it. They won't hear the message anyway. That would be enablement though. You don't want to provide a silent vote of acceptance. So, pushback is required. Point out the change, drawing attention to it anyway you can: The group **WAS** strong opposed to EV. That fact is written in stone with the words: *RANGE ANXIETY*. Remember that campaign and all the pushing against Tesla & Nissan? Seeing Volt abandoned in favor of Bolt is quite paradigm shift. We could see this coming. Volt owners would go to extremes to avoid using any gas. Simply making the battery-pack larger eliminates the need for such a system. That's why there was so much upset when BMW ended up delivering what GM originally intended.

11-13-2017 **Video: Cold Morning.** The thought was that conditions would be much colder here in Minnesota later, so simply giving the new 4K camera a basic shakeout before would be good practice... so I didn't bother to clean the windshield or setup any anti-glare material. Little did I know how great the clouds would look on that blustery cold day at 10X speed. I pre-conditioned the Prime just before leaving and had the heater set at 65 ECO with driver priority. So, this drive gives you a pretty good idea of what an ordinary commute is like when temperature drop below freezing, but conditions are still tolerable. Watch the various gauges as I drive. Note the speed, the traffic, and the conditions while enjoying my first 4K footage of the Prime. See it here... [Cold Morning Commute](#)

- 11-14-2017** **Video: Accident Delay.** It is interesting to hear someone cry "*troll*" even though the posts are on topic and clear attempts to stick to business goals. Meanwhile, I have to deal rhetoric chants and blatantly false information with no data to actually back any of it up. Fortunately, I now have video conveying real-world data to help counter the greenwash efforts. I can remind them of the goal to promote widespread adoption of affordable plug-in choices while pushing their nonsense out of the way. Sharing of owner experiences is very powerful. In my case, I do that by filming drives. This one was intended to just be more test footage, but the unexpected circumstance of getting trapped in an accident delay made it as keeper. It was an opportunity to be in stop & slow traffic with the electric heater (vapor-injected heat-pump) running, just like I'll be doing in the winter... but not actually having to deal with the mess fresh snow makes. Fortunately, the congestion experience wasn't too bad. The lighting during sunset made for interesting video to work with. And of course, there was still enough electricity available to stay warm and drive entirely in EV mode. Watch what I saw, in 4K resolution... [Accident Delay](#)
- 11-14-2017** **In Your Head.** The denial is so extreme, it boggles the mind that you'd ever have to deal with such nonsense. Yet, there it is, post after post. That was claimed to be "*in my head*" though. None of the rhetoric exists according to them. All of the spin is just an illusion, not any basis in reality. Ugh. Fortunately, it is easy enough to provide proof to the contrary: Avoiding detail and evading goals is what you do, not me. GM needed to achieve sales at a minimum of 60,000 per year (5,000 per month) prior to tax-credit phaseout for Volt to become a sustainable & profitable vehicle. That failed to happen with gen-1. This is what the "*too little, too slowly*" concern was all about. Excuses were given. Delay was accepted. Gen-2 rolled out. Sales were even worse. They have been successively dropping, rather than achieving growth as needed. Spin whatever you want. Blame whomever you want. It doesn't matter. The result is support has moved to Bolt instead.
- 11-15-2017** **Too Bad.** It didn't go over well. To that, I thought "*too bad*" and posted this follow up: Nicely under \$30,000. The business reasons why that goal was set by GM for Volt were sound. Enough sustainable demand would be needed prior to tax-credit expiration to ensure strong sales (5,000 per month minimum) could be profitable. Your obvious disregard for that yesterday, spinning posts as an endorsement for Toyota, didn't hold up. Nissan & Hyundai also share that same goal. The importance of price was repeated by others several times in that thread. GM must deliver something nicely under \$30,000 without tax-credits. Too bad if you don't like that. Too bad if you feel it dilutes the market. Too bad if it makes the vehicle ordinary. You've know for years that diversity was essential for growth... hence the too little, too slowly. An affordable choice must be offered.

- 11-15-2017** **Magic.** Here's yet another "same dance, but different song" situation: *"You can't hide the battery cost, there's no magic wand that Toyota waves to eliminate the cost of the EV drivetrain."* That's the no-free-lunch argument. Rather than acknowledging worth, they eliminate any possibility of success through outright dismissal. Seeing no value in change is key. Pretend there isn't anything to gain in return. If magic isn't used, there's no reason to consider it realistic. That's the kind of nonsense I have to deal with. Day in, day out, it's the same stance being taken. No magic beans, no gold egg. Ugh, yet again. I responded to that waste-of-time with: That has never been necessary for any hybrid or any plug-in. For the past 20 years, the goal has always been to offset cost. You can spend more upfront on the vehicle because it will save you money in fuel & maintenance later. That still holds true today. It is a matter of how much is that worth? People do put value on reduction of emissions & consumption. Switching from oil to electricity has clear, easy to understand benefits.
- 11-18-2017** **Too Late.** A few days later, I am now playing offense: *"Remember that discussion covered price-points, confirming \$30K was the proper target for when the tax-credit expired."* He tried to spin the situation as if was brand new, never having been addressed before. It's a common tactic. You are basically just pressing a reset button, taking the discussion back to the starting point... rather than address the points that had already been brought up. We see this routinely in politics. People know they have limited cards to use, so they forcing only the games to be played which show them favorable. It's like choosing which game will be played after the dealing. That's not even cheating. It's a way of winning by betting on the horse after the race has been run. That's manipulation. Anywho, he sounded off with: *"No. You just made that up now."* It's not even worth looking up posts of the past, though I was tempted to point out the hypocritical move. Instead, I posted: Discussions of price-point have been brought up on a regular basis. Rather than just negative voting, try actually reading what's posted. Of course, it doesn't matter anymore. Too late is now a reality for Volt. The price for Honda's plug-in hybrid was just announced. \$80 more for a vehicle with vastly superior seating is a no-brainer. It makes you wonder what GM's position on Volt really was. Could price have been reduced to make it competitive? Or was Volt basically just abandoned in favor of Bolt?
- 11-18-2017** **Not Yet.** How to respond to this: *"Toyota still doesn't think electric cars are ready for mass consumption."* The short-sighted and poorly informed usually are the one making comments like that one posted today. So, not much of a chance to influence their thinking. Those without a business background likely won't understand the elements at play, but not being expensive does draw attention. Perhaps there is a possibility for them: Electric clearly isn't affordable yet. That's a harsh reality to accept for those who don't understand the masses. This is why Toyota is pushing so hard to phaseout traditional vehicles. Already having that well underway positions them better for when that next-gen battery does become realistic. Potential from solid-state chemistry will allow greater energy-density and faster recharging. Getting someone to upgrade to from a hybrid or plug-in hybrid is much easier than going straight from a guzzler. Don't forget that the primary customer is the DEALER, not person who actually purchases the vehicle. That's a difficult perspective to acknowledge... until you try shopping for a plug-in. Most dealers simply aren't interested yet... because they aren't affordable yet.

11-19-2017 **It's Over.** Attempting to spin what I said by making it seem like I'm the one posting spin: *"I see you have now pivoted to Honda... more EV range, which is the most important stat when you are talking about EVs."* I was not assumed, nor did it matter. I know it's over. He knows it's over. We're done. Honda is helping to make that happen. It really burns Volt enthusiasts when the subject of opposition isn't Toyota. They don't know how to fight that fight. The precedent was established & reinforced for beating Prius... not some new unknown. Anywho, I fired back with: The obsession with faster & further has blinded you from seeing how vital low MSRP actually is. After all this time, that reason for Volt's struggle to achieve sales growth should be obvious... especially with the rapidly approaching tax-credit phaseout about to be triggered. Nicely under \$30,000 is still the price-point for vehicles in the compact/midsize category for very high-volume profitable sales... the "bread & butter" product for automakers... seen as a ubiquitous choice, since they are so common & affordable. The category of *"somewhat over \$30,000"* is for the midsize category often looked upon as the larger no-compromise family vehicles... Accord, Camry, Fusion, Malibu. Ford's sales have been strong, despite the limited EV range. Honda is about to take that on directly. Seeing a model of Camry hybrid offering a plug from Toyota on the way is quite realistic. Clearly we can see that Volt is now misplaced, unable to attract sales with such a high MSRP in a such a small body. In other words... no pivot, I simply see what's happening with the market.

11-19-2017 **Home Charging.** The first new illustrated document I have created for Prius Prime owners is now complete. It's presented as stand-alone information all about home charging. But in reality, this is really just a chapter in the upcoming User-Guide. Writing each section for such a large resource to share takes quite awhile. Simply due to the effect of seasonal changes, there's no way to deliver something comprehensive until you've experienced a full year firsthand. So much is based upon observation, that you need to witness quite a bit, then share what was learned with others to find out what's anecdotal and what's really a pattern. The goal is to set realistic expectations. I take lots of notes & photos. Over time, what's important begins to stand out. That's what refine into a collection of need-to-know facts. In this case, it's all about charging at home. You get a 120-volt charger with the purchase of Prius Prime. That included hardware works fine. If it is all you ever use, no big deal. It obviously will do the job. That's all I ever used at home for my 5 years of ownership with Prius PHV. But having moved to a new house and got married, it was time to setup a home for 2 high-speed chargers. So, I documented my experience in detail about the setup required to take advantage of 240-volt recharging. There's a wide variety of equipment to choose from. You will likely have the option of selecting a discount program from your electricity provider too. Knowing what's available is key. Hopefully the examples I share will be a good basis for owners to begin their research. After all, once you get use to plugging in every evening, the idea of not having a vehicle that uses electricity seems bizarre. Why wouldn't you? It's especially rewarding when finding out how basic the process is. Not knowing where to start is often a big barrier. This new document will hopefully make that much easier... [Home Charging](#)

- 11-20-2017** **Album 207.** My time is beginning to free up. Phew! I finally have the opportunity to start sharing some of the photos I've taken. On this new webpage, there are several. Having completed research, it's exciting to start sharing what was learned. That's something I immensely look forward to with each new generation of Prius. I'm starting with some photos to show how I captured the video. That question gets asked each time I publish something. So, taking some nice photos to convey that information is a good idea. In this case, I got really lucky with the timing. Those photos require soft lighting. I just happened to time it with the color of a Fall sunset. That makes sharing what I do even more exciting. There's also a nice collection of photos included in the Home Charging document. Time-Of-Use meters setup for each of our Level-2 chargers is likely something most people haven't ever seen before. After all, most people rarely even think about what a 240-volt line can be used for. The idea of setting one up to take advantage of price discounts is definitely a new concept for most. I took a variety of photos of the screen in Prime related to charging. It's a nice sampling for those who don't even know where to start. Look for them here... [Photo Album 207](#)
- 11-21-2017** **Album 208.** With the exception of the yet-to-be published collection of photos taken while on vacation, not a lot were taken. Much of my available time was taken by other ordinary non-transportation needs. So, finally being able share the other odds & ends that I do have is nice. There are several random photos, in nice weather, before the crazy cold & messy conditions that will soon become the norm. I stopped for coffee, at a location where I could plug in. Parked next to me was a BMW i3. Little did I know that when I mentioned charging inside that the owner would be standing next to me. I enjoyed that exchange of information... and got a memorable photo from it. My wife and I carpool as much as possible, but that doesn't always work out. We have events that take us elsewhere some evenings. So, driving separately happens from time to time. I have captured that in a few photos too. After all, 2 shiny new Prime parked side-by-side at the chargers isn't something you see everyone. We do have that setup at home too, each with our own charger. Naturally, I captured some of that setup to share as well. You'll find them all on this particular page... [Photo Album 208](#)
- 11-21-2017** **Reality.** An early adopter coming to terms with the reality of mainstream priorities... Now, I've seen it all. There's not much else to say. The goal all along was to make the perspective of ordinary people know. That wasteful trophy-mentality has been so costly. What a terrible experience. The opportunity lost is mind-boggling. Who would have ever imagined the idea of a plug-in hybrid could be messed up so bad. Paying little regard to the importance of cost was huge mistake. It was a gamble that ramping up production would result in massive drops very quickly. Turns out, with little demand, there's no way to make those price reductions a reality. Instead, you've got the reality of an unprofitable vehicle dealers express no interest in. The vehicle called "Volt" was an object of praise by enthusiasts and a source of nightmare by executives. GM rolled out a mess that never got any better. It's too bad advice about what to try next was never tried. Just think if Tesla stuck with an idea of trying to make Model S more popular, rather than starting fresh with Model 3 based upon what had been learned from Model S. There shouldn't be any stigma from moving on. If a plug-in hybrid model of Trax was extremely well received, so what if the Volt remains a niche or fades away. That's progress, not a problem to be concerned about. Ugh. That goodness we're finally getting the message through to some early adopters. That next stage should be embraced, welcomed, accepted...

- 11-21-2017** **Hasn't Happened.** It's interesting to read this post from a die-hard Volt supporter: *"Given the number of Prius owners, my prediction was the Prime would easily outsell the Volt. The fact this hasn't happened is a bit of a surprise to me."* That comes from not actually paying close attention. Seeing the craziness & uncertainty emerge from growing Model 3 & Leaf interest, combined with the soft sales of Bolt, the fact that Toyota kept Prime deliveries limited to both coasts shouldn't have been a surprise. The timing didn't make sense. Why would you ship new vehicles right when the model-year is coming to a close? That's clearance time for 2017. Dealers barely make any profit on sales like that. Some end up losing money. So, shipping to new territory is a problem easily avoided. It sends a misleading message to those not paying close enough attention. But the dealers appreciate it. They are a customer after all. You don't make them happy, they won't order more to sell. It's not rocket science. Not upsetting them by sending vehicles that won't deliver upon their usual expectations isn't worth it. Wait until the 2018 models are ready. That makes far more sense.
- 11-22-2017** **Single Minded.** We see that pattern. It's so obvious to everyone but the person posting: *"So, when my 198 beats up your 120 mpg, you start to divert the conversation by making up some numbers to advocate your case."* Only an early adopter would focus on a single trait as the selling point for a vehicle. Mainstream buyers don't do that. For that matter, neither do the people filling inventory at dealers. It's amazing how the single-mindedness plays out online. Avoiding well-rounded, dynamic conversations is easy when posts in a discussion thread are limited to a day or two and individual messages can easily be lost in the crowd. Someone just cheers out a talking point and everyone diverts to it. You'll get accused of leading that effort simply by adding comment to it. People just plain don't pay attention or even care for any of it to matter. That's why the focus on MPG persisted for so long... and continues to be the distraction. Attempting to move on to the next item of appeal puts the spotlight on you for changing the subject... when all you are doing is trying to get each priority some recognition. It's the obsession with just one trait that causes so much issue. Imagine actually making a major decision of any sort based upon a solitary qualification. Unfortunately, there are many people who think that way... and pay the consequences later.
- 11-22-2017** **Video: No Highway.** My latest & greatest had an "oops" situation. The commute to work yesterday did quite get captured as planned, but it still left me with some cold weather driving data to share. Lesson learned was to plug in the USB cord if you are pushing it with the battery... or just don't broadcast live video via Wi-Fi the entire duration. Duh! Oh well. The quality of the dash video has clearly improved, despite the minimal setup now. This particular drive was to avoid the highway entirely, taking the longer & slower route. It's a pleasant drive and the preferred alternate when traffic gets crazy. That can actually take less travel time when the weather is really bad, since it doesn't get congested with lots of stop & slow driving. My goal was capture real-world data of sub-freezing drives before the extremes of winter arrive. 19.1 miles were driven using electric-heat set to 65 ECO with driver priority. 4.4 miles of EV were estimated remaining. Average temperature outside was 27°F. The Prime was parked inside the garage overnight plugged-in with pre-conditioning set on the timer, hence the warmer reading upon initial departure. The gas engine never started throughout that entire commute drive. Watch it here... [No Highway Commute](#)

- 11-22-2017 Holding On.** The past is sometimes very difficult to let go... They needed to hear it, since clearly that message has not got through yet: Most of us recognize that Volt is on year-3 of gen-2 with tax-credit phaseout being triggered mid-2018. Sales rate is slowed and inventory piled up, to the extent of halting production. In other words, the early adopter phase has come to a end. Preparation for the next should be well underway... a very different audience. That's where Prime comes in. It's low MSRP, well-rounded collection of standard features, and simplistic approach will appeal to ordinary shoppers. Some here recognize that, seeing the market shift necessary for growth and how well Toyota targeted their plug-in hybrid for that. What does Volt do to attract buyers who aren't willing to spend a premium for plugging in?
- 11-22-2017 Neither Does Prime.** It's gets tiring to here such nonsense repeated over and over. That is a good sign though. The "*neither does Prime*" claim today especially stood out. Rather than leadership, it was an acknowledgement of trouble concealed by an attempt to divert attention. I got things right back on track: Why would anyone care about such rhetoric? \$27,100 base price is what draws interest. Recharging is inexpensive too. It's a simple approach. Asked for detail, I point out that pay just 7.1 cents per kWh to recharge my Prime here in Minnesota. That gives me anywhere from 23 to 35 miles of EV (depending upon temperature) on my usual drives around town and the commute to work... for just 44 cents. There's no HOV access available here. It's just doing our part to reduce emissions and dependency on oil. It's easy be disappointed about Volt not being able to deliver a similar draw. That's no reason to mislead about Prime potential though.
- 11-22-2017 The Message.** I'll keep repeating the message of affordability over and over again. My version of supposed rhetoric is to get choices for ordinary people. Without something for mainstream buyers to buy, what's the point? So, I'll keep reminding that \$27,100 delivers a solid 25 miles of EV. All those attempts to divert attention away from MSRP are very telling. They negative vote to hide the information related to cost too. It's obvious that is a sensitive point. Not attracting the masses should be a concern. That audience doesn't just change because they should. Heck, they don't even change when the better choice only takes a small amount of research. Sticking with the status quo is easier. They will stick with what they know. This is what the enthusiasts just plain don't understand. After all this time, they still believe it will be a matter of getting price to a reasonable point. Too bad they don't take the time to do a small amount of research. Some of those original misconceptions for hybrids apply to plug-in vehicles too. We'll never get to deal with those though, until that affordable level is reached. This is complicated. Refusing to acknowledge the barriers doesn't help.

11-23-2017 Volt vs Prime, part 1. The speculation articles continue to emerge on forums throughout the plug-in world. With the virtual tie last month, there's lots to discuss. Some stand firm with old beliefs though: *"I still think they would prefer to sell them in carb states, because they are not profitable."* Since that showed up on the big Prius forum, I went all out with my response:

That's an anecdotal observation. Looking at the bigger picture, it's easy to see there's more involved.

Stepping back to consider everything at play, which many posting comments do not, is the fact that Toyota is rolling out Prime worldwide all at once. Seeing Japan, Europe, and North America get first delivery all in the same year is quite an challenge to take on. They are all very, very, very different major markets. Having a new product take on so much, so quickly deserves recognition.

Zooming into to consider just the United States, we can see very distinct regions. Their differences are vast. Toyota has learned that rollout during the cold season has consequences. With the heat-pump in Prime, that effect from Winter will have quite a pronounced impact. So, it makes sense that final 2017 inventory was focused on the coasts instead. Middle America will have to wait until the thaw.

Another ***MAJOR*** issue overlooked by virtually everyone is the fact that dealers are the primary customer, not who actually ends up driving the vehicle. That's a business fundamental most people have a very difficult time accepting. Why wouldn't the vehicle owner be most important in the rollout process?

Look at it this way, if the dealer isn't interested in selling the vehicle, there isn't a choice available for the consumer. Toyota has chosen a phased rollout for this reason. It does seem odd to have ample inventory at some places, especially with \$1,000 cash back offers, when there are shortages elsewhere. But from the perspective of keeping dealers happy and providing incentive for salespeople to actually want to try to sell the vehicle, it makes a lot of sense.

The business is quite complex. Things worldwide need to settle down first. Seeing that Toyota is on target for selling 50,000 Prime this year is a really big deal. We'll see 2018 models all over... eventually.

11-24-2017 **Volt vs Prime, part 2.** I continued the next day with the rest of the information needed for consideration:

The previous post only addressed internal considerations, those factors of influence only pertaining to the perspective of the automaker and related resources. Stepping back even further, that biggest picture complicates matters to a degree most people don't properly recognize: failure fallout.

Not every attempt will succeed to attract mainstream consumers. The design or approach will get trapped in a problem called "innovator's dilemma". Just because the first-generation of a product strongly appeals to early adopters is no guarantee that the second-generation offering will. It's a easy trap to fall into. The manufacturer will focus too much on traits that made it popular... only to discover the wider audience unwilling to pay a premium for that.

This is exactly the problem gen-2 Volt is struggling with now. GM focused on faster & further. They enhanced the configuration to be even more specialized, rather than shifting emphasis to other appeal factors to make it a more balanced offering. So as well as it works, it's trapped in a niche. Ordinary shoppers just plain are not interested.

This is what some are so hard on Prime, failing to recognize how much Toyota strived to avoid that same trap. That de-emphasis on faster & further allowed resources to be placed on keeping the configuration affordable, while included draws like dynamic-cruise and lane-departure standard. This makes Prime easier for dealers to consider and for salespeople to sell.

It deeply upsets some to watch the true signs of progress play out. When a chapter closes, it reveals some winners and some losers. In this case, it will be the end of the "early adopter" phase, which is clearly marked by the phaseout trigger of tax-credits. The expectation is for this Volt to be too expensive to survive. The next product-cycle may bring about a design that is competitive. But gen-2 as it is now, is an extremely difficult sell.

Prime's much lower sticker-price, combined with the nice variety of features and simple approach, targets it at that harder-to-sway but much wider audience. So, even with the loss of tax-credits, it stands a reasonable chance of attracting a large number of buyers.

Also, don't forget that Toyota is cultivating new potential at the same time. We see the Camry, RAV4, and C-HR hybrids all being positioned to deliver a plug option later.

11-24-2017 **Endless Attacks.** It has been fascinating to witness the desperation play out: "*You usually mention the PP in your first post no matter what the topic. Even when you don't, you just set a trap hoping someone else will.*" The fade away of Volt is difficult for him to accept. He needs to feel better by finding something to belittle. It's quite adolescent. I have found it an excellent example of closure, ensuring every possible aspect of fallout has been addressed. Why did this happen? What was learned? How will it be fixed? When should we expect change? Who will be the new leader? I submitted: It has been confirmed that you don't actually read what I post, so no sense in pointing out that's false. Many here drop bait for me, but aren't labeled as trolls since they supposedly support Volt. In reality, they are politely stirring the pot to draw attention to the formula for success Toyota has followed... implicitly implying GM should try something similar so the technology in Volt isn't lost as Volt itself fades from consumer interest. How can the progress of Prime not be brought up in these discussions? Being on target for selling 50,000 the first year of availability is what GM had always dreamed of. No one is saying it's not possible for GM, they are just pointing out gen-2 Volt is not the vehicle to achieve that... especially when the second year of availability is coming to a close. As for calling the business need to replace traditional vehicles with high-volume profitable alternatives a trap, you've lost touch with reality. That is a normal requirement for all automakers. They must advance or die. How they approach the problem is what we address. Toyota is clearly on the right path. GM is at a point where trying something else is necessary.

- 11-25-2017** **Lame.** The adolescent behavior continued. He simply dismissed the business logic as lame. Ugh. It's been the same since long before even the first generation was just an idea. I was happy to provide a reminder: Being held accountable for "*over promise, under deliver*" can be called whatever you want. This group fiercely defended the plans to make Volt a mainstream vehicle, selling so well it would become a common choice among GM customers. There's simply no way to summarize the outcome without being given a label of "*troll*" despite 7 full years of having been confirmed that concerns were indeed justified. That's why everyone else has stop participating. I'm not afraid to ask for lessons learned. That's how the next step stands a better chance to actually succeed. After all, GM's reputation has come from repeating the same mistakes over and over again. Helping callout issues to prevent falling into the same trap yet again is what someone needs to do. Saying that is "lame" certainly isn't constructive. Sales has always been and will continue to be the measure of progress. More traditional vehicles offset by plug-in choices is necessary. Simply growing the consumer base by adding conquest sales dependent upon tax-credit subsidies was an idea that did not lead to traditional replacement. Loyal GM customers replaced their old SUV with a newer model. They simply weren't interested in Volt. They were promised a SUV with a plug. Here's a wake-up call about how long GM customers have been waiting, the opening statements from an article published December 5, 2006: "*Last week General Motors (GM) gave a boost to plug-in hybrid vehicles. It announced a new gas-saving technology that could transform transportation and make renewable sources of electricity, such as wind and sun, more feasible. At the Greater Los Angeles Auto Show, the automaker committed to manufacturing versions of its hybrid Saturn Vue SUV with a much larger battery pack that can be charged via an ordinary household socket. The increased size of the battery pack makes it possible to rely more on electric drive than current hybrid vehicles do, thereby saving much more gasoline. The actual rollout date will depend on the development of suitable battery technology, according to GM chairman and CEO Rick Wagoner.*"
- 11-25-2017** **Noise.** The vague & ambiguous claims never cease: "*Umm, have you not been following all the things GM is doing?*" There was nothing whatsoever provided to support that. It was nothing but an empty statement. I get so tired of that crap from our president. Baseless messages of disdain are so tiring. What a waste having to deal with such nonsense. I keep up the good fight though: It's what GM is not doing that everyone should take notice of. You in particular are especially vulnerable to distraction. Squirrel! This year, yes... within the next few weeks... Mitsubishi is expected to roll out their plug-in hybrid Outlander. \$34,595 for their system with two 60-kW motors and a 2.0 liter engine, delivering 197 combined horsepower. The battery-pack will have a capacity of 12 kWh. Sometime for 2019, a similar type plug-in hybrid is expected from Ford. Knowing that Toyota's RAV4 hybrid has been selling so well, that Nissan just rolled out Rogue hybrid, and that Honda is planning a CR-V hybrid, you have to ask why we haven't heard a peep from GM. You don't though. It's just a bunch of rhetoric claiming "*too late*", even though GM is the one without any efficiency SUV plans. Think about how simple of a next step it is for Toyota to offer a plug-in model of RAV4 hybrid. For Prius, it was essentially just adding a one-way clutch and a larger battery-pack. The silence from GM is deafening. Is that why you are making so much noise about me?

11-25-2017 **Irony.** Watching someone use a term incorrectly over and over again is fascinating. I've seen it some many times now. They don't bother to actually research what's being claimed. It is just assumed. Most recently, it has been: "*Innovator's dilemma, can't get out of the past.*" Using that to establish a narrative of Toyota falling behind is remarkable. Each generation of the hybrid system is clear progress. The new Camry hybrid is amazing. Prime is a great example of the potential to come. There's a growing audience with each step. That is progress forward. GM's supposed leadership isn't actually changing their own base. How is that progress? Notice how many of the RAV4 sales are now the hybrid model? That's clear advancement away from traditional vehicles for Toyota. From GM, there is still nothing... unless you consider the new diesel Equinox progress. Ugh. There is literally nothing clean & efficient for those SUV shoppers still. GM didn't adapt. They got stuck in the trap of catering to their original base, rather than reaching out to the general population. Oh well. It's interesting to watch this history in the making, posting commentary along the way: The ironic use of that term is what keeps me coming back. GM couldn't figure out how to make Volt appeal to an audience other than early adopters. Volt's focus on more power and more capacity isn't what ordinary GM customers were interested in... which is why the first 2 years of sales for gen-2 didn't result in market growth. In fact, the opposite happened. Sales are lower now than they were for gen-1... which is undeniable evidence of innovator's dilemma. The new larger audience wasn't interested in the upgraded offering. GM messed up with gen-2. Focus on making Volt go faster & further was clearly a mistake. That's what early adopters wanted, not mainstream consumers. Focus should have been on making it more affordable and more efficient instead.

11-26-2017 **Vastly Superior.** Owners proud of their purchase attack post-early-adopter articles with their vastly superior rhetoric: "*The Volt is a much better car and designed to be an EV first (more than double the AE and much better performance/handling), unlike the Prime, which is designed to be a hybrid first.*" It's becoming a real problem. They troll by posting claims without substance, just a clear effort to retain the status quo. Moving on beyond the early-adopter phase isn't something they are prepared to do. The idea of Prime winning the popular vote through sales is sickening. From a mindset where performance is what matters most, they'll never understand the balance mainstream consumers want. So... my reply is to address their performance claims with detail exposing their attempt to mislead: Volt's supposed "*designed to be an EV first*" claim doesn't hold much merit... simply based on the fact that it isn't as efficient for electric-only travel. It takes 31 kWh for Volt to travel 100 miles. It takes 25 kWh for Prime to travel 100 miles. Also, how do you explain Prime's vapor-injected heat-pump? That's far more advanced of an electric-heating approach than Volt's resistant type heater. There's the option of CHAdeMO charging available in Prime's domestic market too. Volt doesn't offer any type of high-speed charging option anywhere.

11-26-2017 Psychological Issues. We see it daily from our president. The same thing plays out online... WHAT ABOUT... PARROT... REFLECTION... CHANTING. It's all so agonizing to have to deal with. Also facing the reality of dishonesty makes the situation nearly impossible to address. It's nothing but a series of avoidance techniques being used, day in, day out. It never ends. The protectionists just keep pushing the effort to delay & distract. Ugh. I'm looking forward to what Honda (Clarity) and Mitsubishi (Outlander) will bring to the table soon. In January, I suspect we'll hear from Ford (Escape) about their plans. Chrysler (Pacifica) is ramping up production. Hyundai (Ioniq) will be rolling out early next year. All those plug-in hybrids, in addition to Toyota, yet nothing upcoming from GM. All those promises about Volt technology went no where. I wrapped up the 2-week long argumentative thread with a person clearly desperate to protect reputation by posting: GM must still deliver something affordable that their own customers will buy. No amount of spin, distraction, or rhetoric will change that. It must happen. Volt was rolled out with the intent of achieving mainstream sales volume by the end of the second year of availability. Now, beginning the third year of the second generation, we clearly that still will not happen. That justifies asking the questions of what to expect next. What will be that affordable choice and how much longer must GM customers wait?

11-26-2017 Closing Thoughts. Chrysler Pacifica... Mitsubishi Outlander... Honda Clarity... Toyota Prime... Ford Fusion... Hyundai Ioniq. Each was created with the purpose of targeting their own respective customers. Not any different from how front-wheel drive, fuel-injection, anti-lock brakes, or airbags were introduced, shoppers will simply see it as a new standard. The expectation is that technology will be spread throughout the entire fleet. Not having anything spread in GM, despite 7 years of Volt availability, leaves customers wondering what happened. Isn't GM interested in offering plug-in hybrid choices? Hope has been to replace traditional vehicles and Volt was to champion that effort. Instead, it just fizzled. Why shouldn't we push GM to join the rest of the automakers?

- 11-27-2017** **Hypocrites.** When the antagonist starts posting repeats of what you posted years ago, but presents it as if they shared that same stance all along, you know things have changed. The attitude of enthusiasts back then was to discredit anyone who shared information that did not support their position. Now, they pretend that history never took place. This is an excellent example of that: *"They often mention how a lot of the engineering that went into the EV1 was used for the Volt. Many of the same engineers even. That's how engineering works. It's an iterative process."* When Volt was rolled out, enthusiasts claimed it was *"all new"* and nothing from the past efforts (EV1 & Two-Mode) was carried over. This *"please be patient"* excuse was used repeatedly for years. With that quote, that particular individual used it on a regular basis. I got negative votes routinely from pointing out that very history. He simply didn't care. Those preferring his narrative didn't either. They needed an excuse to justify the *"too little, too slowly"*. Now, they need credibility, so taking the opposite stance is embraced. That's quite hypocritical. I could point out that contradictory posts, but it just plain is not worth it. They don't care. So, I won't. The information will only be shared here. I know what happened. I know they did the same thing to portray Prius progress differently by excluding what they didn't like about that too... like pretending Camry hybrid didn't exist and omitting the fact that PHV wasn't available nationwide. They just cherry-pick what they like to convey the message they like. Addressing the big picture and focusing on goals is simply not acceptable. It's like how they quote price with the tax-credit already subtracted while claiming their is no tax-credit dependency. Fortunately, like always, sales tell the true story. That's why each month-end the excuses ramp up. Fortunately, the upcoming overtake of Volt by Prime will help silence some of the obvious misleading. The rest will come from the hypocrites who now contradict their own statements from the past.
- 11-28-2017** **Legacy Automakers.** Online posts are filled with short-sighted, narrow-view perspectives. They simply don't see beyond what's happening at the moment. To exacerbate the situation, they lack the business or engineering background to even try having in-depth discussions about the matter. It's often a hopeless extreme, where you stand no chance of getting the message through. I keep trying though: Tesla is not a legacy automaker. Anyone taking a serious look at the market as a whole will notice EV sales now are still just low-hanging fruit, dependent upon early-adopters and tax-credits. Being competitive with traditional vehicles isn't realistic yet. Innovations, like the potential solid-state batteries present, should change that. They are a number of years away though. Convincing ordinary consumers to even consider the purchase of an EV will remain a challenge even when price drops. Just finding a way to recharge one EV can expensive. Adding a second EV to that same garage can introduce problems people here participating in discussions like this rarely want to address. They pretend adding a 40-amp line is no big deal, a trivial effort for anyone interested. Think about how straight-forward of an upgrade path Toyota is establishing for their own loyal customers who could be interested in an EV later. Prius Prime will usher in other Prime models. Adding a one-way clutch and larger battery-pack to the Camry, RAV4, and CH-R hybrids provides an easy to understand benefit, using an affordable approach. What will other legacy automakers do?

11-29-2017 **Goodbye Volt.** This offering from GM is rapidly becoming a footnote in history. With the start of the Auto Show in Los Angeles, we have already had a flurry of announcements. Most focus on what will be coming in the 3 to 5 years. That's creating a very big opportunity for the affordable plug-in hybrids. Turns out, the 25 to 30 miles of EV range is perfect for that category. You get your plug-in without having to tradeoff much. Basically, just some storage space is reduced. The spin, nonsense, rhetoric, excuses, and delay we've heard from enthusiasts falls completely on deaf ears. No one cares anymore... which is clearly reflected in online posting activity. It's amazing how things have died down to almost a deafening silence over the past 3 weeks. This new audience is very, very different... not at all interested in the games they play. I knew this would happen, simply based on experience. You cannot witness the transformation of Prius firsthand like that without noticing the patterns. Gen-2 was the introduced here to mainstream potential. (Gen-1 was far too rare to even be recognized as what a "hybrid" had to offer. In fact, most people didn't even hear about it until Gen-2 was rolled out.) It established the potential for change. Gen-3 is what actually brought it about. The reason was simple. It matched mainstream purchase priorities so well, there was nothing to debate anymore. Appealing to ordinary consumers is absolutely essential. Whether it is the draw of size & ruggedness from the SUV or the smooth & silent from Luxury, there must be something matching the current status quo. That's how paradigm shifts are triggered. Everyone just naturally advances forward. The delivered interest presents itself as an obvious choice. Squeezing into a ordinary-equipped compact with the price of a nicely-loaded midsize is a strategy doomed to fail. Volt couldn't possibly succeed beyond niche. This market is far too fickle to accept that. It's why the road being paved by Prime offers so much more potential. It's so easy to see a Camry hybrid with a plug. The same goes for RAV hybrid. (Since we don't have CH-R hybrid in this market, that will come later.) No big deal. It's an logical next step. The same potential exists with the upcoming Kia Niro too. Some people will want a bulkier vehicle than Prius Prime, but don't care for a SUV. Having the choice is key. This is where the "*too little, too slowly*" came from with GM. That opportunity for GM to offer a plug-in hybrid SUV of their own was missed. Time is up. Too late. This is why saying goodbye to Volt is the topic now. It's collateral damage. Nothing going forward has consequences. People see GM isn't interested in offering plug-in hybrids. They see a shift to expensive electric-only vehicles instead.

11-30-2017 Hello Niro. With GM sales being so heavy in favor of SUVs, the fact that there was never any effort or even interest to deliver one with a plug was highly suspicious. Why not? This was how the endless questioning of audience came about. Who was the market for Volt? It simply never made any sense. Needless to say, the market doesn't care anymore. Interest has shifted to other automakers to deliver instead. In this case, it will be from Kia. Their upcoming plug-in SUV was revealed today and will be available for purchase before the end of this year. Yes, within the next month. This is why there was a relentless push for acknowledge of the "*too little, too slowly*" concern. The denial ran so deep, those enthusiasts saying everything was fine really didn't have a clue. They weren't paying attention to any of the information being conveyed. It was nothing by blind hope that things would work out. Instead, there's a wide-array of choices on the way... none from GM. In fact, this is why I withheld comment about Kia. Each of the other new offerings needed attention first... since Niro would be the final nail in the coffin. As well as Volt worked, it was a disastrous business venture. What a massive waste of opportunity. GM had the technology, but didn't actually capitalize on it. Those precious tax-credits were used for conquest sales, rather than actually changing GM's own customers. Thank goodness Kia isn't doing the same thing. It's quite obvious they are appealing to their own shoppers. The 26-mile EV range will keep price affordable... giving it the potential for high-volume profitable sales. It's nice to be able to welcome a new choice with so much potential.

11-30-2017 Shortages. Here's an interesting thought to ponder: A now obvious advantage of sticking with smaller packs during the introductory stage allows more plug-ins to join the population while working to lower costs at the same time. People are rarely ever aware of the impact shortages can have on business. Do you remember the LCD shortages when that technology first became viable? The computer industry struggled for years with the shift over to them for laptops as a mass replacement for desktops and as an alternative to the large monitors. Yields of flawless quality (who wants a dead pixel?) were a big problem. It was costly to achieve and warranty coverage was a big unknown. Sound familiar? That's the same type of thing we are seeing with batteries now. Demand is rapidly growing and supply simply isn't there. How common do you think those highly desired "*300 mile*" range packs will be? That's quite a few cells being packed into a single vehicle. Think about how much more impact to the market they'd have spread among a group of plug-in hybrids instead. A dozen with 25-mile ranges could be offered instead. That's a far more effective way to change the market... and deal with shortages in the meantime.

- 11-30-2017** **Enthusiast Magazines.** Ugh. There's simply no getting through to some people. Fans of certain things seek out praise, disregarding source for the sake of feeling good. We have seen that from Volt enthusiasts for years. They absolutely refuse to acknowledge audience. The reality of it being a niche never made any difference. Scope was just reduced to a scale where it looked impressive. Those trying to be objective call that cherry-picking. You can't just eliminate the data you don't like. That's not the slightest bit realistic. It gives a distorted view of reality. Of course, some people are fine living in their own world... hence: "*2017 Chevrolet Volt Premier vs. 2017 Toyota Prius Prime Advanced - Comparison Test.*" Using that article from what had been known as a "*muscle*" or "*sport*" magazine of the past is very much cherry-picking. Look through back issues? Find any praise for the most popular vehicles... like Camry or Corolla? Despite such high sales numbers, mention is almost non-existent. That's not who they write the articles for, which is perfectly fine if you understand that. But if you use it for greenwash material, to intentionally misrepresent, that's an entirely different matter. In the topic of discussion on that recent article, I posted this in the comments: Ordinary shoppers just plain will not care. They aren't enthusiasts. They're just normal consumers looking for the same formula Toyota has always delivered.
- 11-30-2017** **Late?** It never ceases to amaze me how often the claim of "*late*" is used to support GM's supposed leadership without providing any reason other than EV range. No concern is given for cost or audience. It has always been that. GM delivers on promises and their announcement about upcoming reveals is all they need to justify their continued stance. Ignoring the fact that there's significant dependence on tax-credits, the reality that Volt sales are shrinking, and that Bolt in no way targets GM shoppers isn't an issue for them. All is going well. Ugh. Fortunately, I that rhetoric isn't getting as much attention as of recent. With so many other automakers revealing their own plans for electrification, the missing opportunity GM had is quite obvious. No need to rehash any of that now. I just keep it simple... and get likes in return... the sentiment has most definitely changed: We're just getting started. The early-adopter phase hasn't even ended yet. This new batch of plug-ins is for that next audience, those closer to ordinary mainstream buyers.

- 12-01-2017** **Not Enough.** Open discussion on venues not just for Volt offer far more diverse comment. And since Volt no longer dominates the media, those venues actually have a chance of finally be heard. Remember the concern of the past was that GM would impede progress by promising something that wasn't actually realistic, resulting in a stalled industry... which is exactly what happened. They did the same in the past with fuel-efficiency decades ago. Rather than pursue the problem constructively, they ended up stalling advancement with the diesel debacle... which never really recovered. Only VW made any supposed recovery... but that ended up being a purposeful deception. True, we know GM's focus now has been on halo, but at least that's out in the open... due in part by other automakers stepping up: *"Clarity PHEV looks interesting, but only 42 miles rated EV range. That's not enough range to do much more than to drive to work and back for most people. 2011 Chevy Volt was introduced in December 2010."* That posted comments was mistaken with the 42, which is actually 47. Nonetheless, the point was understood. We all see the changing market. People are becoming receptive to the idea of plugging in. Problem is, there are Volt enthusiasts who still have a superiority complex. They choose to belittle still. It's really annoying. Fortunately, I have real-world data to help counter their impeding efforts: 232 MPG was my average for November, with *"only"* an EV range of 25 miles. Calling that *"not enough"* doesn't mean much when real-world results show such a massive efficiency boost.
- 12-01-2017** **Cross Shopping.** Comments online from the prior chapter (early-adopter phase) often obscure progress forward. It's too easy to slip into the trap of looking backward, rather than keeping attention the goal... moving forward. The biggest problem with that is understanding who. In the past, there were only a handful of choices available. You had no option available. It was either consider the purchase from an automaker you really had no preference for or settle for a traditional vehicle. The selection of plug-in vehicles were far too few. But now with this new chapter bringing about a choice from each automaker, there's no reason for cross shopping anymore. You can see investment in the future taking place. The expectation of multiple models coming is quite realistic. It has become a matter of when, not if. That's why a reminder is necessary from time to time. Today, it was with the plug-in owners group: Know your audience. Wanting more is perfectly fine, but it makes you an enthusiast, not a mainstream consumer. Think about who shops from automaker to automaker.

- 12-01-2017** **Not Good.** The positive sales spin started right away. Prime pulled ahead in the year-to-date tally compared to Volt, so that was to be expected. If you create enough of a diversion, no one will hopefully notice: *"And the Volt moved up to 1702 deliveries, which is down from last year but a nice move up from last month's 1362 deliveries. Not bad."* I was delighted to provide some perspective on that narrative: There's always a year-end rush to take advantage of tax-credits. Adding to that surge in demand is the possibility of those tax-credits not being available come January 1st. An important aspect of demand not to be overlooked is supply. As of this post, there are 2,118 new 2017 Volts listed as available still. That's not a good sign going into December, especially when there are 2,929 of the 2018 models listed too. That brings some perspective to the *"not bad"* assessment, basically changing it to *"not good"*. In fact, this is part of the reason why production was temporarily halted. To really drive the point home, think about how much harder sales will be the second half of next year when the tax-credit phaseout has been triggered. That higher MSRP will really make Volt a challenging sell, especially against Bolt.
- 12-01-2017** **Hindsight.** Reading this on the big Prius forum sure caused me to flinch: *"In hindsight, it is obvious GM wasn't planning on the Volt itself in becoming wide appealing. It is a C-segment car after all."* It came from a well-known antagonists, a person who prides himself in being the ultimate devil's advocate... which works fine when looking forward. But when you look backward, that reverse perspective becomes an attempt to rewrite history. These blogs here are written to prevent that, by documenting what happened when it happened. I wasn't about to let him mislead with such blatant misrepresentation: No one's going to believe that greenwash. Even before it was rolled out, some of us were screaming from the rafters that it was going to be a niche vehicle. With those performance specs, it was clearly not aimed at the mainstream audience. Concerns of *"trophy mentality"* clouding direction emerged right from the very start. The design was unrealistic for mass appeal. There isn't basis for a hindsight claim. There is an abundance of evidence confirming Gen-1 would be stuck as a specialty offering. Gen-2 made that bad situation even worse. GM knew all along it could exploit the opportunity of tax-credits for reputation building, rather than actually delivering something for ordinary consumers... their own loyal customers simply looking for a green option to replace their aging GM vehicle.

12-02-2017 **Change.** It can be quite painful for some. The Volt enthusiasts inflicted an endless stream of hostile posts on me. Listening to the voice of experience, with a reasonable goal of helping all who wanted to promote plugging in, should have been welcomed. Instead, it was fight, fight, fight. Volt was "*vastly superior*" and nothing else mattered. They were wrong, wrong, wrong. What a waste. Now, there is a collection of choices growing, all defying the nonsense their rhetoric claimed was necessary. Now, it's time for me to provide some pain... by pulling off the bandage from their own self-inflicted wound. That's the best way to deal with the problem remaining. Get over it! Then we can finally focus on that reasonable goal. Ugh. Needless to say, I enjoyed posting this... with the hope of it being the very last on that terrible daily blog, which had such a negative influence on market change:

Too little, too slowly was the concern brought up well before the rollout of Volt. It was expressed due to the need to make sure sales were strong enough to allow the technology it used to be spread quickly in a profitable manner.

That never happened. There was so much missed opportunity, it became a business model of what not to follow... a modern example of how good engineering advancements can be seriously undermined by poor management decisions.

- * 1.6-liter 4-cylinder engine
- * 8.9 kWh lithium-polymer battery
- * 60 horsepower (44.5 kW) electric motor
- * combined output of 139 horsepower
- * 48 city, 44 hwy, 46 combined MPG

Those are specifications of the recently revealed Kia Niro, which will be available for purchase in the next few weeks. It's the plug-in hybrid SUV which had been long expected from GM, but never delivered. The belief is it will be affordable too, around \$30k.

The claim of industry leadership from GM has proven false. So many other automakers have stepped up to fill the void everyone had anticipated GM would fill, there's simply no attention being focused on Volt anymore. Those days of carefree rhetoric are over. Enthusiasts have some humble apple pie to eat now. It was not *vastly superior*. Lack of sales growth overwhelmingly confirms it.

The question now is: Will a spirit of cooperation finally emerge? Remember, the original purpose of participation on this blog was to find an ally in the quest to conquer the reign of traditional vehicles with plug-in choices.

- 12-03-2017** **No Jacket.** Reading this was interesting: *"This is the energy drawn from the garage outlet during a TESLA 30 minute pre-heat. It amounts to 1.64 kWh of electricity obtained from the house, instead of the car's battery."* I asked why 30 minutes. That's excessive in regard to any garaged vehicle. 10 easily removes the edge. Then I asked if he was driving without a jacket on. Turns out, he was. Imagine allowing yourself to run the car so long before driving that it's toasting warm inside. Regardless of fuel used, I couldn't imagine that level of waste. Never would it even cross my mind to do that. Wearing a jacket is a perfectly normal thing to do. Even if I could afford one of the nice models of Tesla, using so much electricity is wasteful. That's roughly 8 miles of EV driving distance in warmer conditions. With my recent Winter driving, it would be about 6 miles. The 10-minute pre-condition (warming before you leave) when set on MAX only uses 0.37 kWh. I have mine scheduled to use the 65 ECO setting instead, which uses quite a bit less. How anyone could use so much more without considering the energy involved is troublesome to think about. We don't want to just shift our wasteful habits from one fuel to another.
- 12-04-2017** **Tit-For-Tat.** Those final voices of the past aren't able to get much attention anymore. They certainly try though: *"Take your Volt blinders OFF. The Prime is in the same category as the Volt. The article was comparing the GM EV sales to the GM PHEV sales so I was referring to EV/PHEV sales..."* Knowing they lost and that it is over, there's nothing to lose, so they think anyway. Turns out, they can actually make a bad situation worse: It is all about sales of TRADITIONAL vehicles verses PLUG-INS now. With the end of tax-credits in sight and each automaker soon offering some type of vehicle with a plug, the early-adopter phase has come to a close. It's over. Though, if you do still want to tit-for-tat, I could point how that Prime offers a much more advanced electric-heater. The efficiency from its vapor-injected heat-pump is a step above what GM offers in both Volt and Bolt. So, I suggest we drop any of the debate and simply call it a wash at this point.
- 12-05-2017** **Attacking Niro.** It has begun. Some of the same old antagonists are fighting the new battle. Since Prime's presence is growing more and more of a challenge to overcome, they are trying for weaker prey. It's the same thing that happened with Leaf. Those nasty Volt antagonists attacked it relentlessly. It was an EV. That was Volt's supposedly enemy. When they couldn't defeat that foe, they pretended it never was the target and went after Prius PHV instead. Ugh. Fortunately, I have real-world data from back then which will be helpful to Kia's new plug-in hybrid now: Claims of more power being needed, but no actual data to support it... That complete absence of detail is a dead giveaway the situation portrayed doesn't have any merit. Lack of supporting material is just rhetoric. Knowing the 51 HP from the gen-1 plug-in Prius was often enough to merge onto the highway without starting the engine confirms the 60 HP will do the job for Niro. So what if the engine starts? It only runs for a short time anyway and on the highway you tend to want to save EV capacity for when you get off later. Of course, you don't need that much HP to maintain a cruise at 70 mph. So, what exactly is the problem?

- 12-06-2017 Real-World Data.** It took 1 hours 4 minutes travel 16.7 miles. That was the first Winter commute with a heat-pump. It is rather noisy, but moving so much air made that a realistic expectation. Of course, with all the ice crunching, I couldn't really hear it except when stopped. It's still an extremely efficient way to travel, as clean as possible too. The mission of Prius remains intact. I'll be seeing the ups & downs of each passing season just like in the past with the older generations. The benefit is obvious... and still quite pronounced. With a guzzler, you don't notice as much. No screen and such poor efficiency all the time, you suffer all year long... but have grown accustom to the sacrifice. Between the screen and plugging in, you can't miss it. Real-World data is what proves worth. The approach of much colder temperatures will do that too. For now though, it's just a peaceful (so to speak) drive in crazy traffic with all the guzzlers.
- 12-07-2017 Video: Messy Winter.** My commute 3 days ago was that opportunity I had long awaited. Winter finally arrived. It was an abrupt transition from rain to snow though, which left the roads a lumpy & wet mess. Travel was slower due to it being so slippery, but was otherwise uneventful. You can see how the electric-only operation for propulsion & heating worked just fine throughout the entire morning commute. Note that the "Climate Prep" option was part of my scheduled recharge at home, while plugged in at home in the garage. So, you'll see the temperature gauge reading warmer than the outside temperature at first. The footage turned out great. The 4K makes it especially nice. This is a video I'm very happy to share... [Messy Winter Commute](#)
- 12-08-2017 Model 3.** Guess who got to see one today. Me! At our plug-in owners groups, a person from within Tesla corporation was able to take delivery. So, we got to see it at today's meeting. That sure was a nice looking car. The reality really does meet expectations. It is a great EV. We're still facing the paradigm-shift required for something like that to become common. Plug-In Hybrids will bridge that divide. Between cost & infrastructure, the hope of fast simply isn't realistic. This is why so much hope had been placed on Volt, but time proved it wasn't up to the chore. So, we look to automakers pushing the production up front... like Tesla... and those pushing from behind... like Toyota... to make it all happen. With the generational cycle of vehicles typically 6 years and ownership over 10 years, there's much to consider. We'll make electrification happen, but pounding out issues... like cost & production... is quite challenging. That doesn't even address what it takes to get dealers on board. Upgrading homes for high-capacity charging will be a challenge too. Fortunately, we get confirmations from time to time about how well worth the effort is. That Model 3 today most definitely confirmed we should keep pushing.

12-08-2017 **Range Estimates.** How does a plug-in vehicle with just 0.1 kWh more battery-capacity earn 4 more miles of EV estimate? That's what EPA rating supposedly just awarded to Hyundai's new Ioniq. Thinking since it's a smaller car, weighing less could possibly provide that advantage. Perhaps it is a more efficient system too. After all, both hardware & software can make quite a difference. No, that wasn't it. In fact, the story doesn't make any sense. Prius is rated at 25 kWh/100mi. Ioniq is rather at 28 kWh/100mi. How can the vehicle with a more efficient rating get fewer miles? That doesn't make any sense. The only plausible theory is that it utilizes more of the capacity. That's really hard on a battery though. You want upper & lower buffers for longevity. Sacrificing that for the sake of a better rating is a terrible idea. Is that what actually happened?

12-09-2017 **Melting Snow.** People ask about the curved glass. No wiper gives the impression you'll have snow build up in back. Turns out, that's not the case. Wind from driving gets funneled. That amplification causes a clearing effect. Great... if you're driving already. But what if you aren't? This evening, I got to find out. It snowed while I was inside shopping. When I got out to the Prime, there was a thick layer of fluffy snow covering the hatch. I wondered how long it would take to melt off. So, I didn't bother sweeping it off with a brush. Instead, I got in and pushed the rear-heating button right before driving away. Before I even got to the stoplight just outside of the shopping complex one block away, most of it had already melted away. Whoa! That was impressively fast. I hadn't crossed my mind that Toyota would use powerful heating-elements to ensure the window would stay clear.

12-09-2017 Engine Started. Posts have been going on for weeks... to the point of that owner with the "*engine started*" problem ended up purchasing a video camera to document what was happening. In short, he wasn't getting an all-electric drive experience. For some reason, the EV was disrupted. Here is the conclusion drawn by that owner after all of our discussion on the topic, followed by mine:

"It seems to be my consensus that driving immediately, accelerating to a speed of 35 MPH while engaging the cruise control. It has been 9 days since ICE came on. The only thing I'm doing different is NOT engaging Cruise control. Accelerating quickly to 35 MPH does not necessarily cause ICE to kick in. Also the criteria is car is left outside overnight and only unplugged when I leave for my trip and the temperature is below 50°F"

It was obvious you were doing something outside of the "*predictable*" use cases. We've encountered that a number of times over the years, where some critical bit of information was unknowingly omitted.

My all-time favorite was from a Prius owner who complained about the car rolling forward unexpectedly. It took weeks for us to figure out that this owner, who had been driving for over 50 years, had never been behind the wheel of a vehicle with an automatic transmission. It never dawned on any of us that natural forward-creep behavior was something he hadn't ever encountered over all those decades. That doesn't exist with manual transmissions. It sure was a learning experience for us.

Another big "*problem*" of the past was the lock-up at start-up. Some owners were reporting the dashboard lighting up like a Christmas tree and the Prius never getting to Ready mode. It would lock the transmission, not allowing you to shift the selector. Eventually, they'd figure out how to force the system off. The next time they'd try, it would work every time. Our debugging efforts took forever. Turns out, when we asked if they were pressing the brake first (as instructed), before pushing the Start button, they actually weren't doing that. Not being attentive enough to notice the timing was key. If you were slightly ahead with the button... only a fraction of a second... the self-inflicted problem arose.

One other story was the "*brake pause*" issue. When you've been driving for that many miles and there's a claim of the system having a dangerous flaw, yet never experienced it yourself... despite trying to replicate the claimed situation... it makes you wonder. After weeks of posts, we finally got our answer. You had to be braking aggressively, then smack into a substantial road-hazard, at the peak of deceleration. I rarely ever brake that hard. Hitting a pot-hole or train-track at that exact right moment was quite a bit less likely. Finally putting those pieces of the puzzle together brought a much better understanding. Toyota did indeed tweak the parameters of the brakes to better deal with that rare situation too.

Will they do anything for those choosing to use cruise-control in low-speed driving with cold battery? Most likely not. The "*predicable*" use of the car is to plug it in overnight. That's an expectation for a plug-in vehicle, especially since it has a battery-warmer. Not doing that defeats the overall purpose of getting owners to equip their overnight parking location with a permanent charging option. That's how they'll get you

to upgrade your current plug-in with one offering a larger capacity in the future. Doing less means getting less.

It was yet another interesting learning experience for all of us.

12-09-2017 **Slow-Speed Cruise.** It appears to be that was indeed the trigger we've been looking for. Using it for suburb driving was not something any of us had anticipated. It's like those who disregarded the audio & visual warnings to inform you that fuel is getting low, then having the engine stall because it ran out of gas. Not telling us the warning part, yet complaining about having been stuck on the side of the road, leaves out an vital component to the story. We need to know every little detail. Patterns are easy to overlook. Someone who routinely used the cruise for their commute, despite not being on the highway, didn't think about how uncommon that was of a thing to do. With the radar for the dynamic-cruise, that isn't as much of a surprise. But nonetheless, it certainly wasn't predictable behavior. That was definitely a new one for us. I summed this situation up with: Cruise was the unexpected element in the equation. Normally, it is used for highway driving. With just a 25-mile EV capacity and a high probability of soon driving faster, engagement of that mode is instructing the system to be ready for more power to be demanded. So, it fires up the engine in preparation for that. It's another easy-to-explain situation that took us a great deal of time to insolate detail for. That's what we do as first-year owners.

12-09-2017 **Archival Note, part 1.** The final lashing out happened. I knew we were close. It was labeled "*Archival Note*" to mark this point in history, when we look back later at how things actually played out. It's good to document events in-the-now like that. I certainly have benefitted from taking the time to note thoughts & feelings at the moment. Anyone, this particular individual was a troublemaker who lost quite a bit. Several of his hopes & predictions feel apart. He was looking for some to blame. I was unwilling to oblige, making note of his particular frustration with the voting there: Voting has been a source of sabotage for years. Rather than any other venue that provides a means of conveying likes & dislikes, it allows you to hide anything you don't want to see... enabling it to become just a fanboy website, rather than a constructive place for discussion. Voting isn't even a tally, it's nothing but a simple up & down. So, anyone can take influence what is seen, calling ON-TOPIC discussion trolling while hiding the actual content to portray a different narrative. There's no accountability whatsoever. Just image if those providing the multiple negative votes took the time to respond to the topic instead of dropping bait and spinning rhetoric. You reap what you sow... Turning a blind-eye to problems is troublesome, but being an enabler is quite a bit worse. Why are blatantly false statements misrepresenting Volt to make it look favorable not called out? In other words, you should be trying to fix the true issue, not just look for a way of concealing it.

12-09-2017 **Archival Note, part 2.** My punch back at the lashing out was to provide a detailed summary of the situation:

The target of an annual sales rate of 60,000 was set for the end of year-2. This group had high hopes of Volt achieving that mainstream vehicle milestone. It was the technology to crush Toyota, as they often reminded everyone using "*vastly superior*" proclamations. With total disregard for how costly the design would be, they proceeded on with great enthusiasm.

It wasn't realistic. Price was far too high, even with the generous \$7,500 tax-credit, to draw interest from anyone beyond enthusiasts. GM shoppers simply didn't care anyway. Their preference for SUVs and large cars wasn't a good match for the small hatchback. Promotion of Volt becoming a high-volume, profitable offering fell apart.

Those who remained loyal turned a blind-eye to shortcomings, unwilling to acknowledge lack of an audience for the design they had endorsed and put so much effort into promoting. Over time, more abandoned hope and moved on... to the point where all who remained were just die-hard fans unwilling to recognize goals missed.

This topic about Kia Niro marks the end of their rhetoric... since the ultimate goal of Volt was to spread its technology to GM vehicles that their own customers would be drawn to. Very specifically, that meant seeing Voltec offered in a SUV, either Trax or Equinox. Despite the concern of "*too little, too slowly*" being continuously dismissed, it never became a reality.

GM's leadership didn't result in a mainstream product. Instead, we see Kia about to offer the first plug-in SUV (Niro) in this market, and it will be affordable (est \$30,000). Though more expensive (est \$34,500), we will also see a larger SUV plug-in (Outlander) offering from Mitsubishi shortly following that. The first deliveries of Honda's new plug-in hybrid sedan (Clarity) has already taken place too. With a \$33,400 base price, there's little to stir interest in Volt anymore.

Watch the variety of plug-in hybrid choices result in the market growth GM continues to struggle to achieve. It is absolutely essential to appeal to loyal customers. When someone comes in to replace their aging GM vehicle, what will they purchase from the GM dealer?

12-10-2017 **Competition.** Knowing what's going on in the larger scale is vital. Most people don't, as this clearly drew out in discussions: *"Toyota chairman says electric cars are not ready for mass production just yet due to long charging times and expense."* Comments came from enthusiasts, of course. Nonetheless, it still provided an opportunity to point out a few things... most notably, who the competition actually is: Notice how many EV announcements from other automakers are also given *"not ready"* status by stating they will rolled out in 3 to 5 years? Notice how none actually state the intended volume for those rollouts or their potential for profitability? Toyota is being up front, setting realistic expectations. Others are being vague to stir hype. There's a big difference most don't seem to notice. Remember all the *"over promise, under deliver"* we got from GM. Pointing that out isn't anti-GM. It's simply an attempt to get others to be realistic. In other words, this is a matter of acknowledging challenges still faced from the true competition: TRADITIONAL VEHICLES

12-10-2017 **Too Late.** Over and over, we keep hearing it's too late for Toyota: *"Even if solid-state will be THE final brick in the wall it will be too late for toyota who will be dead last in experience with electric cars by then."* They just keep repeating that brain-dead mantra. It's like they don't have any clue what a hybrid actually is. The manufacturing of parts for electric propulsion is already well established. Think about the motor used for Camry hybrid. Put that larger electric-propulsion component into the smaller body of Prius, you have a what you need for a EV with more power than Prime... exactly what they are spinning Toyota still won't have for years. Why don't they recognize that? Or do they, but their intent is to undermine by convincing people none of anything needed for EV has even been designed yet? Whatever the case, my intent is to circumvent theirs with video. That will be very visual rebuttal difficult to deny. But while I'm busy capturing a collection to share, it's still mostly words: That's comes from not understanding how Prime actually works. It's remarkably efficient... more so then some currents EV offerings. That's a big deal when moving up to dealing with cost issues from very large battery-packs. Did you know Prime uses a vapor-injected heat-pump for cabin warming? That is the industry's leading technology for electric heating. It's an advancement most people are totally unaware of. Toyota is far from the claimed last in production feasibility too. They are prepping their hybrid offerings to include plug-in options. Camry, RAV4, C-HR, and that replacement for the Prius wagon are all being positioned for that. Think about spreading cost and the benefit from high-volume interest. Who else in the industry is taking those measures already?

12-10-2017 **Stupid?** It's getting to the point that the question needs to be answered: "*No matter how you look at it Toyota are behind and are a part of the problem rather than the solution.*" After reading that, what do you think? It goes beyond just be clueless. But then again, we have a person now in the highest office of the country who doesn't know a number of the things he comments about. It's so bizarre to hear such blatant errors, things so easy to fact-check, being spewed on a regular basis. Hearing that there makes the nonsense here very easy to accept. It's like posting help-info 15 years ago. The internet of that time didn't have many who would do that simply to be helpful. Why would anyone do that without getting paid? It was a reasonable question to ask. Now, all this time later, it seems almost absurd to even consider that. People reach out to other people online just for the good of making humanity a little better. That's rewarding, even if it costs the provided time & money. It's what many do now. So, hearing people outright lie to defend their beliefs... knowing it is so easy to disprove what they claim... isn't so far fetched. It is weird though. Why would you do that? Are they so desperate they are already at the "*nothing left to lose*" stage? Needless to say, it is rather baffling. Fortunately, I persist through all of it still: Are you unaware of what it took to make Prius into Prime? That hybrid to plug-in transformation was basically just adding a one-way clutch and increasing the size of the battery-pack. Having other models of hybrid at the ready for the same thing puts them in an excellent position to offer affordable plug-ins for the masses. What other automaker is preparing to provide a wide variety of choice in the near future like that?

12-10-2017 **Innovative!** Turns out, those enthusiasts really are just stupid: "*...they just stopped innovating! They still haven't equaled what the Volt offered in 2010, never mind offering an EV of their own.*" So desperate to defend GM from Toyota, none are bothering to do any type of study anymore. It doesn't take more than just a few minutes of research to find out Toyota is far from the only automaker pushing GM out of the picture. This is why I stated the "*too little, too slowly*" concern so often. Rather than actually paying attention to the words, they took it as an insult. It's like yelling "*watch out*" and them brushing it off as a joke. You tell them what's wrong and what to do about it, but the advice is outright dismissed. Ugh. Oh well. It's not like I didn't try. They're in for quite a reality shock next year. In the meantime: \$27,100 MSRP is not being innovative? Not able to see that the challenge of making the plug-in choice affordable is a problem Toyota has taken quite seriously. Despite the use of carbon-fiber for the back hatch for weight reduction and waved glass for aerodynamic improvement, they delivered. It's a remarkable efficient vehicle, in addition to being affordable. That's innovation.

- 12-11-2017** **Failure.** You'd think they would finally see it. Apparently, that's asking too much. How anyone thought GM could blow away Tesla with conquest sales is mind-boggling. Who of the early-adopters shopping for an EV would take that comparison seriously? Bolt has a price higher than Model 3. It simply makes no sense choosing a small wagon over an elegant sedan from an audience beyond a very small niche. Sure, you'll get some people unwilling to wait and those desiring a more practical shape. But the comments of Bolt looking & feeling cheap inside puts much of that consideration to rest. It's a small audience, period. You don't build mass-market expectations on such a small prospect. That isn't realistic. In disbelief that I actually had to post this, it happened: GM is not seeing SUV owners express interest for Volt or Bolt. Small hatchbacks & wagons do not appeal to them. Their priorities are quite different. This is why the "*it's worth it*" approach failed for GM and simply doesn't apply to Tesla. Know your audience.
- 12-11-2017** **Wake-Up Call.** Reading post after post with smug remarks. They were so insulting, intended to offend & harm. It has been quite amazing. Prius is slow. Prius is ugly. Prius is short. So much attitude toward blind hope. Volt was supposedly "*vastly superior*". Their market was tiny though, just niche. No one cared beyond their own group. Those Volt enthusiasts were terrible. Closing of this year will bring their failure-to-grow vehicle to an end. Ordinary consumers will simply brush it off the same way they still do with Prius now. We see it coming. Signs are obvious. This attention that will come from the affordable plug-in hybrids is why Volt will die. Who knows what GM may do with the technology itself. The barrier it caused will be gone. I posted: "*It's a wake-up call for many who assumed people like you and I were the customers. All along, it has been the dealerships who the automakers must appeal to.*" This was the vital mistake, a catastrophic oversight. This is what held back growth. This is why Volt failed. Those terrible troublemakers slewing all those insults didn't realize their efforts were for the wrong group. Prius supporters weren't who mattered. If you cannot get a dealer to support more than just a few token vehicles, there won't be much for sales. No inventory was a problem they took seriously. Salespeople won't bother with a vehicle that's difficult to sell and won't earn them much commission either. This was missed opportunity. So much could have been done, but wasn't. All those attacks were a huge waste. They didn't pay attention. They didn't learn.

- 12-11-2017 Reality Check.** The clueless nature of some people is truly amazing. They make assumptions and never bother to verify. That fundamental mistake leads to countless errors being made. Even after that, they still don't take the time to check original sources. They continue to assume incorrectly. That level ignorance is very difficult to overcome. Not having any awareness of the problem allows it to persist pretty much indefinitely... as we have seen play out. It may change as some point though, as I eluded to today: Reality check isn't necessary. We already know there will be problems, but those are easy to address... once the vehicles are carried in inventory. This is how the "Prime" models will demonstrate a strong approach for penetrating dealerships. Much like the popularity growth of RAV4 hybrid, it will simply be a model available to choose from. In other words, the dealer will have to do little to stock them and the salesperson little to promote them. It will just fit into the existing process... but also have a plug. When I went on a test-drive of Prius Prime, it wasn't charged. Go figure. That was no big deal though. No plug required. For the first part of the drive, we put it in CHARGE mode. That aggressively charges the battery-pack using the gas-engine (at a faster rate than you can pull from the grid, in fact, an 80% recharge in roughly 40 minutes). This allowed the return trip to the dealer to be entirely in EV mode.
- 12-09-2017 Video: Ordinary Winter.** "Just Drive It" was the approach with this video. Again, I was able to deliver 4K resolution. Winter cold had finally come to stay, here in Minnesota, so I captured my morning to commute to share detail of that all-electric experience. It was a non-event, an ordinary commute for me in the winter... hence the name. I got to the charger at the ramp with electricity to spare, despite the need for running the heater very close to the heat-pump threshold. A few more degrees colder, the engine would start to supplement warmth. It was nice enough though to avoid that. So, you see the maximum 199.9 MPG displayed on the screen was the outcome. Results like that are what others in a less hostile state will see routinely, all throughout the cold season. I'll see that often, but there will be cold-snaps later where that won't be realistic. I can't wait to see what the results are then, when the plug-supplied electricity is used less often, since the engine will cycle from time to time. The threshold for that is 14°F. In the meantime, temperatures slightly above are all with EV driving... [Ordinary Winter Commute](#)
- 12-12-2017 BRAKE!** That certainly was impressive. Off in the distance, the Prime detected stopped traffic and recognized I hadn't done anything to decelerate yet. Having your foot still on the accelerator-pedal indicated there was no acknowledgement of the danger being approached. So, the system buzzed an audio & visual warning. That was sweet! I hadn't realized just how far ahead it was scanning or how active the response would be upon recognition of a problem. This is why Toyota's choice to include collision-avoidance in virtually all their passenger vehicles is such a great investment. That's quite a number of years ahead of the auto-braking mandate (2023 model-year, I believe). To see it in action like that was a great demonstration of worth. Thankfully, I responded to the bright red "BRAKE!" message on the screen, rather than the Prime having to do it for me. That advanced warning of an imminent could be really helpful. Another new standard technology included is auto-high-beams. Those sure are nice and surprisingly quick. Handy improvements like that make the driving experience much less stressful, as well as safer for everyone.

12-13-2017 **Soon.** I could feel it coming. An end to the absurdly long problem call "Volt" was approaching. The car itself was actually rather nice, but in no way realistic for mainstream buyers. Being so small and expensive never made any sense. In fact, it was as if GM has sabotaged gen-2 for the sake of moving on to EV instead. After all, it's not like they didn't do that already in the past anyway. They say it didn't work and move on. In a manner of speaking, it really didn't work. The catch is, some of us saw that with the approach back when Volt was still being designed. The specification simply made it too expensive. It was a very risky "top down" strategy. Both the price of gas and the price of batteries needed to remain expensive. Turns out, neither did. That hurt Volt so bad, it was doomed years ago. Some simply didn't want to acknowledge the facts placed before them. Some still don't: *"Really? In the same thread you have two opposing views? Everything should be plug-ins, but, they don't compete with each other? Yikes."* I was happy to address the denial: Still not understanding that each automaker must address their own customers is indeed a major problem. No opposition. No contraction. No competition. "Who is the market for Volt?" was asked literally hundreds of times to point out that GM's own production for GM's own loyal customers is what must change. When a shopper goes into a GM dealer to purchase a GM vehicle, they couldn't care less what the other automakers are offering. That's how it has been for decades. Like other new technologies of the past PLUG-IN will be just another step forward... a big step... but nonetheless, seen as the expectation for each automaker to replace old technology. No amount of short-term spin will change that. We see the need for a plug-in SUV from GM for GM shoppers. Period.

12-13-2017 **Not Enough.** I found this an absolutely wonderful way to wrap of the rhetoric: *"But 22 miles of pure EV range is just not enough today."* That claim had no merit, nothing whatsoever to back it. I knew it would hit hard. There's simply no way to respond. All their efforts provided practice for me, allowing an opportunity to refine responses prior to it actually mattering. No one really cared much until now. Early adopter opinions are meaningless to mainstream consumers. This is why knowing your audience is vital. A common about someone passionate about performance is just a waste of time to someone looking for an affordable choice. They just plain don't care about extremes. They just want to get from point A to point B without ever any trouble. It's that simple. That makes selling the benefits of plugging in a monumental challenge. Anywho, I made it quite clear their enthusiast opinion didn't matter: Not enough for what? SUV is not a single-occupant commute vehicle. That usage never made any sense, nor could it be realistically justified. In other words, wasting electricity isn't acceptable either. Simply switching from gas isn't enough. The vehicle should be used for the purpose it was actually designed. Running around town with the kids or to do some shopping is a realistic use. 22 miles fulfills that for a large number of potential buyers. You can do those weekends trips towing the boat to a fishing hole too. In other words, without solid reasoning, any distance qualification is arbitrary.

12-13-2017 **Goodbye.** The ultimate death-blow to the Volt enthusiasts came from Mitsubishi. With the news of Kia's small plug-in hybrid SUV and Honda's large plug-in hybrid sedan, they couldn't take anymore. It was clear the discussion-topic on it today would bring about an undisputable end to their avoidance. So much else going in the industry left them without anything of merit. It was literally down to just spewing rhetoric. Evading the inevitable wasn't going to work. They faced a day of reckoning. I was pleased to sum it up for them:

The extreme reaction here today, defending the "*too little, too slowly*" situation with gross over-generalizations and hiding posts, is more than enough proof to confirm the problem is finally a serious concern.

IT'S ABOUT TIME !!!

To be told over and over and over that GM had this amazing technology which would take the market by storm, yet not actually do that after 7 years and 2 generation, was terrible to have to deal with. The "*over promise, under deliver*" denial became a major barrier to progress.

NOW, WE MOVE ON.

Seeing Volt enthusiasts shift support from EREV to EV is quite the hypocritical thing to witness; nonetheless, the act of pointing that out is acceptance of it. Volt has been abandoned in favor vehicles with no engine at all.

REALITY HURTS.

The sting of financial burdens will become all too apparent for this group of die-hards here. GM will succeed in carving out a niche, but the challenge of appealing to the masses is an entirely different effort. Overcoming their apprehension to change is far more difficult. Unwillingness of the market to adapt will take a great deal of time & money... far more than many want to admit.

BOTTOM UP.

The approach of top down isn't providing viable for legacy automakers. The idea of building an expensive vehicle, then convincing consumers it is worth the money, simply doesn't work for them. Far too much of the existing system already in place needs to change. That's only realistic for a business starting from scratch.

GOOD LUCK.

You're going to need it. Today's topic makes that all too clear.

12-14-2017 **It Happened.** This was the outcome of my post: "*The technology has taken the market by storm. Plug-ins sales are increasing month over month. Even today's articles is about the #1 selling plug-in in Europe. Even Toyota finally joined in. Hybrids are old technology, no matter how much you try to say otherwise. Plug-ins are the future.*" I was quite surprised to see such a drastic measure being taken. The expectation was a quiet fade away, not a parallel to what we see in the Oval Office. But then again, he got into this position by the same means. So, I sounded off one last time with:

Wow! I haven't said otherwise. In fact, what you posted goes well beyond desperation. It is a last ditch effort to paint a rosy picture with distortion & misrepresentation before the inevitable end.

You know all too well that sales of Volt have been dropping. The much hoped for second-generation was not able to achieve growth. Watching Prime take its place as the vehicle that was able to appeal to mainstream consumers is simply too much to accept. Making the situation worse is hearing that Mitsubishi, Honda, Kia, Hyundai, and Chrysler all have new offerings to fill in the gap GM wasn't able to. Each strives to appeal to their own customers.

It wasn't supposed to play out like this. The technology used for Volt worked fine. Problem was, the capacity was overkill. That much didn't result in taking the market by storm; instead, it just dragged along for years using up precious tax-credits on nothing but conquest. I was correct. Reducing the battery-pack is the key to sale growth. Combine that with a vehicle type appealing to GM customers, you've got a winner. Only problem, pride gets in the way.

So, we see this final attempt to conceal the true story. Go ahead. Say whatever you want. I'm done. We can see the end coming. This chapter is over.

12-15-2017 **Tortoise.** The same old nonsense continues, only with new voices now. On the blogs dedicated to EV advancement, there's quite a bit of smug emerging. They're measuring leadership the same way. The bigger the battery-pack, the further along the automaker supposedly is. It's so naive of a perspective, taking the posts seriously is a debate. Should you? They obviously don't have a business background, so any comment posted in regard to market behavior is just blown off as blind loyalty. The very idea of affordability or diversity is outright dismissed. Some have already made up their mind that it is over. The race has been won and Toyota lost. Ugh. It's so bad, I won't even waste including a quote this time. You can easily guess what was stated. I responded to the growing rhetoric with: For that narrative to work, one must pretend the newest hybrids being rolled out aren't plug-ready. We already know that isn't the case. Prius is now available as a Prime model by having added a one-way clutch, increasing battery-pack size, and upgrading the heat-pump. Those are all cost-effective modifications. The rest of the system is already designed to handle the EV driving. It's pretty difficult to argue the new Camry hybrid isn't the same way. And now from this discussion topic, we've been told the Corolla hybrid is too. Think about RAV4 hybrid, CH-R hybrid, and the upcoming replacement for Prius v. There's an Avalon hybrid too. We also know there's a next-gen Highlander hybrid on the way. That means a lot of denial is required to see that Toyota isn't taking the goal of phasing out traditional vehicle production seriously. They are clearly positioning to offer a number of plug-in models. Attracting that audience is far more difficult than the early-adopter (tax-credit incentivized) sales so far. That progress is how the race is won, not by position in the first stage.

12-16-2017 **Analogy Attack.** There is one particular individual on the EV forum who feels threatened from the rise of Prime. He's been doing everything he can to undermine that progress. That most obvious is spinning an analogy of doom. Yesterday, someone chimed into that narrative: *"A better comparison would be Nokia or Blackberry, both of which delayed going to keyboard free for far too long and then messed up the transition when they eventually went. Toyota are at the first stage obviously."* Drawing someone else into the narrative to impede is a problem. Can't let that happen: That analogy falls apart when it's pointed out that neither Nokia nor Blackberry had decent software to support a touch-interface. That most definitely isn't the case for Toyota. They are already delivering the full EV drive with Prime. Toyota already has a ton of experience producing a variety of electric-motors and battery-packs. Prius Prime includes a heat-pump and optional CHAdeMO charging to build upon that foundation the analogy overlooks. Claims of delay don't have a merit; there simply isn't anything to support that. When the next-gen batteries become available (higher density with faster recharging), Toyota will have a vehicle shaped to pack in lots of those cells. Everything else is already established. Think about how far along Toyota is with reliability and cost-reduction. They even have an extremely efficient electric-drive system already, both hardware & software. The analogy doesn't apply.

12-16-2017 Both Are. The rhetoric has really ramped up lately. It is obviously a final desperate act to save reputation. We are watching Volt's failure to grow sales come to an end. It didn't achieve the necessary goal. So much was invested in a poor configuration choice. Management made the decision not to take their engineering advancement to mainstream consumers. Volt was designated a niche and was doomed to stay that way. Gen-2 made that overwhelmingly clear. Trouble was. Few wanted to admit it. Acknowledging sabotage isn't easy. But it isn't hard to see the cramped seating and lack of advertising as anything other than disinterest. Rather than deliver something for the masses, focus remained on faster & further. Giving it more power & range than the previous generation was exactly the wrong thing to do. The size of motor & battery should have either remained the same or been made smaller. That's how cost-reduction is achieved. Increasing specifications is the opposite of what was needed. Anywho, I've been witnessing the resulting mess play out to its inevitable conclusion... denial: You seem to be suffering from a chicken/egg situation. GM is focusing on the chassis, hence rumors of the Bolt platform being offered as a SUV in the future. Toyota is focusing on mindshare and reputation, hence replacing their existing production with hybrids & plug-in hybrids. Both are pursuing the same goal. Both are refining production of components within to reduce cost. Both are improving hardware & software operation. Yet, you claim that GM has a *"huge head start"* and Toyota has *"squandered its leadership"* even though evidence proves that's not the case.

12-17-2017 Few Years? The denial continued: *"It's a safe bet the tax credits for Tesla, GM, and Nissan will run out within the next few years."* I was rather surprised to see that, so must so I posted the following... making sure there was lots of detail to ensure it was overwhelming clear that the loss of subsidies would come sooner:

Few years? GM is already at 158K. With the year-end scramble to take advantage of tax-credits, it's easy to see that count climbing to 163K. Assuming no growth in demand or supply, a Bolt/Volt sales rate of 4K per month would mean the phaseout would get triggered at the end of Q3.

That would mean the last quarter of 2017 and the first of 2018 would offer the tax-credit at 50%. The following two quarters would be at 25%. The final tax-credit opportunity would be September 30, 2019... which is not a few years. That's less than 2.

Volt is already struggling with sales, primarily from being too small and too expensive. Even with a miracle price-drop from battery-tech improvements, it wouldn't be anywhere near enough to offset the \$7,500 tax-credit loss. From \$200 per kWh to \$100 is only a saving of less than \$2,000.

GM's supposed leadership cannot just settle for sales well below mainstream levels for Bolt and barely niche levels for Volt. The loss of the tax-credit will make that situation even worse. This is exactly what the *"too little, too slowly"* concern was all about.

Remember, both Tesla & Nissan are planning for much higher sales volume and neither has a tax-credit dependency as part of their plan. Model 3 is competitive at \$35,000 as a low-end luxury offering and Leaf has a base price of \$30,000.

- 12-17-2017 Winter Charging.** A strange new topic emerged today. Some random newbie posted a random question: *"So I guess what I'm saying is, should I give up charging in the winter? Am I still saving money when I'm charging every 3 days?"* That's as random as you can get. I certainly didn't see that coming. My assumption was the benefit of plugging in would be obvious, even when the depths of winter arrive. Apparently, that's not the case. I wonder why. Hmm? There's lots to learn from owners new to plugging in... hence, the intentional limited rollout of Toyota. Keeping the markets limited made study of usage behavior somewhat easier. With so many variables at play, it's quite a challenge to identify patterns and pinpoint bottlenecks. We're all trying though. From an owner to owner perspective, I shared: Any electricity you use will provide a greater benefit to the gas used. That has been overwhelmingly confirmed by those who drove their Prius PHV in the winter, leaving home with full charges every morning. When the engine runs, that heated coolant will circulate to provide warmth for quite awhile, allowing the EV drive to be taken advantage in the meantime. MPG clearly shows the resulting gain. Electricity use will also help reduce pollution, which is worse during the winter. So whether it saves money or not, there's still a win in return. Leaving Prime plugged in will take advantage of the battery-warmer too, which reduces impact from the cold. Have you looked into time-of-use discounts from your electricity provider? I had a sub-meter installed. That dropped my price paid for overnight charging to 6.74 cents per kWh.
- 12-17-2017 Spreading Misinformation.** Figuring out how to respond to something like this can be quite a challenge: *"I found it strange that Toyota's very first PHEV, a Prius Plug-in with quite minimal EV-only range, had two separate battery packs, but both were lithium!"* Where exactly did that information originate and what is the intent of spreading it? Fortunately, I don't encounter stuff that misleading too often. Simply being that vague makes it less likely to go anywhere. But nonetheless, we do get comments about having read it from some source in the past... making you wonder if this was an effort to supply exactly that, hoping someone else will pass it along without questioning its reliability. Needless to say, I jumped on that right away, pleased I had some supporting video to help back up my claim: That very first was just a prototype, used for testing the system prior to the production pack. I got to drive one for a few days back in August 2010. That was very different from the actual rollout model, which I purchased in May 2012 and drove until I replaced it with a Prime in April. Prius PHV most definitely only had a single pack, shared for both EV & HV operation. Here's one of many videos I filmed proving that... [Prius PHV - Commute Work \(Deplete EV\)](#)
- 12-17-2017 Misinformation Harm.** When someone reads the misinformation, they base assumptions upon it... contributing their part to making the problem worse. For example: *"Since they had two separate battery packs in the car, and since (as I understand it) the car operated most of the time in parallel hybrid mode, just like an older non-plug-in Prius..."* See how easily the situation gets blown out of proportion. How would you go about correcting that, knowing the person spreading misinformation may not be the slightest bit receptive to what you have to say. Why would they? Who are you? How could you know more than some unknown on the internet? Ugh. That happens all the time. It's amazing how much damage is caused as a result. There are misconceptions that emerge which can live for decades. You can't stop understanding issues. You can work to prevent them from starting though. I certainly try: Neither the prototype, nor the PHV model, operated like that. As the video clearly reveals, you could drive the entire EV capacity without the engine starting. In that example, it was 14.1 miles.

12-18-2017 **Known Plans.** Remember how FUD works? It's the spread of Fear, Uncertainty, and Doubt. That's used to undermine progress. We see this coming on a regular basis from Volt enthusiasts, the very same individuals that will take GM vague announcements at face-value as a solid promise. Yet, when it comes to Toyota they pretend nothing is ever told, that intent is a total mystery. When confronted with detail, they just brush it off. The hypocritical nature of their behavior is what I key into. That's what I use as confirmation that nothing has been overlooked. Since the upcoming new year will bring an end to certain debates, it's good to have researched each of the topics as thoroughly as possible. This was my response to their latest FUD attempt:

We have known about the plans for quite awhile. The entire passenger fleet being offered as hybrids is a positioning maneuver to make the plug-in option an easy next step... at low cost...

- Corolla hybrid
- Camry hybrid
- RAV4 hybrid
- C-HR hybrid

Each of those await the opportunity to exploit the "*Prime*" update similar to what was delivered for Prius.

Being simple & affordable is key and the HSD design makes that realistic.

12-19-2017 **Know Your Audience.** No matter how much I share that message of importance, certain people just plain don't get it... or don't care. They keep the blinders on, concentrating exclusively on what they prefer rather than what is necessary. It's the problem of want. Some don't understand the difference. Anywho, it has been interesting to witness the person having brought up "*innovator's dilemma*" not understand what it actually means. Ironically, he's suffering from that very issue. This is where psychological behavior of reflection originates. You see what's wrong, but don't realize you are the one experiencing it. I posted this about it today:

It's quite clear that the majority here don't recognize how vital that advice is.

Applying the early-adopter perspective to a mass-market audience doesn't work in many situations. The problem is called "*innovator's dilemma*". It's when the formula for success in the initial stage of rollout is assumed to be what's needed for the stage to follow.

In this case, we see how GM's upgrade of Volt to gen-2 focused on enhancement of the same traits which drew sales for gen-1. That clearly didn't result in the much hoped for sales growth; instead, the opposite happened. We've been witnessing sales shrink.

The reason why should be obvious. GM listened to the same audience that jumped on tax-credit savings and low-lease opportunities for Volt, who have since moved on to Bolt... because it was the next step in electrification: large-capacity batteries.

Abandoning everyday consumers for the pursuit of the latest & greatest is perfectly fine, when your purpose is pushing the leading edge forward. That is a horrible mistake though, if you are trying to deliver a product for the masses.

This group clearly isn't interested in that audience. They prefer support of the innovation, the push. That's ok, but mainstream consumers still need their "*ordinary*" choice to purchase... which is exactly what Toyota seeks to deliver.

PHV/Prime models of Toyota other hybrids are on the way. We see the impressive upgrade to larger and more powerful, yet still remarkably efficient, from the new Camry hybrid. The upgrade to deliver a plug is the obvious next step for mainstream consumers.

Too bad if you find it dull or boring, that's how the bulk of the automotive business makes sustainable profit. Know the buyers.

12-20-2017 **Insight Gen-3.** Rumor or Sneak-Peak? It was hard to tell. The impression given from an image being circulated on the internet today was that Honda will be revealing a gen-3 version of Insight at the Detroit autoshow. It looks a little bigger than Civic, squeezed in between it and Accord for size. That would be an interesting twist. With the newer two-motor hybrid system, that approach does make sense. Why not? After all, the offering for vehicles in the future will be some type of hybrid. Since plug-in models won't work for everyone, that's definitely a wise option to offer. The question is, when will it be rolled out? With the Kia/Hyundai offerings entering the market, there's new competition to deal with for the usual initial round of conquest sales. Then once things settle down, the plug-in hybrids will be established. 2018 certainly is shaping up to be interesting.

- 12-21-2017** **Clarity Attacks.** One the wide-audience blogs for plug-ins, we're seeing a lot of attacks on Honda's upcoming new offering already. The Clarity is getting the "*vastly superior*" treatment from... you guessed it... the Volt enthusiasts. They sure are a pain. It's the same old "*leapfrog*" nonsense all over again. This is no surprise, of course. They've been all-bark-and-no-bite for so long, they've lost touch with goals. Sales growth clearly doesn't matter to them anymore. All that seem to care about is showing some type of dominance. It's like the alpha parading around expecting everyone else to provide praise. Who cares if all you are doing is an exhibition. Actions speak far more than words. Yet, we're not seeing it from GM. But we are already from Honda. That's impressive. The initial round of reviews are demonstrating ability worthy of attention. Enthusiasts are more worried than ever about losing their spotlight. Well, too bad. This is what the "*too little, too slowly*" was all about. You can't just rest on laurels like that. Now, they have good reason to panic.
- 12-22-2017** **Refusal To Accept.** Some just plain don't want to. The pattern of who is blaringly obvious... Volt enthusiasts. This is why I blogged so much about them. I could see the pattern from prior generations of Prius. When change is necessary, you must adapt. They refuse to. That's a major problem which will inevitably play out in a bad way. Rumor of Volt's impending death are becoming common. No message of intent from GM is what's bringing this about. In the past, they were fed ambiguous & vague announcements which provided the meritless hope they thrived on. Having nothing whatsoever to support their claims didn't matter. It was all about having a clear direction, not a realistic means of getting there. Now, there's nothing. It's creating a sense of loss. They have no idea what to do... other than the usual... place blame and make excuses. I push back every time they do, like today: Toyota will be offering a BEV, in addition to the HV, PHEV, and FCV offerings. What's wrong with diversifying to cover a variety of markets? After all, much of the hardware & software can be shared. Take a deep look into Prius Prime. It takes advantage of the existing cell-stack design in its battery-pack. The tradeoff is physical size, but what you get in return is an robust & affordable offering. The new Camry hybrid is amazing. 52 MPG from a larger, more powerful vehicle than Prius should really catch people's attention... but won't. The design is so subtle, it will just be part of the fleet. A model offering a plug will likely have the same "*ordinary*" appeal. In other words, the short-sighted hype we encounter within online discussions don't necessary reflect what mainstream customers will actually encounter.
- 12-22-2017** **Bizarre Behavior.** This blew me away: "*I tried unplugging, plugging, unplugging very fast and plugging back in, unplugging from socket wall with charger still in car port, nothing works.*" It was a truly bizarre behavior to read about. What in the world would give a person the impression that faster is better? Imagine pulling the power-source on a device out quickly, just moments after it detected power and began to start up. Halting it mid-cycle makes no sense whatsoever. Needless to say, I was quite curious. Sadly, the person never did reply to my post. That often happens. Someone will post an odd experience, then vanish. I certainly tried to bring some clarity to the situation though: That's exactly what you shouldn't do. Fast could cause a fault. You likely need to reset your CFCI outlet, service-panel breaker, or the charger itself. What does the status light indicate?

- 12-23-2017** **Dropping Bait.** Despite not fitting the definition of *"troll"*, since I make sure posts are on-topic and within context of the discussion, that's what I get labeled as anyway on that old Volt blog. They do that with the hope of concealing the reality that they are actually the trolls dropping bait. When I don't participate, there's little activity. Most days just fizzle without any type of opposition. That's what happens on a venue where everyone blindly agrees. Just a bunch of followers makes for a very boring setting. So, they attempt to provoke. This time, it was: *"Today's post is about Toyota going fully electric and not a single comment from our dear 'friend'."* I waited until there was no more posting, late in the evening with the knowledge of it being past their time of interest, then bit the bait with: \$27,100 MSRP for Prius Prime. Disregard toward the importance of that has set a precedent of disregard for affordability. There's simply no point discussing matters of price when there isn't any concern for it. Toyota continues to deliver, keeping price a major priority. \$27,900 MSRP for Niro PHEV. That shows us that Kia also has price as a major priority. GM does not yet. We are still waiting... too little, too slowly.
- 12-24-2017** **Really Cold.** It was -2°F two nights ago. Cruising at 80 mph with a nasty headwind resulted in the usual much-lower efficiency, but heat stayed quite comfortable after getting off the highway. I switched to EV and took advantage of the battery for the rest of the drive. No matter how cold it gets, you'll have the opportunity to use heated coolant to stay warm for awhile while the engine is off. It just cycles from time to time to generate more heat to circulate after it shuts back off. With an aftermarket gauge, you can see the temperature thresholds. I haven't tried that yet with the Prime, since being below 14°F for me to carefully observe the cycling hasn't happened yet. Following holidays, I know there will be plenty of opportunity. Back in Minnesota, the cold doesn't go away for quite some time.
- 12-25-2017** **All Day, No Plug.** We got there early in the morning and didn't leave until last in the evening. My Prime sat outside all day, exposed to the extreme cold of that Wyoming open prairie, while we were inside celebrating Christmas with family. It was the ultimate test of not plugging in. Just how long would it take to warm up for the drive afterward? Being so far below the freezing-point, somewhere in the negatives, I didn't care to find out. That would be a rare occasion where I did what everyone else does... start the engine and let it run for a few minutes. That works out when you have to sweep off the fresh snow and load up the car anyway. Turns out, there was a decent warmth coming from the heater after just a short span. I was even able to get a few photos on the way back to the hotel of Charge-Mode in action. That's nice proof of it working just fine in extremes.

- 12-26-2017** **\$24,950 Ionic PHEV.** That base price revealed today is amazing. As expected, it's missing some of the standard safety features which come on the base model of Prime. So, there really isn't a lower price. They basically work out to the same. The catch is, Prime offers more power and electric heating. So, the well-informed will have to carefully consider their options. Hyundai's Ionic isn't quite as large as Prius either with respect to visibility out the rear. It's quite obvious too. But then again, the plug-in model of Ionic has noticeably more cargo space available. I like this. It's more of a rivalry than competition... as it should be. Remember, we are looking for adversaries, not enemies. Too bad the GM people never understood the difference. We're supposed to be fighting together to end the reign of guzzlers, not to battle each other. Ugh. Anywho, the price Hyundai delivered is impressive. Kudos to them for making low-cost such a high priority. That most definitely is nicely under \$30,000.
- 12-27-2017** **Extreme Cold.** Our road trip to Wyoming was our first encounter with extreme cold in the Prime. It sat outside all day without plugging in, then got an decent warm-up with the engine prior to leaving. Prior to reaching the 80 mph highway, I switched over to charge-mode so we'd have an ample supply of electricity for driving through the Christmas Light display. All went extremely well... though, I am really looking forward to the return of warmer weather. -5°F is far from ideal. The photo my wife took at 81 mph show 9.7 miles traveled resulting in a 28.4 MPG average. Not bad, considering such drastic conditions and recharging the battery-pack at the same time. Looking back to the photo taken prior to getting on the highway is what really caught my interest. While at 43 mph, the screen showed 23.5 MPG at 4.7 miles. Seeing the efficiency go up like that was an unexpected outcome. Of course, it's simply a surprise to most that Prime runs so well under that extreme. To watch it push efficiency too, that's sweet. Turns out, we got most of the way through the long drive in the park while in EV. Sitting there at the start of the illuminated tunnel and while at the most elaborate display (one synced up with a radio broadcast) caused the engine to cycle shortly for cabin heat. We had a good time. I really enjoyed it... and quite thankfully was pleasantly warm.

12-28-2017 **Avoidance, struggle.** Discussion of Volt's demise is rapidly growing. Year-End sales results combined with the inevitable loss of subsidies is a very real problem enthusiasts don't want to address. Today's blog post drew attention to the struggle Volt is having. I provided context:

January 6, 2007 is when GM revealed Volt to the world. Struggle to sell Two-Mode hybrids made it the next logical step. The automaker would refine their system to use a dedicated platform optimized for EV driving. Following depletion, it would also deliver incredible hybrid-efficiency.

40 EV miles. 50 MPG depleted. Nicely under \$30,000. Those were the targets set for the end of 2010. It seemed too good to be true though. How could so much be delivered so quickly?

By 2009, concern of "*too little, too slowly*" became a very real issue. The automotive task-force assigned to oversee bankruptcy recovery explicitly stated this as needing serious attention. We were assured over and over again, there was no reason for concern. Technology in Volt was "*vastly superior*", allowing it to achieve mainstream sales volume by the end of the second year.

That didn't happen. Volt was far more expensive than anticipated and no where near as efficient. All 3 targets had fallen came up well short of expectations. We were told to be patient. Design of the second-generation Volt would address those shortcomings. No need for concern.

That didn't happen either. EV range target was achieved, but hybrid-efficiency and production-cost prevented it from reaching ordinary consumers. Sales were flat, rather than being the much hyped big boom. Now on the third year of that upgrade, sales decline is undeniable.

The rapidly approaching phaseout trigger for the \$7,500 tax-credit raises concern of attracting GM buyers to Volt a serious problem. GM simply cannot afford conquest sales (drawing customers from other automakers) anymore and cannibalization (losing sales of Volt by choosing Bolt) hurts dealers & salespeople. Replacement of traditional offerings clearly isn't going well.

It doesn't matter what other automakers are doing at this point. Time is rapidly running out. GM has backed itself into its own corner. GM shoppers don't want a small hatchback or a small wagon. The fact that both Volt and Bolt are so expensive to produce & sell negates any supposed benefit the design offers. People don't want that tradeoff.

We all know offering an affordably designed plug-in hybrid system in a small SUV, like Trax, is what GM desperately needs. We also know that the moment it is announced, demand for their traditional SUV offerings will see an immediate negative impact. That corner GM is trapped in has become quite obvious.

Choose how to reply to this carefully.

Think about posts of the past.

What's different now?

- 12-28-2017** **Avoidance, distract.** Within just 7 minutes of my post, I was attacked. It was impressive. You could imagine he was so angry, he could barely type fast enough. I saw that play out by repeatedly refreshing the webpage. Post content changed several times within those next few minutes to follow, adding personal insults to help make sure the problem could be avoided. It's truly amazing how some will lash out, doing everything they possibly can to not actually deal with an issue. They place blame and make excuses, rather than just face reality. It's so predictable and undermines their own desire to make progress. Goals are impeded by pride. I kept my response to such an obvious antagonist, who was desperate to distract, as brief as possible: GM has a SUV-centric approach. Offering a small hatchback and a small wagon with plugs doesn't address the problem. You didn't either.
- 12-28-2017** **Avoidance, topic.** Research from observation & participation was usually kept quiet. I'd find a subject worthy of intense discussion, they identify the theme associated with it. That's how you know there's rhetoric at play. Stepping back to acknowledge the bigger picture is absolutely vital. Enthusiasts don't... hence their failure to know audience. They stay too focused on just the immediate discussion. So, I blog about their actions & mistakes. Things took an odd turn this time though. Knowing the year-end sales results will bring about the 2-year judgment... and that a status of "failed" is inevitable... there's nothing else to study in terms of expectations. It's over. At an end. Done. So, I revealed the theme this time: "*Avoidance*" is the latest blog series topic. It describes how GM enthusiasts do everything possible to avoid dealing with GM problems. Several examples were contributed today. GM has an audience primarily of SUV shoppers. That's what they want to buy, not a small hatchback like Volt. We've been told by those here that GM was the market leader; yet, tax-credit expiration draws near without any plug-in hybrid SUV to purchase. To make matters worse, Volt and Bolt fundamentally contradict each other, making the message of intent even more difficult to understand. But rather than supporters helping out, they avoid the problem entirely. GM still does not have a path toward electrification. We see the inevitable struggle to deal with the loss of subsidies coming; yet, there is no clear next step. What was the point of all the "*range anxiety*" promotion and plug-in hybrid development? All that money invested, then abandoned, in favor of an EV instead?

- 12-29-2017** **Avoidance, approach.** My observations continued with this interjection: TOP-DOWN was the approach that led to GM getting trapped... which this thread never addresses... hence the avoidance... that difference now from in the past. Starting from the top and working your way down can work. It takes an entirely new platform, then alters & expands it to achieve cost-reduction. It requires a major commitment though. The resulting investment (production, education, advertising, incentives to dealers, etc) will drive costs down and demand up. GM didn't do that for Volt, as countless people here in the past complained about. That approach is quite risky. People here made fun of Toyota for taking the approach that was less risky. BOTTOM-UP still requires major commitment though and it must be altered & expanded. The primary difference is you are building upon, rather than starting from an end-configuration. Toyota's approach worked too. Observing how Prius became a Prime model, knowing Corolla hybrid is scheduled for the same, and seeing the potential for the other hybrids not only reduces risk, it also sends a clear message of intent to both dealer & consumer. That clear path to electrification is what GM still lacks.
- 12-29-2017** **Avoidance, diversification.** The study of avoidance continued: Since long before gen-2 Volt was rolled out, my push was for diversification. The technology GM had designed could not reach mainstream volume or buyers without expansion. That's where the "*too little, too slowly*" came from. More was needed and the wait kept getting longer. Now reading others say the very same thing... that a second lower-range model of Volt and a CUV/SUV model should be offered... confirms those claims of being anti-GM were unjust. I was indeed watching out for the business, suggesting viable next steps to help GM be successful. All along, it has been an effort to promote plug-in offerings from all automakers. Whatever issue you have with Toyota should not be reflected on me, since I'm in favor of all realistic choices... like the plug-in SUV just rolled out by Mitsubishi... the very thing I stated repeatedly that GM should also offer. So what if Volt failed to catch on. It's not like a configuration appealing to GM shoppers can't still be delivered. It's not too late. It certainly is taking far longer than expected though.
- 12-29-2017** **Mutiny.** Seeing the winning formula emerge... being affordable ...their are a number of former Volt enthusiasts sounding off. They words are an echo of what I was saying years ago: "*Make less expensive versions with about 25 mile range (sub \$30k) and maybe more expensive versions with 50+ mile range that are also larger and better equipped vehicles.*" Sound familiar? I was delighted to read that and others being posted, on the dedicated member-only Volt forum. On the open blog, there's a scramble to hide any evidence of mutiny. It's quite amusing to witness that. Basically, the time has come to abandon ship. The quotes kept coming too: "*It is a hard sell to sell a \$35-\$40k MSRP vehicle that is a compact car, doesn't come standard with safety features like ACC, AEB, LKAS, no power seats.*" All that faster & further rhetoric is falling apart. They see the end coming, when sales results are revealed for 2017. Things haven't gone well. Declining demand confirms failure, ushering expectations of change. Volt didn't work. 7 years and 2 generations is enough. Time to move on.

12-29-2017 Deep Discharging. Whoa! We found out today how Hyundai was able to squeeze out 4 more miles of EV range from a battery-pack only 0.1 kWh larger than the one Toyota uses. It simply didn't make sense. $28 \text{ kWh}/100\text{mi} = 29 \text{ miles EV}$ for Ioniq. That's nowhere near as efficient as $25 \text{ kWh}/100\text{mi} = 25 \text{ miles EV}$ for Prime. Turns out, Hyundai made the decision to utilize more of the overall capacity available. That capacity is usually used as a longevity buffer. If the system doesn't ever deep discharge, the battery-pack should retain capacity longer. Only 9% was programmed to remain untouched though. (That's 8.1 of 8.9 kWh.) Again, whoa! It's so much less than the 28% that is reserved as a buffer in Prime (that's 6.3 of 8.8 kWh), it makes you wonder what magic chemistry or poor management influenced such a decision. This seems a terrible idea. Just like with the stories from diesel supporters, something doesn't add up. Do we really have all the correct information? What happens many years from now when EV range drops considerably due to diminished capacity? Maybe that's just part of the design. People will just trade-up for a new battery-pack years from now. That would be an interesting new business-model. After all, vehicles with electric-motors providing propulsion should last considerably longer. Maybe Hyundai sees the opportunity to capitalize on their own post-upgrade sales, rather than letting aftermarket providers reap the benefit.

12-29-2017 Prime Availability. With the end of the year quickly approaching, there's lots of talk about demand. Perception of it is derived from sales. Consideration of supply is almost always overlooked. We've seen that countless times over the generation rollouts. People simply view purchase counts as the indicator of interest. I know all too well that you cannot buy a vehicle if it isn't available. For Prime, that's been a big issue. 2017 model rollout was awkward. With production challenges of the new technology (carbon-fiber hatch and dual-wave glass) adding to the usual challenges of physical delivery to several very different markets all in the same year, it's no surprise that penetration wasn't going to be comprehensive. Some dealers wouldn't get supply until the following year, regardless of demand. To draw attention to limited supply, I did some quick research and posted what it revealed: Doing a search within 500 miles of Kansas City, MO for Prime, only 15 are found. That's an inventory count so low, it basically can't be considered available. Sliding east over 650 miles to Columbus, OH and repeating the 500-mile search for Prime, there were 1,046 found. That pocket of the country actually has choices. Going down 570 miles to Atlanta, GA and searching 500 miles again, there are only 13 found... another large area without any. In other words, the wait for 2018 models is necessary. We simply didn't see 2017 on a large number of dealer's lots. Demand cannot be properly gauged until then. Fortunately, even with limited availability, Prime still ended up with decent sales counts for the year here. Worldwide, it looks like total sales will end up hitting the 50,000 mark. That's pretty good for a start.

12-30-2017 **More EV.** The belief of more being better is very effective marketing. We've been brainwashed into thinking it is necessary, that less simply won't work. With things like medications & foods, the size of doses & portions have grown ever larger. Cutting back isn't easy. People mix up want & need so frequently, many don't even recognize the difference anymore. That's really sad. Think about how often we hear that 5 seats are necessary, even though there is rarely ever more than 2 people in the vehicle. Remember how the reasoning for 5 instead of 4 eventually fell apart? Volt enthusiasts forgot and have consequently become hypocrites for contradicting their own past statements... but that's another story. This one is about more EV. Supposedly, range in the 20's isn't enough. I ask: "*Enough for what?*" Every response I get is a want, not a need. No one has been able to state necessity. That's because the purpose of a plug-in hybrid is to take advantage of having an engine from time to time. If it wasn't, everyone would just purchase an EV instead. Needs vary. Neither enthusiast, nor antagonist, understand that though. It is the problem of knowing audience. They don't... or they don't care. Either way, it's a problem we have to deal with when promoting plug-in hybrid choices. Today, I dealt with the "*more*" claim this way: There is no need for bigger. The system will blend, still taking advantage of electricity... just not as much in extreme cold. My commute yesterday was in the single digits. 18.5 miles at 6°F in my Prime delivered a 64.1 MPG result. That's amazing overall efficiency at such a low outside temperature. So what if the engine runs. Between the heater delivering warmth via engine coolant and use of the heated seat, I was quite comfortable. The windshield stayed clear too. What more do you actually need for such an affordable price?

12-30-2017 **Avoidance, facts.** Attempts to discredit totally fall apart: "*You keep trying to push your narrative, but the facts don't agree.*" It's what happens when the discussion continues for too long. They run out of material and their transparent efforts to misleading become exposed. You need something to actually support claims. People need proof. No merit means no progress. Even enthusiasts want something to work with. Empty chants falls apart. Facts can be manipulated to mislead. They know that. So, not having anything at all to work with makes it a dead issue... nothing to argue about. I gladly pointed that out:

Facts don't agree... which is why you avoid actually posting them. Omitting that detail is the spin.

Mainstream volume is the most avoided fact, the statistic which angered you most. It was very specifically sales at a rate of 5,000 per month. That's an annual production of 60,000 vehicles, here in this market. The target date for that was the end of the second year of sales... which was 2012... that's 5 years ago.

The reason for that target was obvious. It was what GM needed to put Volt on the path to profitability, so sales could continue on with dependency on the tax-credit and expansion to other vehicles could take place. All of that fell apart though. Sales fell well below that target... and continue to, despite so much time passing and a second-generation upgrade.

That fact is especially difficult to accept with the knowledge of Toyota not having made the same mistakes... hence the constant insults... "*laggard*"... "*lame product*"... "*obsolete*"... "*too little, too late*". You know quite well they have a clear path to electrification. Their hatchback already demonstrates how easy & affordable it is to go from hybrid to plug-in hybrid. Now, the rest of the hybrid fleet awaits the same upgrade opportunity.

The ultimate though is this quote, since spin about the past doesn't matter: "*We've ALL been saying this since day one, 10 years ago. We want Voltec everything.*" Fact is, you are omitting detail about who "*we*" actually is. A large portion of Volt supporters from the past don't want that anymore. They have turned to saying Volt was just a bridge to Bolt. Now that "*range anxiety*" has been resolved with a larger battery-pack, they see no need for a plug-in hybrid.

Take your own advice. Pay attention. That is why I use "*notice*" so often in my replies. You clearly are not. So many former Volt enthusiasts have abandoned ship, there are only a handful left. They either switched over to Bolt or left GM entirely. The count is remarkable. In the past, when those amazing Volt leases expired, those owners moved on to purchase a Ford Energi (plug-in hybrid). Now, we see many planning to switch to a Chrysler Pacifica or a Honda Clarity.

In other words, we already see trouble brewing for GM. Phaseout trigger for the tax-credit is only 9 months away and Volt sales are declining. Adding to the struggle is the rollout of the Kia & Hyundai plug-in hybrids. Both are nicely under \$30,000... the other goal GM still has not achieved.

Avoid this supposed narrative all you want. Negative vote to hide the facts. That won't

change the path GM is on though, which you enable by avoiding acknowledgement of the bigger picture.

Vague claims of "*We want Voltec everything.*" doesn't actually tell us anything. Total absence of detail, no specifications whatsoever, leaves people wondering what you really mean. This is why stating goals was requested over and over and over again. Instead, that is still being avoided. After 10 years, you'd think that lesson would have been learned.

12-30-2017 Avoidance, stating goals. That was by far the biggest problem, right from the start too. The first attempt was immediately called out. Those goals were so unrealistic, the label of "*vaporware*" quickly became an expectation for Volt. That infuriated enthusiasts. They had nothing to support their blind hope either. Making that bad situation worse was me... armed with lots of real-world data pointing out their oversights. The fighting never ended. I kept pushing for goals. But rather than stating specifics anymore, it turned to mindless propaganda... hence the "*vastly superior*" nonsense. Eventually, that settled down, becoming "*no plug, no sale*" instead. Being so horribly vague though, it didn't actually help. Needless to say, my push continues by exposure their efforts to avoid:

STATE THE GOALS NOW... FINALLY... AFTER 10 YEARS OF AVOIDANCE...

- **Nicely under \$30,000 MSRP**
- **Real-World average of 100 MPG**

IS IT REALLY THAT DIFFICULT TO ACKNOWLEDGE SHARED GOALS?

12-30-2017 **Avoidance, missed opportunity.** Enthusiasts would spin excuses, place blame, and make assurances... all to cover up missed opportunities. Volt was the only choice. GM was offering unbelievably low leases. Gas prices were expensive. Early adopters were eager. Think about how many aging Prius being replaced by the first of the plug-ins to be offered. That was when something else should have happened, when the momentum was still strong. Instead, it fizzled. Posts become an effort to defend GM and offend everyone else attempting to deliver on those same goals. Now, all these years later, we see several contenders striving to fill in the void GM left behind. What a waste. Those enthusiasts know it too. That's why so many disappeared. The only few left are so desperate now, then have no idea what to do. Is there any opportunity remaining? Their propaganda about "All Electric Range" has been annihilated by Bolt, leaving Volt completely without a purpose now. I knew their goal was to crush the competition... which they believed was other plug-in vehicles. They were wrong, very wrong. It was a mistake so profound, the enthusiasts were able to convince GM of that purpose. This is why gen-2 was so poorly configured to face direct competition with traditional vehicles. The design had focused on other plug-in hybrids instead. Oops! Really big oops!!! What a terrible missed opportunity. Of course, the other automakers actually listened to their own shoppers looking for a plug-in hybrid, not early adopters who already owned one. That's why focus was on affordability instead, a priority GM didn't think was important due to the influence online posts had. This is why I documented so much of their propaganda and there's so much effort now trying to conceal the mistakes they made.

12-30-2017 **Avoidance, next year.** We've reached that tipping point where Volt is no longer an impediment. GM dangled a carrot in front of the entire industry, setting a precedent of supporting unrealistic expectations... to the point of them being normalized. If the plug-in hybrid wasn't at least as good as what was delivered in late 2010 by GM, it was unworthy of consideration. The market damage that caused is truly remarkable... exactly what people who witnessed the GM diesel fiasco of the 70's feared would happen again. And it did! The vehicle of praise was unprofitable, so production in high-volume simply couldn't ever happen. That hampered the entire industry, holding back consumer acceptance. Enthusiasts set the bar so high, failure was inevitable... which is the state Volt is at now. In a few days, sales results for year-2 of gen-2 will be revealed. Rather than the significant growth the upgraded Volt was to deliver, we'll see an undeniable decline. Demand isn't there. They built it, but enough people didn't buy it. True to form, GM will follow the timing pattern we recognize all too well. This point in history has repeated itself several times already. They will make an amazing new vehicle announcement to conceal the problem with Volt. A new hope will be revealed, at the Detroit autoshow. Knowing that Honda, Kia, Hyundai, BMW, Chrysler, Mitsubishi, Toyota, VW, and Ford are all actively going after the plug-in hybrid market GM could not reach, it makes sense that GM will move on just focusing on pure electric vehicles instead. Bolt doesn't stand a chance of competing directly with Tesla though. No one is going to compare a small wagon to the sleek sedan and consider it a toss up. GM must finally turn to its own customers... the SUV buyer. Offering one that reuses the Bolt platform is a sound next step. Putting a small SUV body on that motor & battery configuration makes sense, especially since they would be able to justify the higher price. Remember, the \$7,500 tax-credit for GM is expected to only last 9 more months. Then, it drops to \$3,750 for the following 6 months. After that, it drops to \$1,875 for 6 more months. In short, the challenge of growing sales will become quite a bit more difficult next year. Time is running out. Change is necessary.

12-31-2017 **Avoidance, conclusion.** It took nearly a day to finally get a response. Such an extreme delay (with obvious multi-downvoting still taking place in the meantime) but no posted reply, is an clear sign of having correctly identified a major shortcoming. Since the usual turn-around is only a matter of minutes, that's a pretty solid confirm. He posted a series of attacks. All were antagonist nonsense, intended to divert attention. There was nothing of any substance, just vague ramblings about Toyota. That's was key... and I knew it. That was a lesson learned from the past. Enthusiasts established a concise definition for what "Volt" would be. But when the final production model was revealed, that "Volt" didn't fit the vary criteria they had preached so much about. Specifically, it wasn't a SERIES hybrid. It turned out to be a PARALLEL, similar to Prius. That was a painful error to accept... and that was before finding out how expensive & inefficient their pre-praised plug-in hybrid actually was. That's how EREV came about. If you don't like an existing definition, make up a new label with a definition to fit... a key to avoidance. Making matters worse. 2 years later when Ford rolled out their plug-in hybrid, it fit the EREV definition. Ack! They got burned again. 2 years following that, when BMW rolled out their plug-in hybrid, it all became a chaotic mess. Not only had BMW actually met the specifications those enthusiasts has so desperately manipulated, BMW has grossly exceed this... by a very significant amount. This is how the attacks on Toyota became so intense. GM could not compete with those other traditional automakers, so enthusiasts look for seemingly weaker prey. Little did they understand though that there's power in numbers. Prius has won many battles in the past by overwhelming opposition. Enthusiasts see the modest goals as a joke, something to be mocked & belittled. Mainstream shoppers see them as an automaker's effort to deliver an affordable choice. That fundamental difference ties back to the key... being concise. Needless to say, I found the response quite vindicating. He did precisely what I had anticipated, to provide the ideal conclusion to such a senseless waste of time... so much missed opportunity due to pride getting in the way... some just play the game... which is why I point it out: Avoid. Avoid. Avoid. That continues to be the theme. Do every but actually step up and accept some responsibility. If you don't actually commit to anything, there's no accountability.

12-31-2017 **Avoidance, goodbye.** I got a response from another Volt enthusiast, one who got burned so bad by gen-1, he still holds a grudge after all these years. It was captivating: "*Look for more in 2018.*" I took that as more rhetoric... which will be quite a surprise for him. There's no reason to participate on the fanboy website anymore. They made it overwhelmingly clear it is only for cheerleading, that anything of a constructive nature which could be construed as negative is not welcome. Their hate was always fascinating. For some much to be sacrificed for so little in return. They got nothing but a sense of righteousness from attacking me. It did nothing to actually advance their cause. Pride was more important than progress. Ugh. I was delighted to finally say goodbye. Toughing it out had been a test of character. Learning from other leaders I look up to provided a common suggestion... participate in groups that don't share your perspective. It makes sense, but isn't easy. It sure is worth it though. That taught me far more than just simply going along with the mantra they were spewing out. I still had to fire back one last time though: More what? Being vague is key to avoiding responsibility. That's why GM is routinely so ambiguous with announcements. We only get basic information, lacking any quantitative value. Yet, those here embrace that anyway. They get played and are too naïve to realize the problem. Asking to state goals is a raising of awareness to the problem. If you want to defend the subterfuge, that's your choice. I'm choosing to draw attention to it, even if I get labeled as a troll for not accepting the status quo.

12-31-2017 **Video: Extreme Cold.** 6°F is the coldest temperature many Prius Prime owners will ever encounter, so this particular commute home provided a great opportunity to capture & share. Being below the 14°F threshold for the electric heat-pump meant the gas-engine would need to cycle to provide warmth inside. Electric-Only driving would still be available, but from time to time rather than continuously. No plug was used. That meant the battery-warmer could not be taken advantage and a recharge would not occur. The car just sat there in the cold all day while I was busy at work. 18.5 miles of driving through traffic dealing with fresh fallen snow resulted in an overall average of 64 MPG. That's quite remarkable for what was basically treated as an ordinary winter commute here in Minnesota. Here's the video, as I asked the question... [What happens in extreme cold?](#)

- 1-01-2018** **New Audience.** Having left that enthusiast website behind means participation elsewhere. In the case today, it was on the big EV blog. That gets lots of posting activity from a wide variety of electrification supporters, many of whom barely know anything about plug-in Prius operation. The mindset there was one of no interest for years. They all just assumed Prius would never be part of it. For that matter, anything not pure EV was questionable as being market leadership. Basically, if it had an engine and you were supporting it, your priorities were no acceptable. There was no sense of unwelcome, it was more of a *"don't waste our time"* type mentality. Seeing Prime success and anticipating other automakers also striving to make the affordable plug-in hybrid category popular, there has been an obvious attitude change. They still don't understand what it means though. There's a bit of smug due to lack of background: *"Are you suggesting that the gas engine kicks on, even when the car is in EV mode? LOL huh?"* He went on to say: *"This has been my experience in Prius plug-ins as well as some Fords."* To what was he actually referring? We know Volt acts that way at times during Winter. I took it as being poorly informed, a good opportunity to provide some exposition: Prius PHV (2012-2015), yes that was the case. Much of the driving could still be EV exclusively, but a hard acceleration caused the engine to temporarily join in for additional power. Prius Prime (2017-), most definitely not. While in EV mode (not EV-Auto), the engine stays off under all driving circumstances... hard-acceleration, driving at 80 mph, running the A/C. Only when the system temperature drops below 14°F, the engine will cycle on & off in place to provide cabin-warmth. In sub-freezing temperatures higher than that, the electric heat-pump works fine for keeping the engine off. In short, Prime offers more EV power due to the addition of a one-way clutch to allow the second motor to be used, so much of the previous generation's history simply doesn't apply.
- 1-01-2018** **Honda Clarity.** The sponsorship of this year's RoseBowl parade was Honda. The featured vehicle was Clarity. It was great. The background banners had images of the new plug-in hybrid. The car itself made a reveal during the performance. And while the parade took a commercial break, there was a full 60-second television commercial aired. It was an excellent way to debut a new offering. They had quite a number of opportunities for product-placement and product-mention. It made me wonder how much people were paying attention. Would that make enough of an impression for some to be curious enough to take a next step? If nothing else, it was a really good attempt to raise awareness. I bet we'll see it again in 1 month, during the SuperBowl... which is here this year, in Minneapolis. I wonder what how that will play out. The following month, we'll have our big autoshow. There will be a room for the plug-in vehicles again. Sure hope Honda will be present. Clarity looks really nice. I know of 1 couple here locally who have already purchased one. It's happening. The plug-in hybrid market is expanding. Yeah!

- 1-01-2018** **Change.** Remember what Toyota said about their audience changing... Prius owners who shopped for a growing family back then, now handing the car down to a child and looking to Prime as a vehicle for their new found freedom? That was the question I asked. This was the answer I got back: "*That's me, but I would still like a full hatch.*" I was intrigued where this new twist on an old discussion topic would take us: That's the older generation. That isn't necessarily what the newer generation deems a priority. Toyota is trying to avoid falling into the same "*generation*" trap that GM did, finding their formerly-popular product now something only appealing to a rapidly shrinking audience. Keeping an offering aligned to match up with middle-market, where high-volume sales are dependable, requires adaptation... changes over time... the kind some former buyers may not be interested in. Regular Prius clearly focuses on the younger crowd, those seeking to have a standout look. Remember, there is no longer Scion choices available to serve that purpose anymore. Plug-In Prius has moved up, where the unlikely-to-be-needed middle seat was abandoned in favor of taking on the layout found in higher end vehicles. In fact, that's exactly the reason why such a large display is offered. That is why also having lots of height in the cargo area isn't a priority. Dropping the seats for hauling lots of cargo is no big deal for this audience. Don't forget how many other "*Prime*" hybrid upgrades could be offered in the not-too-distant future. They have their own audience too. A full hatch would be a priority in that upcoming new larger model of Prius.
- 1-02-2018** **Dual-Wave Glass.** The self-clearing nature of that glass on the back hatch cannot be understated. Having driven in snow and through the message that follows, the trait is now quite obvious. After hearing so many comments about how terrible it would be to not have a wiper, it is really nice getting confirmation that Toyota thoughtfully researched the situation. Eliminating the need, while also improving both aerodynamics and visual appeal, is a very big step forward... so much so, most people won't have a clue... even after taking ownership. You tend to not notice things that aren't a problem. Air getting funneled into that dip creates a pushing effect. The 2 waves get cleared of water & snow right away and the rest slides down the middle. It's quite remarkable to witness.
- 1-03-2018** **Achievement.** Year-End sales being posted had brought about a tsunami of attacks. The antagonists are spinning wildly, in desperate attempts to undermine. It's quite subtle though. They know trouble is on the way. So, we get stuff like this: "*What's holding Toyota sales back is the New Leaf, and the Model 3.*" How they respond to my reply is key. It confirms their stance. They try everything they possibly can to evade. Not acknowledging the fact presented is a dead giveaway. I've seen that pattern countless times in the past. Each time plays out the same way. I sure it will again with this: That's an anecdotal conclusion, not what is actually happening. First year sales were hampered by striving to reach 3 distinct major markets all at once (North America, Europe, and Japan). The result was extremely limited availability in many areas of the US, but the total production was still an impressive 50,000. Initial rollout sales of those 50,000... especially when it includes new tech (dual-wave glass and carbon-fiber hatch) ...is certainly a noteworthy achievement.

- 1-03-2018** **Great Insight.** That was the reply posted about this retrospective I posted: GM configured Volt gen-1 to appeal to enthusiasts, which was a bit risky even back in 2010. But without any other choices on the market yet, there was time to explore what gen-2 would need to attract a wider audience. Supporters were convinced that was an acceptable strategy. It became a huge a big mistake though. GM fell into the innovation's dilemma trap of making the successor even more appealing to that same group. Those changes needed to adapt Volt for ordinary consumers didn't happen. The obvious priority of reducing early-adopter features to make the design more affordable were totally disregarded. The range & power were fine already. Increasing them was exactly the wrong thing to do... which is now very obvious into the third year of gen-2 sales. So much opportunity has been missed. Toyota used their own gen-1 to research the market too, only they made the decision to make affordable a very high priority... which is paying off already. Even with inventory basically non-existent in big chunks of the United States, the first year of sales beat Volt... despite the \$3,000 tax-credit advantage. We see Hyundai & Kia working to also capture the affordable market, targeting the same mainstream shoppers as Toyota. Things will get interesting as production & inventory ramps up. In the meantime, it seems GM is just abandoning the plug-in hybrid market in favor of EV sales. Oh well. It's yet another "*over promise, under deliver*" story.
- 1-04-2018** **More Retrospective.** I stayed up on that soapbox and continued with my observations of the past, providing more insight about how we got to this state: 2018 is looking great for growth potential of plug-in hybrid sales. Major impediment to the plug-in hybrid market is finally subsiding: Volt. It was promoted as a EREV all throughout gen-1 development. But when rollout finally happened, Volt turned out to be a PHEV instead. Enthusiasts refused to accept that though, claiming otherwise... which created a great deal of market confusion. A few years later when BMW rolled out i3, it became clear what Volt actually was... or more accurately, wasn't. That confusing message to the market should have ended then; instead, we ended up getting new rhetoric from enthusiasts about what gen-2 would deliver. That turned into an expectation disaster too. Rather than tuning down the impressive performance traits so it would attract ordinary consumers, they were increased. It was a complete disregard for the priority of reducing price to grow sales and compensate for the upcoming loss of tax-credits. Now, we see the competition stepping in to fill the void GM is clearly shying away from. It's odd to see such abandonment of an entire market segment, especially after such bold promises. But that's what we have witnessed for plug-in hybrid efforts from GM.

- 1-05-2018** **Hate.** The end really did come. It has been a bitter pill for them to swallow too. Those few remaining enthusiasts were so let down by the news of Prime sales having exceeded Volt, despite the limited supply, it was too much to acknowledge why. I did some more searches online. Knowing that the Los Angeles and Boston areas had ample inventory readily available, where else could Prime be purchased? The results shouldn't have changed much from a week ago. But curiosity got me. I also wanted more documented for reference later on. Portland, Denver, Minneapolis, Kansas City, Phoenix, Dallas, Atlanta, Orlando... none had more than just a token few available within 500-mile radiuses. Toyota basically just concentrated on the initial markets for Prime, just like they did for PHV. This time though, we know more are on the way. Holding off on 2017 models makes a lot of sense, even more so now. They knew the market would be a confusing mess in the second-half of the year... and it was. Rollout of Leaf & Model 3 put Bolt in a position of struggle. The race for long-range EV attention left Volt without purpose anymore, abandoned. All those mixed messages from GM finally sunk in. My concern was confirmed correct. They hate me as a result... which the posts on the thread I refrained from participating on clearly reflected. A scapegoat to tell their excuses to was desperately needed. Refusing to state goals has consequences. They know that all too well now. My push was an effort to recognize what was truly important. They chose to focus on faster & further instead. It was a terrible decision.
- 1-06-2018** **Video: Single-Digit.** Starting from a garage warm, the first few blocks of driving were with electric-heat. Watch the temperature drop. The engine then cycles on & off, allowing for heat from the coolant while driving with only electricity. All gas & electric vehicles pay a penalty for having to deal with the more dense air of winter and having to provide heat for the cabin. The end result with my Prime from that 18.7 miles of driving was 67.1 MPG. That's quite impressive when the temperature drops all the way to just 1°F. Here is a link to that video, available for viewing education & pleasure in 4K... [Single-Digit Winter Commute](#)
- 1-06-2018** **Heat-Pump Threshold.** I have been watching temperature closely. The 14°F cutoff is actually a little squishy. It can be a little bit colder outside before the engine will start-up to produce heat for the cabin. And even then, the heat-pump will continue trying to produce as much warmth as possible. In the meantime, while the coolant is warming but still hasn't collected enough heat yet, you can see electricity from the battery-pack being sent to the heat-pump. I hadn't thought of checking the energy display until the moment came. And there it was, confirmation of a smooth transition. It's a nicely thought out approach. This is similar to the value stated for EV capacity remaining. In the extreme cold, it will leave a few percentage of a buffer for the transition. Toyota simply understates to set realistic expectations. Far too many early adopters are completely clueless about what the mainstream perspective is. Moving from the initial rollout stage to one with a much wider audience means looking at more than just faster & further. You'd think they would catch on after a few years. Not yet, but hearing from a more diverse set of first-time owners should help a lot. No more Volt rhetoric means progress can finally be made. The unfortunate holdback GM caused and enthusiasts greatly contributed to sure made education more difficult. Oh well, we seem to finally be stirring constructive discussion.

1-06-2018 **Big Picture Refusal.** Attacks on Toyota are almost all the same. Either has been the "*faster & further*" obsession or the "*fuel cell*" distraction. Now, it seems to be changing to just: "*I think BEV's will be fine.*" In other words, the enthusiasts are giving up. Neither attack approach is getting much attention anymore. Affordability of plug-in hybrids is becoming realistic, which negates any draw for standing out. And the complexities of actually dealing with energy transfer simply confuse discussions to the point being repellent. It's a good note to finishing closing things down on then. So, I posted this reminder that the situation is much more complex: That vague of a response is considered dodging the issue, especially since it diverts discussion from storage to vehicle. Electricity must be stored somehow. The grid can only temporarily hold it. Storage overnight or longer needs something to contain it. Batteries can handle a sizeable portion, but the quantity needed is enormous... and takes away from the supply for vehicles. Hydrogen, whether used directly or converted back to DC for charging, is a means of supplementing that need. In other words, I used your response to draw attention to the bigger picture. Far too many don't notice there's more at play than just vehicles. That's a fundamental oversight. Storage is a huge consideration which must be addressed.

1-06-2018 **More Than The Vehicle.** There's much more. Unfortunately, most people don't even see the entire picture for the vehicle itself. So, expecting them to be aware of everything else at play with respect to electrification is quite unrealistic. Most simply have no idea. That means posting exposition from time to time, with at least the hope someone will notice that there is more. Today, I shared: Our local plug-in owners group strives to draw attention to needs of the entire transportation sector. Much of that focus lately has been on infrastructure, to the extent of us working with the local power-companies & equipment-providers to address issues and raise awareness. Electricity required to power our plug-in vehicles is a necessity; otherwise, usefulness of the vehicle is severely degraded... not a good selling point. Using things like battery-banks to offset dirty peak generators is one of many factors often not known, rare for anyone to even be aware of. Have you ever seen the duck curve? Also, think about how large recharging areas will be able to supply a spike of electricity demand. The 21st Century equivalent of a gas station may need to have an assortment of electricity sources to be able to keep up. Imagine 350 kW charging speeds. That's what people are expecting. Supply from power-lines may not be enough. Do you really want to have an unpredictable recharge time that varies significantly? A supplemental supply source is needed. In short, there's more to our plug-in vehicles than just the plug-in vehicles.

- 1-07-2018** **That Button.** Sometimes, it is really difficult to figure out what the person actually knows and why they are asking. In this case, I got the impression it was simply a newbie wanting to learn more: *"Isn't there a "mode" that forces running the ICE to charge the traction battery?"* Sometimes, that isn't the case. I've had quite a number of antagonists who cause trouble by resetting the discussion. They do that to prevent conclusions from being drawn, posting that question to make it appear as though they are genuinely curious. In reality, it's a distraction. You can tell by watching for that to repeat. The pattern becomes obvious... until the next generation is rolled out. Then you have to deal with the unknown all over again. Anywho, I hoped for the best this time and provided some information about that button: It's the HV/EV button. You just push it to toggle modes. This is how you save EV for use later. That also helps shorten the wait-for-warm-up situation. It makes the engine start, which results in a small addition to the EV range. Holding it for more than 3 seconds will engage CHARGE mode. So, if there's an opportunity of engine running for sake of EV benefit later, you have that option too.
- 1-08-2018** **Purpose?** It's nice to see this getting asked: *"...now it raises the question of what purpose the plug-in hybrid Volt serves. What does it offer?"* With Bolt being presented as the solution to range-anxiety now, that message of Volt is lost. Why spend so much for so little? It's a very real problem... which is the reason GM abandoned promotion for it. They simply saw no reason to pursue any type of advertising or education for such an awkward product. Someday, if a SUV is offered as a plug-in hybrid, it would be reasonable to expect some type of re-introduction. But for now, it makes no sense. Based on the comments still being posted, ending its presence would be a good idea now. I'm still seeing a surprising number of posts from people absolutely insisting Volt is a series hybrid. They truly believe the engine is only used for generating electricity. After 7.5 years of knowing that isn't what GM designed, it's rather amazing with have that type of misinformation to deal with. Such a fundamental misunderstanding of what GM actually delivered reveals a lot about how poorly it was marketed... which brings us back to the question. What purpose does Volt serve?

1-09-2018 **Sad.** The idea of leadership coming from a vehicle offering less range makes no sense to the simple-minded. They obsess. More is better. Ugh. Having to endure that while getting insulted is so smug, you're left scratching your head wondering what comes next. Volt failed to achieve sales growth. Whether or not Prime is successful has absolutely nothing to do with GM's struggle. The glory of conquest blinded enthusiasts from the next challenge... attracting GM's loyal buyers. The need to get those customers currently owning a GM vehicle to replace it with other GM vehicle offering some type of clean & efficient choice is vital. That hasn't worked; yet, Toyota's effort to offers hybrids with a transition to plug-in hybrids is labeled as "*sad*". That new Camry hybrid is amazing. Just think of what that would be like with a Prime enhancement. It's reasonable to expect the next-generation battery... a battery offering higher energy-density from a smaller physical size... as a realistic upgrade. Nothing else is needed. The upgrade of Prius to Prius Prime clearly confirms it. Heck, just think of what a mid-cycle upgrade to Prius Prime would be like with that same enhancement. Anywho, I was annoyed and posted this as my reply: Desperate enough to distract the **COST** benefit Prime offers? The resulting much lower MSRP will play a major roll in mass-market appeal. In the meantime, we patiently wait for first year ownership to draw to a close for the initial buyers. Their real-world endorsements will play a vital role in reaching the audience Volt never could. It's all about growing beyond early-adopter interest. Achieving high-volume sales requires far more than just "*sad*" insults. Real leaders find a way to attract ordinary people to their product.

1-09-2018 **Poorly Informed.** Looking past the spin and the rhetoric, I've noticed a pattern. Some don't know how Prime actually works either. There are assumptions being made, leading to incorrect conclusions. This is a major reason why Toyota spread first-year rollout to multiple markets. Education takes awhile and GM caused a lot of collateral damage with Volt confusion... hence their own enthusiasts not understanding how Volt works. It's unfortunate that exists and is now having a noticeable impact on Prime. You'd think the best informed would come in the big Prius forum would be able to squash resulting misconceptions. That hasn't been the case though. There is a glimmer of hope emerging though. Overlooking plug-in hybrids was clearly a missed opportunity that the consequences of are starting to be recognized. That audience GM didn't care about is now being targeted by the other automakers. Toyota is one, well positioned to take advantage of the situation. The poor information must be overcome still. That's the key to success. Resources like the videos I share are an effective means of delivering that education. It empowers those who take the time to watch detail. Hopefully, they'll become agents of change as a result. Each person contributing a small nod of acceptance is all it takes to reduce the momentum guzzlers built up. Think of how much influence mainstream sales of affordable plug-in hybrids like Prime could have. After all, learning from observation is the first-year owners begin their influence of others.

- 1-09-2018** **Cold Impact.** I remember the fanboy attacks from Volt enthusiasts back in 2009 when bringing up this very topic. They exclaimed heresy for even suggesting such a thing. Their denial that cold temperatures could have such an impact ran quite deep. They didn't want to accept such an oversight. After all those years of hype, finding out they made such a fundamental mistakes was too much to accept. It was nasty. I knew I was correct... since I had real-world data not only confirming it, but also providing a realistic expectation. The numbers hurt bad. They hated me even more when finding out for themselves that I was being honest all along. I wasn't attacking Volt. My claims were not an effort to undermine. I was being constructive. Admitting that was too much to accept though... so much so, there are a few who still resent me. Oh well. That's their loss. Too bad they wasted so much effort fighting a hopeless cause. They were wrong. Everyone knows it now too. We no longer have to deal with the denial. It sure is nice to finally have objective analysis & discussion of the matter. Of course, real-world data is still scarce. The few articles & posts available are still quite vague and make far too many generalizations. But at least they draw attention to the impact of cold.
- 1-10-2018** **Video: When you use up the electricity.** I'm especially excited to share this particular new video. It shows an easy to follow set of circumstances to observe what happens then... Heater & High-Speed use of the electricity faster than less demanding conditions. That can make the winter commute uncertain... until you get familiar with how the plug-in hybrid system works. Watch this video closely. Notice how heat to keep you warm comes from the battery for the first 2/3 of the drive. Then when plug-supplied electricity is used up, the engine starts. That's RPM value displayed. While the engine runs to provide propulsion, it is also warming up coolant to circulate later while the system returns back to EV driving. That's when the RPM value returns back to 0 (zero). Notice how the electric heater (called a heat-pump) runs both while in EV mode and later while the engine is warming up coolant. When the coolant temperature reaches the requested heat level, it will trigger the engine to shut off. At that point, you will drive in EV using up whatever electricity had been generated while the engine was running. Once the warmth from the coolant is exhausted, the engine will restart. See what all that does to the MPG value? Despite the engine running, it remains at 199.9 MPG. The reason for that is simple. My commute only consumes a tiny amount of gas when I take that longer & faster route home in the winter... a value above the 199.9 MPG maximum the screen will display: [When you use up the electricity.](#)
- 1-11-2018** **Sighting.** Yesterday's surprise at the parking ramp sure was unexpected. I certainly didn't think an encounter with Honda's new plug-in hybrid would happen so quickly. It made me wonder if that wasn't actually a coincidence, someone who just happened to be downtown for something special. The guy who own's the Leaf had been plugging in their for years. Could it be that he was ready to become an early adopter again? Trading in his EV for a PHEV certainly would be an interesting twist. It looks like a very nice car. The larger size will be a devastating blow against Volt... especially when GM's tax-credit limit is reached late this year. Imagine how easy it will be for people to consider so much larger of a vehicle, with only 6 miles less EV capacity, for almost the same price. Clarity potential is very promising based on that first look I got... which makes me wonder even more if that will be the only time, or will it be routine now. Hmm?

- 1-12-2018** **Huh?** This was so bizarre, I was befuddled how to answer: "*The reason that Prius PHV was priced at \$28K is to sell only at a lower volume. And Hyundai has done the same with Ioniq-EV and Ioniq-PHV. This is a tactic all automakers do to keep the sales of plug-ins lower.*" You price something very high to impede sales. Making it affordable will do just the opposite. To have logic so backward and be arguing it fiercely is bizarre. What would even make a people convince themselves that lower would somehow scare people away from a purchase? That actual number of Prime sold makes the situation more confused. Was this an antagonists hell-bent on undermining to the extent of post blatant lies and not worrying about getting called out? Our president is that stupid. There's no other way to state that either. It goes beyond desperation when you know the claimed fact can easily be confirmed as false. I ended up responding to that insanity this way: 50,000 sales worldwide is hardly low-volume, especially for the first year. As for pricing, that's an indication of high-volume intent when tied to production-cost... which was designed to be profitable at that low MSRP. Remember, the introduction of carbon-fiber and the new glass slowed production ramp-up too. First year rollout is typically hampered by dealer training and customer awareness anyway.
- 1-12-2018** **Underperformed?** The claim that Prime "*underperformed*" is what Volt enthusiasts seem to have agreed upon as their message of retained superiority. How do you deal with people who disregard facts entirely now? In the past, they would mislead. Now, they just use vague claims to portray a false reality. The days of posting outdated information and cherry-picking data are over. They just avoid facts all together. I kept my response to that rhetoric short. There's no sense trying to provide any type of perspective anymore. Those few in denial still just plain don't care. So, it was this for my post: No. Rollout to three major markets all at the same time was a huge undertaking. Japan, Europe, and North America for the first year was a big accomplishment, especially at a volume of 50,000.
- 1-12-2018** **Video: Snowy, No Recharge.** The expectation of snow and a challenging commute home turned out to be a great opportunity to capture a lot more ODB-II data from my Prime. So... I took advantage of that situation. There's lots engine cycling to witness. Watch the coolant temperature and demand for power. There's quite a bit of EV activity, despite running out of plug-supplied electricity at the start of the drive. This is the description I published along with that video: Winter storm conditions were on the way. Precipitation followed by a rapid temperature drop was the forecast. Exposing the Prime to that for the sake of plugging in wasn't worth it. So, I parked within protection of the ramp with hope of filming the drive using a depleted battery-pack was the plan for my commute home from work. Starting that snowy drive behind a police-escorted filming crew was a rather odd start. But it certainly was an interesting way to use up that last bit of electricity remaining from the morning commute. The electric-heater and electric-drive quickly used it up too. Watch the ENGINE value showing RPM. As temperature of the COOLANT value rises enough for cabin warming, the engine will stop running. The system will use up as much heat from that supply as possible before turning the engine back on. It's a remarkably efficient process. 58.3 MPG overall from the 18.4 miles of driving was great, especially considering how cold it was and how little electricity was available... [Snowy, No Recharge](#)

1-13-2018 **Labels.** This particular climb up on the soapbox shouldn't have been necessary: Labeling a suggested enhancement as a "*defect*" won't get you too far... especially with Toyota, who uses a business-model of continuous improvement. Take a close look at Tesla's success, who also follows that same approach. The design is what they specified for requirements. Since nothing is actually broken or not working as intended, hence no defect. Instead, you should have submitted it as an improvement idea. Looking at the other plug-in hybrids, like Hyundai/Kia and Honda, we see differences that completely mess up the rhetoric Volt enthusiasts have been spewing for years. Their mantra falls apart when the business aspect of design is taken into consideration, especially now with those new choices. Then ask why did Toyota make specific choices for this particular release. It comes down to how expectations are set. "*Know your audience*" does indeed go both ways. We've witnessed that in the past with Toyota being receptive to owner feedback. For the topic of dynamic-cruise, there was no expectation set for cruising in the suburbs. That's new, a use no one ever mentioned that prior to its availability. Driving with cruise-control anywhere except on the highway was simply unheard of. And since that's what consumes EV the fastest, the expectations was that the engine would be used then anyway. With the next iteration of design from Toyota, we could the requirement change. Note how Tesla calls those changes to existing vehicles an update. That works great... for them, as a new player exclusive to the EV world. With legacy operation... such as the big traditional vehicle manufacturers, like Toyota... changes after the sale are given a "*recall*" stigma. So, take into serious consideration about how changes are presented. Business is much more than just great engineering of hardware & software. Labels make a difference.

1-14-2018

Suggestions. Why do some people feel they can be more effective by pushing rather than leading? I had a friend start a stir by labeling an upgrade opportunity as a defect. It was strange that his stance was not changed after pointing out that nothing was actually broken. You find something that can be improved, you provide a suggestion. It's not a difficult to understand approach. After all, that has been a fundamental strength for Tesla. Owners thrive on the upgrades, especially since those are delivered over the air, into your garage overnight. Anywho, others chimed in to defend the old-school mentality to push: *"If it cannot run the advertised distance in EV, it is really just a plain ol' hybrid."* The vague nature of that is a red flag. It had little to do with the issue at hand too, but it did present the stage for a perspective response: Advertised? Sounds just like complaints of the past from people who didn't actually read what the window-sticker said. We're set on educating people. Doing things like provide video-clips for them to observe system operation, just like we witness but take for granted, is a mixed blessing. Think about how many people don't have a clue how their old ICE vehicle actually works. The raising of awareness contributes to a wide variety of "issues" to deal with. Take a look at ERDTT for Volt. After all these years, that so-called "problem" still exists. Ask why? That condition of *"Engine Running Due To Temperature"* is a reality, whether you like it or not. GM takes advantage of having an engine available. It's a tradeoff. Providing heat at the low extreme is very expensive, hence the more complex warming system in Bolt. I don't see plain ol' hybrids offering outstanding MPG in the warmer months for only a small MSRP less. Watch my most recent video and show proof that the tradeoffs Toyota decided upon are not worth it. The behavior to make sure the engine is pre-warmed when using cruise below a certain temperature could easily be a safety aspect. You're not paying as close attention when using cruise as when operating the pedal, so the windshield must be guaranteed clear. Calling that a "defect" or a "bug" is refusal to acknowledge the possibility of it being a conscious choice. As a software engineer, I'd see the complaint ticket and reply back that the system is working exactly as designed. The defect ticket would then be closed, since there's nothing broken. There would be a suggestion for future improvement, since that's what upgrades are for.

1-15-2018

Calm Before. Denial runs deep. Some are doing everything they can to prevent the following message from getting attention, but finding it a struggle with no other news to distract with: The variety of choices on the way causing a sales plateau was a very reasonable expectation. In fact, that serves as a gauge to indicate change. As mentioned, RAV4 hybrid, Camry hybrid, and Prime all had an impact. There's a lot of "wait & see" anticipation to acknowledge too, namely how Model 3 and the new Leaf will stir the market. We'll see the ramp-up & distribution of Prime contributing more to the shift. It's an approach that can yield a good return for dealers & salespeople, which is vital for the advancement of green tech. They don't need to do much to sell Prime. The low MSRP and easy recharging basically speaks for itself. Simplicity was the key to Prius sales. We see Prime following that same path. 20 years later, having a plug become standard is a logical next step. It's not going to happen overnight though. Owners sharing their real-world experiences takes a year or two for the word of confidence to emerge. Being one of the earlier owners, I haven't even reached the first-year anniversary yet. Two trips over 1,700 miles each and a few in the 400-mile range, combined with daily electric-only commutes, sure is providing nice experience to share... especially with the extreme cold we are currently experiencing here in Minnesota. Consider this moment, the calm before the storm. The technology works and is very affordable, an excellent match for mainstream consumers.

1-15-2018 **GM Promises.** The reason GM gets featuring so often in my blogs is the ever-changing stories are an endless source of insight. That reputation for "*over promise, under deliver*" gets renewed over and over again. A product gets hyped to an extreme, rolls out with disappoint, then they move on to the next. It's a continuous cycle, with the new chapter starting today... at the Detroit autoshow. It began today, upon an obvious death of Volt. That compact car never made any sense. For that matter, neither did the EREV marketing... since it very directly contradicted any possible intent toward EV support. To embrace Bolt, they must discard Volt. The original hunch has been confirmed, they were indeed given similar names for the sake of obscuring the transition. GM wasn't able to deliver an affordable plug-in hybrid platform. That reality has been overwhelmingly confirmed today with the announcement of the newest promise... to make money on all-electric cars by 2021. Claims by antagonists have indeed been confirmed as false. GM is in no position to be rolling out at mainstream volume yet; instead, they are making a serious investment in the future... abandoning any hope of competing with Toyota in the process. This is the very thing Volt enthusiasts feared the most. GM has become a player on the team, not a stand-out leader. It's really unfortunate pride became such a barrier to progress. They succumbed to faster & further, rather than supporting something for ordinary people. Oh well.

1-16-2018 **Market Growth.** The effort to dismiss obvious efforts to move away from traditional vehicles are ramping up. Failure of Volt to capture the market was indeed the tipping point. GM was a legacy giant who would lead the way. We heard about the supposed leadership for years. But then when it came to measure of actual progress, there was hostility & denial. My efforts to document the unfortunate history playing out provides a great deal of satisfaction. We now have a resource pointing out problems as they were formulating, rather than looking back long afterward. The blogs contain speculation & detail you can't get any other way. They also highlight the denial, all those attempts to conceal truths about what was actually happening. Ugh. All I can say to that is "*oh well*", since comments just like this fall on deaf ears: Camry and RAV4 hybrids are becoming the dominant choices here. Corolla and C-HR hybrids are available elsewhere already, with the opportunity to be brought here later. Seeing those everyday choices taking over for Prius, while watching Prius itself take on a standout look is part of the diversity effort toward hybrid market growth. In the meantime, we are watching Prime introduce the plug-in option. This is a very realistic plan for phasing out traditional vehicles. Disruption to dealer, salespeople, and mechanics is minimized. The transition is a clear cut one for consumers too.

1-16-2018 Leadership. The hate for Toyota, especially when it comes to Prime, can be quite intense from a few certain individuals. By no coincidence, all were Volt enthusiasts turned antagonist. Frustrating by the growing sales struggle and complete absense of support from GM, they feel let down. The result is to make sure others are not successful where they failed. I find it quite remarkable how they never want to surrender to a spirit of cooperation. So, they spin circumstances any way they can. The most effective... in their mind, anyway... is portraying the image of leadership as a measure of capacity: *more is better*. Apparently lacking knowledge of how business actually works, their brainless banter just continuously spews out that same weak message. Rebuttal in any form is just brushed aside, since they simply don't care... or understand. So, I don't bother addressing those attempting to gain satisfaction. Instead, I post detail why sighting why their claim is meritless, as I did today... This sure looks like leadership:

- \$27,100 MSRP
- 25 kWh/100mi EV
- 54 mpg HV
- Vapor-Injected heat-pump
- Dual-Wave glass
- Carbon-Fiber hatch
- *standard*: Dynamic Radar Cruise
- *standard*: Pre-Collision Braking
- *standard*: Lane-Departure Detect with Assist
- *standard*: Automatic High-Beams

1-16-2018 Clueless. When you come to the realization that the person you've been debating with doesn't have a clue, what do you do? I posted the following to find out: *"25 kWh/100mi means Prime will consume 25 kWh of electricity to travel 100 miles. 31 kWh/100mi means that vehicle requires 6 kWh more to travel the same distance. This is the EV equivalent of MPG ratings, depicting the efficiency for electricity consumption."* The response was amazing. He had absolutely no idea what I was talking about. He kept forcing the perspective of range & capacity, with no regard whatsoever to efficiency. The fact that Volt is a guzzler of electricity clearly hasn't ever come to his attention. It was always a lashing out about the other choices offering far less. That level of uncare & unaware is dangerous. He is clueless, but has a group of followers unequally clueless to drown out posts of logic. I remember years ago, how facts would be down-voted until they became hidden. I always thought that was an effort to conceal evidence pointing out their blatant mistakes. Now, it really looks like they were just dismissing what they didn't understand. That borders on basic stupidity, where you cause problems for yourself by not taking the time to figure out what's going on. Not actually knowing what the situation is, yet arguing about it anyway, is why I called their spin nonsense... since, it didn't make sense. Finding out they didn't recognize something as simple as how EV efficiency is quantified, is amazing. It would have been a massive waste of time, had those exchanges not provided some insight to what they believed... since perception was clearly altering their reality. The measure of *"kWh per miles"* is a basic concept. That's how you determine electricity use. Just like gasoline use, there's a number. For MPG, higher is better. For EV, lower is better.

1-17-2018 **Range Matters.** That one last post, playing offense now rather than defense, provided the opportunity to feedback... with the hope of change. Nope, it didn't happen. The same old rhetoric of range mattering was spewed out. It was nothing but meritless hope. The antagonists want that to be true, so they keep repeating the mantra with the belief it will push away evidence to the contrary. Their ignorance is costly. You can only disregard & dismiss for so long. That's why I am no longer in a defensive position. They lost the ball. I turned and ran with it too: It does not, as the effort to hide those other traits clearly confirmed. There would be no reason to suppress that information otherwise. In fact, the opposite should happen. You'd want to point out those as shortcomings... rather than validating them as strengths. Sales decline of gen-2 Volt also reinforces the finding that range does not matter. The increase from gen-1 made no difference. Instead of achieving the much hoped for growth that upgrade was intended to deliver, demand dropped. 199.9 MPG is what shows on the dashboard when the engine starts in Prime. In the summer, you can drive up to 50 miles before overall trip average drops below that maximum display value. It's that efficiency result, not always having the engine off. That's why people purchase a plug-in hybrid rather than an electric-only vehicle. This is also why so many other automakers didn't follow GM's supposed lead. They saw other priorities and focused on them instead. Range proved not to be most important. It's like a wage increase for some professions. It isn't an incentive for careers that involve problem-solving challenges. Once you reach a certain level, other aspects of the job are more important.

1-17-2018 **Video: Heat-Pump with Engine.** As outside temperature approaches single digits, the effectiveness of the electric heat-pump drops. So, the engine starts up to heat coolant, which is then used as supplemental heat to warm the interior. Watch as the engine cycles on & off. Notice how much electricity is still used for propulsion in the meantime. Overall, this is more efficient than using just electricity alone in extreme cold. The cutoff is around 14°F, but the heat-pump will still run until engine warm-up is complete. When the temperature is above 14°F, the system will run entirely with just electricity. It's a very efficient process, taking advantage of having an engine available but only using it in an optimized manner... [Heat-Pump with Engine](#)

1-18-2018 **Plug-In Owners.** Our group meeting this time was very crowded. The number of people attending has increased significantly. Pacifica, Clarity, Outlander, and Model 3 were all present. Those days of limited choices are a quickly fading memory. 2018 is off to a very good start. It had bit of a solemn feel though. We know how poorly informed those not there are. Understanding how much everyone else doesn't know by sharing what we do brings about that not-so-optimistic outlook. We are realistic though. We are well aware how much work it will take to even just stir interest. That's why there's such an investment toward the upcoming autoshow here in Minneapolis. To have a very large crowd expectation is great. Last year's dedicated room for plug-in vehicles was extremely popular. With more to see this year, that venue is a solid target for reaching out to the wider audience. It's very exciting. In the meantime, we are discussing infrastructure, solar recharging, and at-home storage. This particular meeting had local electricity providers sharing time-of-use discount information. Mine discussed the upcoming pilot rollout of smart meters. Enabling people to see their own consumption, via the internet measured every 15 minutes, is quite empowering. It's like the screen in Prius. Going from summary bills to a breakdown to tiny intervals will teach far more effectively than anything they have ever imagined. That simply act of real-time observation is priceless. Like any feedback, you make discoveries. We hear stories routinely about encounters with people asking about our plug-in experiences who don't have any idea how the vehicle actually operates. Too bad more groups like ours don't exist yet.

1-19-2018 **Halo Benefit.** Is there one? An article published today attempted to point out a flaw in the tax-credit approach by labeling those not already pursuing EV production as "*laggards*". There was nothing to actually quantify the effort though. In other words, the exploit of that money is getting support. The mindset is focused only on what they can see directly... that usual shallow analysis of the market simply by making anecdotal observation. That's really unfortunate. Efforts to reward automakers working toward profitable plug-in vehicles that don't guzzle electricity are not recognized. The tax-credits can be squandered, wasted on vehicles clearly not intended for mainstream buyers, then beg for more afterward. Wise spending to help ordinary consumers isn't addressed. As a result, there's no concern about when or how. The idea of significant sales growth has been abandoned entirely. This is clear evidence of change... the market approaching saturation with no plan what to do about it. There's just talk about when the credits expire. By the way, that expiration timeline includes a quarter (3-month) buffer, pushing the trigger expectation to this time next year, rather than in the fall. Remember all that hope for high-volume? These expense designs forego any of that. Inability to achieve profit, combined with the disincentive from dealers, is stalling progress. That leaves us with nothing but a "*halo*" benefit from most of the automaker. Autoshow reveals at Detroit confirmed it too. Everything coming from it reset the clock to the early 20's. This generation is basically abandoned by all by Nissan, Toyota, and Hyundai/Kia. Nothing is expected from the Detroit automakers. It was strangely quiet. They clearly aren't ready. They just plan to appear green by making bold announcements for years from now, rather than actually delivering anything soon.

1-20-2018 **Laggards.** That concern of "*too little, too slowly*" is dead. GM failed to deliver, despite on the assurances this would never happen. It's so bad, there are green apologists emerging. It would be nice if they were realists instead, but lack of any concise message cancels that out. You need a plan. No goals means no expectations. That's a very real problem... hence the original concern. Anywho, we now have the new label of "*laggard*" to deal with. Rhetoric to support that spin is rapidly growing too. That's what happens when hope falls about. I posted this on the topic: Taking the viewpoint of "*laggard*" requires turning a blind-eye to the original intent of the tax-credit, which was to bring about a profit high-volume product prior to it expiring. Those automakers who squandered that time, available on their own timeline, are now beginning to complain that their niche is too expensive. Why the heck didn't they design the vehicle for the wider audience like they were supposed to in the first place. For example, Chevy Volt is a compact hatchback with an emphasis on range & power. Who was that vehicle for? GM shoppers overwhelmingly prefer SUV choices. As a result, the GM tax-credits were wasted on conquest sales, rather than actually getting their own base to change. Meanwhile, we can still Toyota shifting battery offerings in their hybrids from NiMH to Lithium and the first of the plug-in hybrid choices rolled out worldwide. So even though there is a clear effort to reach a wide group of consumers by adapting their profitable platform to offer a plug, they are labeled as "*laggard*". That disregard for purpose & intent is harmful to the effort of electrification. You can't just dismiss the approach you don't like and not expect a backlash. Think about the negative impact expiring tax-credits could have on production volume for those automakers without a profitable offering available.

1-20-2018 **Looking Back.** Another obvious sign of having progressed to the next chapter are posts reflecting upon that past. Making calls about a choice following its completion is rarely ever objective. Looking back makes it easy to forget about all the factors of influence, especially when outcome was so uncertain. I attempted to point that out: It's easy to say that long afterward. Deviation from original intent has been a problem for years. Making excuses now doesn't help. Labeling some as "*laggards*" only makes the problem worse. There's no way to establish the next round of incentives without any clear focus of what should be achieved by them. Why is there still no focus on qualitative measure? We don't want to just shift the guzzler problem from gas to electricity, since it doesn't take into account emissions concern. Notice how there is a disagreement about how charging-stations should be used. Not addressing fundamental issues like that is how disagreement about subsidies come about. What are they trying to achieve? Consider what "*fallen behind*" actually means. That shouldn't have anything whatsoever to do with battery-pack size. Dealer support and salesperson interest focus on entirely different priorities. Aren't they customers from the automaker perspective? Think about the success of Prius. Just a tiny about of EV driving made for a compelling draw, one that resulted in millions of sales. Setting an arbitrary level on capacity and shunning those who choose to deliver less is counter to move toward electrification.

1-20-2018 **Purpose.** All I got was an ambiguous response to the "*halo*" observation, a complete absence of detail about how the "*product*" is perceived. He didn't see that providing an explanation of the situation without including an opinion or suggestion is being an enabler. I called that out as giving excuses. In general, that naive nature of just going-with-the-flow is quite harmful. This is how a paradigm-shift takes place. So many embrace change, the entire culture is altered. That's not a bad thing if you want it to happen. But when it goes unnoticed and there are consequences, undoing the damage can be extremely difficult. For example, out shift from car to truck. Back in the mid-90's when people starting calling their SUV a car, no acknowledgement of that obvious incorrect labeling contributed heavily to its normalization. Why would anyone use a large, bulky, guzzler designed for off-road driving and towing large loads to commute to work? It never made sense. Yet, people now absolutely insist the SUV is essential for their commute. Lack of detail. Unwillingness to be objective. Misrepresented Purpose. Remember the claims of being safer? All that got out of hand, leading to the mess we have to deal with today. Now, we have the same type of approach happening with plug-in vehicles. There is no operational clarity, no unified message, no agreement of intent. Some plain just don't care though, as the lack of a response to this confirmed: In the past, the intent was to deliver a plug-in vehicle competitive with traditional offerings. That made cost & price obvious. Changing it now, after the failure to deliver, is moving the goal-posts. That "*product*" has become so vague, propose has been lost.

1-21-2018 **Smug.** The ironic nature of some makes leaving them behind quite easy: "*I'm never going back to a Prius. I've been there and done that. I'm driving something better now.*" When they accuse you of acting that way, then do it themselves, using their own label seems so fitting. Ugh. In response, I simply pointed out the big picture: The competition is traditional vehicles, not other plug-in vehicles. Power, handling, and sound in Prime are all improved over the generation of Prius you once drove. For that matter, so is the efficiency, range, lights, screens, and safety features. Toyota shoppers are looking for competitively priced green choices. \$27,100 for a base Prime that's nicely loaded will draw their attention. Despite limited distribution of Prime in 2017 (basically no inventory available in roughly half of the country), we still saw stronger demand than that for Volt. A total of 50,000 Prime produced & sold in North America, Japan, and Europe is a very good first-year rollout. Again, the competition is traditional vehicles, not other plug-in vehicles. Toyota is striving to attract their Prius, Corolla, and Camry shoppers with Prime. GM has all but abandoned Volt, as the heavy endorsement for SUVs and Pickups continues to confirm. So, what you drive doesn't matter. You're an early-adopter drawn by conquest allure, enjoying the opportunity.

- 1-21-2018** **Actual Data.** Constructive discussion requires data from real-world driving. In the past, that was nearly impossible to obtain. Volt enthusiasts simply didn't want to share detail. It was quite annoying and very counter-productive. Today, I got this: "*I have averaged 4.4 miles/kWh... more efficient*" Unfortunately, the tone was condescending. The tendency to dismiss is usually what follows, when you supply actual data for Prius. They don't like to see better numbers... which I was all too happy to provide: That doesn't work either. Real-World results from Prime are also higher than the rating. 4.6 = April; 5.0 = May; 5.1 = June; 4.8 = July; 4.9 = Aug; 4.9 = Sept; 4.4 = Oct; 3.9 = Nov; 3.7 = Dec. Being in Minnesota makes the extreme low temperature operation especially noteworthy. The point is, we are looking for well-rounded solutions. Balance of price & performance is vital for any vehicle to be able to capture interest of the masses. Replacement of traditional vehicles with plug-in choices is the goal. That means offering a profitable vehicle in high volume.
- 1-22-2018** **Truck Intensive.** This year's Detroit blitz was summed up as: "*...the most truck intensive North American International Auto Show, ever.*" GM is rolling out a lighter & longer Silverado to compete with the success of Ford's newest F-150 and Dodge is attempting to up the ante with RAM 1500. Talk of plug-in vehicles or even just hybrids is barely a mention. That's not what the audience there is interested in. This is why I asked the "*Who?*" question for all those years. Volt never made any sense. Developing a small hatchback for those interested in truck was a colossal waste. Proof of this is overwhelming now. Those enthusiasts were fooling themselves. It's sad that they held on to a hope of that catching on, rather than just facing reality to find a way of getting Two-Mode in its original form resurrected. Oh well. It's not like I did tell them literally hundreds of times what to look out for and what to expect.
- 1-23-2018** **Insulting & Dishonest.** At this point, hearing this from former Volt enthusiast turned antagonist was a bit of a surprise: "*So, if the U.S needs a great award-winning hybrid sedan, it has the Ford Fusion Hybrid. We don't need any *stinking Prius*!*" There's nothing to gain at this point. Volt lost. Neither generation was able to achieve sustainable sales and now the more affordable choices are moving in to take its place. Besides all the insults, he was dishonest. That's what really stood out. That quote was from the end of a very long post where he attempted to wave the flag and claim superiority, adding: "*BTW, any Toyota lovers here? I bet over \$10,000 that if any Prius had its weight increased to 4,300 pounds (with the driver) and driven against a Fusion Hybrid under identical conditions, it will NEVER ever reach 44 MPG!!*" Repeating mention of a vehicle only rated 42 MPG (that's 43 city, 41 hwy) highlighted how much he no longer cared. He could say whatever he wanted, since there was nothing else to lose. I fired back with a link showing his numbers were incorrect, then added: 2018 Ford Fusion Hybrid = 42 MPG. 2018 Toyota Camry Hybrid = 52 MPG. The attempt to greenwash by pretending choices other than Prius don't exist has been exposed. Intentional misleading, just like that, has been what created so many problems with progress forward. You cannot exclude what you don't like.

1-24-2018

Avoiding What's Important. There was an article published today. Its purpose was obvious... to save Volt. The title was: "*Toyota's New Prius Prime Needs More Battery.*" We were then presented with the flurry of beaten-to-death rhetoric about how Volt was vastly superior. In the last sentence before the summary paragraph, price was finally mentioned: "*It does start at about \$6,000 less than the Volt (\$28,000 versus \$34,000), but that difference is negated somewhat by the \$4,500 federal tax credit versus the Volt's \$7,500, so the real difference in cost, barring options, is only \$3,000.*" I was very annoyed at that point. After claiming Volt had 5 seats and Prime only 4, my hope of anything constructive was lost. But that complete disregard for what each actually delivers (remember all the standard features Prime offers but Volt does not) along with the reality that tax-credits expire is too much of an avoidance. Good journalism doesn't exclude important information like the business itself. We know GM will offer very few Volt due to the approach of the tax-credit phaseout trigger, especially now that it's clear Bolt is GM's preferred plug-in. If there will be very few to actually purchase, what is the point of the article? Oh, that's right... to save Volt... or at least its reputation. I saw that in the comments too. My favorite was someone begging from kindness toward Volt efficiency since it was GM's first hybrid. Ugh. Not being aware of Two-Mode, BAS, or eAssist tells us the real story. Like many, their introduction to GM efficiency started with Volt. That means not having any history whatsoever to look upon for insight upon for business approach... something to reveal intent. Seeing it as a first attempt makes it look far more optimistic. Coming to realize GM actually had all that experience already, combined with EV1, you discover a lot of disinterest... which explains how Volt was never really had any purpose to grow beyond the niche it was. All that misleading about becoming mainstream was a farce. That's why I asked "*Who?*" all those hundreds of times. Needless to say, you have to avoid that detail to get the impression of Volt sharing the same intent as Prime. It doesn't. Toyota configured Prime to be competitive with traditional vehicles. That meant serious decisions about cost were required. No dependency on tax-credits. No omission of standard features. No disregard for audience. Think about what's important.

1-25-2018 Tax-Credit Reality. With the total sales count at 168,183 for GM, there's a growing stir about what will happen when the 200,000 limit is triggered. That expectation is for that to happen prior to the end of this year. No surprise, I had much to say about the situation: The fundamental problem with that tax-credit approach was no clear goal had been defined. Leaving it too open-ended resulted in an unintended consequence of GM delivering a vehicle that was a terrible fit for their own customers. GM's potential for getting their own loyal buyers to switch from SUV to small hatchback was very limited. To make matters worse, GM's design for Volt was neither efficient nor profitable. The upgrade to gen-2 should have reduced electricity-consumption and reduced production-cost to levels making it competitive with traditional vehicles. That hasn't happened so far, and won't before the 200,000 mark is reached. Toyota has delivered Prime, a vehicle compelling to Prius, Corolla, and Camry shoppers. It is a realistic design for profitability too, which can easily be spread to their other hybrid offerings. Prime sales of 50,000 (combined in North America, Europe, and Japan) the first year demonstrates a push to reach that wide audience with a highly efficient choice able to compete directly without tax-credit help. Whether you like it or think it's just rhetoric spew, that is the situation. The fact that Toyota didn't squander tax-credits on a design unable to compete will provide a nice incentive to accelerate mainstream acceptance... exactly what the subsidy was intended to provide. GM's decision to waste their opportunity should not be reinforced by simply extending count limits. Criteria defining useful goals must be added.

1-27-2018 Failed Incentives. We're seeing attention shift over to tax-credits. They will end this year for GM. That's a very real problem. It will prevent too much of a production ramp-up in the meantime... to milk the publicity for all it's worth... and will also pretty much guarantee mainstream acceptance gets delayed until after phaseout ends. See, the fade away of that \$7,500 incentive makes an already uncompetitive MSRP even harder to deal with. Think about the cash-on-hood deals already. Volt is struggling and Bolt is limping along, bracing for a sales hit once Leaf gen-2 arrives here. It's an ugly situation, one that could have been prevented. Oh well. It's not like we didn't all see this coming. I expressed that inevitability this way: Failed incentives come from overly simplistic criteria. kWh capacity as the only qualifier to meet presents the opportunity to exploit based on size alone. Why bother designing for efficiency when you can just slap in a bigger battery to compensate for that shortcoming? How come no one ever brings up charging-speed as something worthy of subsidy money? Having a collection of plug-ins put on the road that are "*fast ready*" would go quite the distance for promoting infrastructure investment. Then there's the issue of volume. Shouldn't there be some type of incentive to help dealers push the new product? After all, they are market consumers too. If they buy more to sell more, that is a win for everyone involved. In other words, all that chest-pounding about needing large range didn't accomplish the goal of profitable high-volume sales. So, it makes no sense to continue down that path.

1-28-2018 **Anti-Smug.** Things are suddenly getting weird. Some who had been incredibly smug, have abruptly changed their stance. Joining the effort to fight the very thing they were recently guilty of is usually a hypocritical move; however, they acknowledge it. Such open recognition of position switching is bizarre. In fact, I'm wondering what exactly just happened to trigger it. Perhaps the tax-credit situation hadn't actually been taken seriously until just now. After all, many antagonists just blow off what you post. As a matter of fact, that's exactly what that nasty daily blog for Volt has been doing for quite some time. Anything I post is just immediately negative voted until the content is hidden. They don't even try to be constructive anymore. Things have soured so bad for them, only good news is welcomed. That makes being constructive impossible. They don't want to acknowledge anything which could potential cast a bad light. Those rose-colored glasses of their's have been on so long, they have forgotten what the world actually looks like. That's a surprisingly common problem. People lose touch all the time. The catch is, that group didn't care if it happened. This group now speaking out against them do care though. They've had it with the "*vastly superior*" nonsense. They've seen that criticism can be a useful tool. This is the main reason I participate on hostile forum. Within that unfriendly territory is how you can the best feedback.

1-29-2018 **Already In Place.** Toyota's approach has been remarkably effective. They strive to deliver more than what's necessary. We've seen this many times now, where the design of Prime seems to under-utilize the actual operational parameters that are possible. Normally, you'd call this over-engineering. We've seen that from GM with Volt. There's a difference with this though. Having that extra capacity in Prius doesn't cost extra. The ability is an inherent part of the design. So, there is no sacrifice. You aren't paying more for something you likely won't ever use. That seems odd until you look at it from a production perspective. That's how cost is reduced. You refine design ahead of time. Having that already in place saves money both up front and later on. It's a win-win situation. In this case, it would be great to see the payoff. Planning for the potential of a mid-cycle upgrade is very forward thinking. Whether or not it is ever exploited or even given recognition doesn't matter. The point is there was an obvious effort to deliver above and beyond what was necessary. I posted this with the hopes of someone reading it and having one of those "*Huh?*" moments: It's really only a matter of waiting for the next-gen battery. Heck, just imagine what that higher-density, faster-charging pack would deliver in the current Prius Prime. All the building blocks are already in place, so refinements to the system... like the heat-pump... and the carbon-fiber... and the aero-glass... are showing up in the affordable category. It's easy for the early-adopters here to make the snide remarks, but it is an entirely different matter getting ordinary consumers to buy into their priorities. Think about how Prius became widely accepted.

- 1-30-2018 Truly Desperate.** The level of discord is so high now, I wonder when something will break. Volt enthusiasts are starting to freak. 2017 sales were a slap in the face. It was bad enough seeing gen-2 flounder. Struggling to maintain sales was far less than they had hoped for. The expectation was a big jump, for growth to boom like gen-2 Prius had experienced. Instead, Prime took the lead. Being dethroned is difficult to accept when being "*vastly superior*" was supposed to make sales so easy. They were wrong, very wrong. Now, some are lashing out, trying to hurt Prius & Toyota anyway they can. Today, it was this attack: "*you keep saying carbon-fiber this and aero-glass that, but these comments are just lipstick on a pig. The Prius is so dated and yet Toyota is trying to put little fixes in...*" I was amazed to see that level of desperation. Usually, they'll just try to change the subject. But rather than divert attention elsewhere, what I had posted was actually directly addressed. Gasp! Knowing January sales results will make this bad situation worse, I kept my response to that brief: Calling weight-reduction and aerodynamic-improvement efforts "*lipstick*" shows just how misplaced some priorities are.
- 1-30-2018 It Didn't Go Well.** My response to the lipstick attack resulted in this: "*Toyota builds cars for soccer mom's and beta males.*" I was amused. It was inevitable that the discussion would shift from addressing design to personal insults. The speed at which it happened is key. That reply was so fast, there's no denying the state of panic. He clearly didn't think about what he had just posted. It got me really excited. The very thing he attempted to offend Toyota supporters with applied to GM supporters too. That's a really big oops. He shot himself in the foot. GM has been gloating about doing exactly that. It was the topic most emphasized at the Detroit autoshow and this desperate Volt enthusiast tried to use it as a source of insult. That's why they call it spin. Sometimes things get so mixed up, you don't know what the truth actually is. Of course, I was delighted to point it out: Ironically, weight-reduction and aerodynamic-improvement is exactly what GM just announced as major upgrades for their large pickups.
- 1-30-2018 Pride.** This is my summary of the web of emotion Volt enthusiasts got themselves tangled into: Pride has been a very difficult challenge for GM supporters to overcome. Voltec progress has been impeded by the "*vastly superior*" mindset, where speed & range were given higher priority than bring affordable & profitable. Too many tradeoffs were made to sustain that. The consequence of which are now becoming all too clear. GM has a product without an audience. The early adopters have moved on and ordinary GM shoppers simply aren't interested. Volt has become a leading example of what happens when customer needs are not recognized... mistakes to be avoided, not the type of leadership supporters were looking for. Toyota already has a platform that's profitable and upgrade-ready. A new battery-pack, one offering higher energy-density, can simply be exchanged. No next-gen rollout necessary. Buyers get the choice. That flexibility is a big cost-saving opportunity. This is the same approach BMW, Nissan, and Hyundai have all embraced. We'll see if GM is able to adopt Voltec for something similar... if they can overcome the pride.

1-31-2018 **Sales.** My prediction is that tomorrow things will get ugly. Sales of Prime are anyone's guess. There's ample 2017 inventory in regions that rollout took place in. For regions like where I am, here in Minnesota, we're waiting for 2018 models to be delivered. So, there's nothing to purchase here but decent selections in areas peppered along both coasts. Volt gen-2 is piled up everywhere. The rush to take advantage of tax-credit opportunity ended on December 31. Any purchase after that meant waiting an entire year before collecting that generous \$7,500 incentive. So, why bother? January is a terrible month for sales anyway. Why purchase a new vehicle in the dead of Winter? That being said, the prediction is a very low count... quite noticeably lower than Prime. How many won't be a mystery for long. I expect to get results early tomorrow. The thing going for Prime is real-world data. Owners sharing their driving experiences in wintry conditions provides a huge endorsement. It has worked exceptionally well with each generation. So, there's no reason to think it won't with this one too. We always see a bump in sales following that unknown related to cold endurance. Being here in Minnesota, armed with a 4K camera, I see the potential. There has been excitement each time I publish a new video. Yeah! Anywho, stay tuned. I'm quite curious how this will play out.

2-01-2018 **Motivation.** I asked: "*There simply isn't incentive for GM to deliver a lot. What's the motivation?*" The first reply was an outright lie. Rhetoric clearly doesn't work anymore. The antagonists simply don't care about being honest or being confronted with facts. The state of desperation is so drastic, an end is obviously drawing near. Shoppers are looking elsewhere. The only draw was to conquest buyers. GM's own customers simply have not been interested. I summed the situation up with: Volt sales that low, in year-3 of gen-2 with a \$7,500 tax-credit, makes being profitable a moot point. As for making a claim of Prime not being profitable, without providing an proof whatsoever, is clearly an attempt to change the topic. Augmentation of Prius to add a plug and larger battery-pack for that MSRP is feasible. There's no reason to believe the FUD. Toyota's first year for Prime resulted in over 50,000 worldwide sales, despite a large chunk of the United States not having any inventory. The second should show strong growth as rollout expands to reach more potential customers.

- 2-01-2018** **Imminent Death.** It's so blatant that GM has no where else to turn with Volt. Something is going to happen. My guess is silence, a deafening absence of any stance. It will just fade away like Two-Mode did. That's really unfortunate. The technology itself offered potential. Neither management, nor enthusiasts, wanted diversity though. Any effort to broaden appeal to attract mainstream consumers would sour interest for enthusiasts. It was a problem of mutually exclusivity, a disaster in slow motion caused by conflicting purpose. Who is the market for Volt? We got the answer to that much asked question. It was early-adopters. Ironically, the very problem the biggest antagonist tried to pin on Toyota, ended up being the very reason GM's struggle has been lost. Listening to those early-adopters about how to make gen-2 better was a fundamental mistake. Asking the wrong audience was such a dumb move, it made you wonder if the motive was to aim the technology into its corner... letting it kill itself, so they don't get blamed. They'll blame the market for disinterest. Trouble is, people like me noticed the obsession for large, powerful vehicles. The showing at Detroit this year confirmed it. Nothing came from GM with respect to plugging in. It was all about new Pickup & SUV offerings instead. That's why this particular post from one of the GM supporters trying to be constructive didn't get much pushback. They silently acknowledged what he said, without argument: *"Amen. These fanbois are in denial. The Prime is number one like I predicted year ago. RIP Volt."*
- 2-02-2018** **Too Late.** I know reading this really hurt the enthusiasts: *"GM is wasting the goodwill and conquest customers they gained with the Volt."* That's all too true. Opportunity has been missed. When leases began expiring, those conquest buyers jumped ship... distancing themselves from GM as quickly as possible, never looking back. I watched early-adopter after early-adopter choose a non-GM replacement. They were drawn to incredible lease pricing, not any sort of loyalty or true support. GM's own customers, those who have driven GM vehicles for years, never expressed interest. That's why I got attacked whenever I asked the *"Who?"* question. They'd get more and more angry each time... knowing I was correct, since each asking meant more calendar has been used up. Years of listening to me express the *"too little, too slowly"* concern has built a solid argument of being too late. This is now the 3rd year of gen-2 being offered. Sales reveal a vehicle struggling for survival. Then when you consider it is all with a \$7,500 dependency, hope fades away entirely. Upcoming phaseout of the tax-credit means making a decision soon, prior to clearance time. It's approach directs the spotlight over to Bolt. Why attempt to save Volt when so much pressure is also building from Nissan & Tesla? Knowing Toyota, Hyundai, and Honda will dominate plug-in hybrid sales anyway, all you can really say now is: Too late.

2-03-2018 Reality. I searched through my old blogs. The want was to find when it all started, how the efforts to be constructive turned sour. I found that specific entry, the one where I first brought up the topic of diversification. Toyota was expanding their hybrid choices, delivering a minivan, a SUV, and a sedan, in addition to a hatchback. Their newest (the third-generation Prius) demonstrated the potential for further electrification. It was really only a matter of readying to take advantage of battery advancements. Once cost dropped and energy-density increased, adding a plug would become realistic. GM was attempting to race ahead, to "*leapfrog*" those efforts. That failed terribly. We are not seeing the aftermath of a number of poor management decisions. I was happy to point them out:

Why not offer a second model?

September 5, 2009 that question was first asked. The lead up to it was: "*...it simply doesn't make any sense to not offer consumers a choice of battery capacity. That would lower the price quite a bit, appealing to a much wider market. 16 kWh means low-volume production & sales for many, many years to come.*"

That was prior to the rollout of gen-1 Volt about what strategy GM should take. It was constructive. It was agreed up. It made sense. Unfortunately, things took a turn in the opposite direction shortly afterward, when the topic of winter efficiency was brought up. Reality of how much battery-capacity would be consumed by cabin heating revealed the "*40 mile*" goal to be unrealistic. That loss of hope created a series of conflicts to come.

News emerged that Volt wasn't actually a series hybrid as expected, that the system would deliver power directly to the wheels at times. Then came the "*Freedom Drive*" publicity stunt, where a pre-production Volt was driven 1,776 miles. The very information most wanted from that was withheld; GM absolutely refused to share that real-world data. Worst though was when price was finally announced. Volt would be far more expensive than supporters ever imagined.

Fear of product dilution from offering a choice of smaller, yet much more affordable, battery-pack overwhelmed supporters, creating a rift of those who were unwilling to compromise... the enthusiasts. They felt the tradeoff was far too much to sacrifice. They told us all to be positive. They claimed we only had to be patient. Concerns of "*too little, too slowly*" emerged. What if the one-size-fits-all approach fails? We now know the consequences of being unwilling to diversify.

GM will trigger tax-credit phaseout without having established a profitable, high-volume, plug-in hybrid offering. The opportunity to shift their customer-base was wasted on conquest. Rather than delivering what GM shoppers would be interested in, there is nothing... no choice of affordable compact plug-in hybrid... no choice of a modest-range SUV plug-in hybrid... no clear message of intent... nothing.

Now, we await what from GM? All those vague & ambiguous statements of the past resulted in meritless hope, where enthusiasts never saw any value in supportive facts. There was always mindless cheering and the belief management would make the right decision. Enthusiasts refused to take a stance and demand change; instead, they attacked voices challenging the status quo.

We see Honda, Hyundai/Kia, Chrysler, Mitsubishi, and Toyota all striving to fill the void GM left behind, the market Volt enthusiasts absolutely insisted GM could capture.

2-03-2018 **Video: One-Degree with Drive-Thru.** Getting food on the way to work is something I hadn't ever captured on video. People routinely use the drive-thru as part of their daily commute. So, why not share some real-world data for that too? Choosing a day where we were experiencing extreme cold made it especially noteworthy. The temperature was too low for exclusive use of electricity. The engine would need to provide some supplemental heat. What does having it cycle on & off do to the over efficiency? Watch the MPG value in relation to the ODB-II data, those 2 meters added to the video. One shows temperature of the coolant, the other RPM of the engine. Both play a key role in keeping you warm, while at the same time striving to deliver optimal overall efficiency... [One-Degree with Drive-Thru](#)

2-04-2018 **Doesn't Compete.** Yup, you know it's getting ugly when comments like this are posted: *"I have had it with PHEV nonsense..... If they can have a real electric vehicle for under 40k with over 200 mile range, they want it and prefer it..... With affordable EVs around, PHEV become niche. A Volt for 34k doesn't compete with a long range Leaf or Tesla."* There wasn't much of an argument in response either. I piled on with: It's very easy to be tired of the games GM played with Volt, a niche vehicle marketed as if it was designed to appeal to the masses. The situation has recently changed though. Very different choices are emerging. \$24,950 base MSRP for Hyundai Ioniq PHEV. \$27,100 base MSRP for Prius Prime, which is nicely loaded. Both are newcomers striving to reach ordinary consumers, those who don't want to spend a lot on a vehicle and may not in a position to recharge at home with 240 volts. Toyota was able to deliver & sell 51,000 of the new Prius Prime last year, despite including carbon-fiber & aero-glass. Both those weight & drag reduction technologies, combined with a significant improvement upon their popular hybrid technology, are a winning formula for affordable & profitable choices. PHEV are the clear next step for mainstream shoppers and represent little risk for dealer & salesperson. Battery capacity is enough for daily commutes and simple recharging. There's an engine available for longer distant travel too. Like it or not, they are key to EV acceptance.

- 2-04-2018 Reality.** I kept firing, to make sure the reality of this situation is overwhelmingly clear: Dealers are the true customers, not ordinary mainstream buyers or even early adopters. So, data before the other automakers got on board doesn't apply to the emerging market we see in 2018. Neither EV nor PHEV have appealed to dealers. They were simply too expensive, too much of a challenge to explain to shoppers, and offer too little in return. That's changing. Toyota delivered 218,600 of the regular model Prius last year. All but the rare ECO model used lithium battery-packs. The plug-in model basically just includes more of the same. That's an approach easy to get dealers to buy into, since they are already quite familiar with the product and MSRP doesn't increase much. As you point out, the current bottleneck is cell capacity. Production in high-volume is a major problem. Prius Prime doesn't offer a huge capacity increase, but those cells are put to good use. Rather than just 1 vehicle using up 60 kWh of cells, you can have almost 7. Hyundai & Honda are finding themselves in the same predicament. They aren't about to follow the failed path GM took, where dealers weren't interested in an expensive niche... regardless of how much early-adopter praise Volt was given.
- 2-04-2018 Market Observations.** It's easy to feel the momentum of change now. I'm giving it a shove too, doing all I can to make sure those few still in denial see what's been happening: Sadly, our market isn't interested in minivans. GM and Ford completely abandoned them. In fact, GM is now abandoning cars... 26,405 = Equinox. 11,627 = Traverse. 10,858 = Cruze. 7,553 = Malibu. 6,106 = Trax. 3,150 = Impala. That's a very big warning sign for those who think Volt or Bolt stand a chance. GM simply isn't interested in the smaller vehicles. We see them pushing the US market more and more to SUV purchases... very non-green choices. The only saving grace we have is that cramming battery-capacity into them is easier than cars. Toyota's effort to get RAV4 hybrid into the mainstream and redesigning Prius v to become a CUV strategically positions them to deliver an affordable & profitable plug-in choice. So, that opportunity won't be missed. They can take advantage of that demand here for the larger, yet efficient, vehicles.
- 2-05-2018 Guilt Free.** As long as electricity is being consumed for transportation, it's ok. That mindset of trading gas guzzling for electricity guzzling has been the backbone of arguments in favor of Volt since before it was rolled out. That fundamental argument has persisted throughout the years. Enthusiasts just plain did not care about waste. Electricity = Good. Gas = Bad. They were that braindead. Consideration of how the electricity would be generated, transported, or stored didn't matter. That's why we keep getting comments like this: *"While most plug-in hybrids can manage roughly 10 to 20 miles of electric-only range, the Volt can eke out 53 miles..."* Which are always followed with something like this: *"...this car's most important standard feature: 53 miles of guilt-free driving on electricity alone."* All that matter was range, nothing else. Cost of that larger battery or how much it would take in terms of time for recharging didn't matter. All that mattered was range. They had no guilt about it either. In their minds, it was all about avoiding gas consumption. Ironically, that has become the cause of their own death. Repeating that mantra over and over and over again for Volt is how they created loyal supporters of Bolt. I always found that self-deprecating behavior fascinating. How could they not realize they would contribute so heavily to their own demise?

- 2-06-2018** **Hypocrite.** Nothing happened this morning. The daily blog didn't have an update. So, the discussion still active on yesterday's thread continued. It took an interesting turn too. They started discussing discussions. This emerged: "*When someone says credible facts against you, your only recourse is to attack their character.*" It came from... you guessed it... the person who routinely did exactly that. He'd often parrot what you say and posts reflective thoughts. That reveals his own shortcomings; yet, he still doesn't recognize them. It's the ironic nature of the whole situation with Volt. The enthusiasts are guilty of the very thing they despise the most. I saw the same mistakes being repeated over and over again. They really don't learn. That comes from not taking the time to actually research. Why bother to study the market? Assumptions are good enough. Ugh. Needless to say, I was amused to see that ironic quote. Pride being more important than integrity says it all. They don't want to be constructive, period. It's all about hiding, evading, and attacking what you don't like.
- 2-07-2018** **Subaru.** We got a surprise announcement from Toyota today. Remember the sharing & licensing of previous Prius technology with other automakers? Toyota did that with several in the past. It worked out well. There was a mutual benefit. An automaker unable to fulfill a mandate on their own in a timely fashion or simply wanting to measure market demand with reduced risk took advantage of the opportunity. Now, we hear that Subaru will be doing that. Parts of the system from Prius Prime will be offered in a Subaru to be rolled out late this year. No detail was revealed... other than there being an expectation for it to be AWD. Since there is already a model of Prius in Japan available which features all-wheel-drive, the idea is realistic for this plug-in hybrid to share the approach. We likely won't find out what model or size of the battery for awhile; nonetheless, it puts even more pressure on GM to finally give their own customers something to look forward too. Bringing an AWD offering to market is a step toward getting traditional buyers to finally take notice of plug-in hybrid potential.
- 2-08-2018** **Not Interested.** The end has come. Exactly as expected, year-2 of gen-2 for Volt was so bad, even the daily hypocrites have fallen silent. It was much easier when there was uncertainty. But now with the year-3 underway and the problem such a high MSRP looming, they have given up. There is literally nothing left to spin. I hadn't expected such an obvious cease of the rhetoric. It just died abruptly. I'm not interested in starting anything new with that group. The negative feedback was priceless back when they had blind hope. But there's value in any of their enablement anymore. That group-think doesn't provide any value when the next step is actually being taken. It was a great insight to learning about audience. That's done. Time to move on. So, I chimed in to be part of the acknowledgement of finality with: Too little, too slowly was the pointing out of opportunity being missed. It simply never made any sense wasting good tech like that, especially with so many sharing words of praise for the potential. GM management wasn't interested in reaching out to the larger market.

- 2-08-2018** **Temperature Adjustment.** I am approaching my first-year anniversary for Prime ownership. That means I will have had a full year to study the system, to observe the changes from each season. It's time to begin thinking about all the stuff that needs to be documented for the User-Guide. There's quite a bit for this generation of Prius. Simple things go a long way too. You'd be amazed at some of the complaints that come about from owners who assume. They aren't rewarded like the ones who enjoy exploring. A good example of this came today from: "*I don't think the Prius Prime has temperature adjustment buttons on the steering wheel...*" That comment came about from a complaint an owner had about the placement of the dedicated buttons for temperature on the dashboard. He somehow keeps slipping, accidentally pushing the button below it that starts the engine for "power" defrost mode. It never crossed his mind that it would be an option on the screen... despite all the promotion of having buttons on the steering-wheel, to prevent having to reach over to push something on the dashboard. Ugh. Needless to say, there is. In fact, there's an entire section that allows you to make creature-comfort adjustments simply by moving your thumb. That's good stuff to put in the new document!
- 2-09-2018** **Video: Charge-Mode in Winter.** Hybrids achieve high efficiency by seeking out opportunity. That gain can be boosted even further the choice of how & when is carefully considered & control. Charge-Mode provides that benefit... if used wisely. Gas engines waste quite a bit of energy. A source of that waste comes from not carrying much load. The combustion process is most efficient when the engine is being utilized more, closer to its full potential. Charge-mode allows you to take advantage of that. In this example, I active Charge-Mode on 3 different occasions. This running of the engine more than needed results in electricity being generated to recharge the battery... which I take advantage of afterward. Watch before & after I get on the highway. Also watch as I cruise along the back country road as I get close to the end of my commute home. Since this demonstration took place in the winter, I also took advantage of the other wasted energy from the gas engine: heat. When I shut off Charge-Mode, the system switches back to EV mode. So, rather than using electricity to provide heat while driving with the engine off, the cabin warming is provided by heated engine coolant. Used wisely, there can be an overall MPG benefit. When on long trips, like vacation when there is no charging available at the destination, I will take advantage of Charge-Mode to supply electricity for later when going out in the evening for dinner or getting coffee the next morning... using EV to avoid engine warm-up. Notice the results on this drive. That's quite impressive. 49 MPG overall, despite the cold. There is 1 mile of electricity still available for EV at the end too: [Charge-Mode in Winter](#)

2-10-2018 **Prius Decline.** Between the challenge of Nissan & Tesla production ramp-up and the struggle GM is having, there's no big players to provide news for right now. So, there's retrospectives being published... many with errors & spin. Looking back is never good. So much detail is overlooked, forgotten, or omitted, the objectivity is lost. It doesn't matter though. The point of those articles is to hold onto the regular readers by giving them something to participate in. The resulting comments are all over the place as a result. So, it's a winning formula... especially if you want to spread misconceptions. Unfortunately, this lull cannot be avoided. News about mainstream offerings isn't exciting anyway. That dooms Prius Prime to ridicule. We certainly are seeing a number of snide remarks too. The antagonists don't want the message of a natural transition from hybrid to plug-in hybrid to catch on. That low impact approach is very difficult to combat. Look at how hard Hyundai is working to offer something comparable to Toyota. It takes a serious investment.... a reality others aren't willing to accept, hence all the attempts to spin a story of Prius decline. I replied to today's spin with: Worldwide rollout all in the same year meant limited inventory available. 51,000 were sold though, despite people like us in the center of the US not having any to speak of. That shows potential, helping to confirm Toyota choice to focus on a well balanced offerings (lots of features, yet very affordable) is a good approach.

2-10-2018 **Leadership & Late.** Wow! It's happening again. Remember the attitude from Two-Mode supporters? They attacked Toyota & Prius relentlessly. In the end, it was another case of "*over promise, under deliver*". GM's reputation had been reaffirmed in a dramatic way. That's why I was so amazed that the gen-1 Volt enthusiasts would so blindly follow in those same tracks, repeating the very same mistakes. Sure enough, it was the same outcome too. That failure didn't deter gen-2 Volt from repeating that history, yet again. Wow! Now, we are seeing it emerge from elsewhere. Claims of Toyota falling far behind and losing any sense of leadership keep coming up. None have any substance though. All are based on nothing but the fact that other automakers have ambiguously committed to EV delivery. No over promise this time. In fact, no goal is ever actually stated. It's all so vague, there's no accountability whatsoever. Victory could be declared on anything. It's the worse I've ever seen. People are so desperate for good news from their particular automaker, the only recourse currently available is to attack Toyota's success by portraying it as a failure to advance. Only Volt enthusiast did that in the past. But now that they are gone, others are feeling the same pressure. No surprise there. I just pointed out some facts: Affordability isn't leadership criteria? Including carbon-fiber & aero-glass isn't? The new vapor-injected heat-pump isn't? Delivering great kWh/mi efficiency isn't? There's a belief that larger battery-packs is the measure of progress. Those who believe that are in for a rude awakening when it comes to mass-market appeal. Mainstream consumers have very different priorities from the early adopters here. Take a look at the 51,000 sales of Prime last year around the world for a perspective of what's really important. Reaching ordinary consumers with such a well-balanced profitable vehicle is the game changer... the same goal all the other automakers are striving for. Think about the wide variety of hybrids Toyota now offers and how many of them now use lithium battery-packs. That claim of being "*late*" doesn't have merit

- 2-10-2018** **Ugly.** When all else fails, call the vehicle ugly. Antagonists are busy now. They see the rise of Prime and are trying everything they can possibly do to undermine the name of Prius. Their panic reaction is a sure sign of mainstream advancement. Nothing is working. The real-world data speaks for itself. Plug-In hybrid acceptance is seen as a natural step forward, not a dramatic paradigm-shift as the "*EV only*" purists are trying to push. Their one-size-fits-all rhetoric is having quite a bit of trouble catching on... a problem we don't see with the plug-in hybrids. So, they attack the look of Prius, the one without a plug, with the hope it will somehow sour appeal for Prime too. It's not working either. Just like in the past, attempts to impede are eventually overcome. Having lots of video to share already is helping speed that process along. Yeah! In the meantime, we have to respond to the nonsense being posted: Toyota made Prius the standout hybrid it was always characterized to be, providing a market offering for those wanted exactly that. So what if you don't like it? The market isn't a one-size-fits-all situation anyway. Camry hybrid... RAV4 hybrid... C-HR hybrid... Corolla hybrid... those are the hybrids Toyota is focusing growth on now... along with the rollout of plug-in options. Look at how competitive Prius Prime is with traditional vehicles. You can get a solid 100 MPG vehicle, delivering lots of EV driving, with lots of features for a MSRP of \$27,100.
- 2-11-2018** **Smug.** Now that Volt is dead, the inevitable new set of enthusiasts has emerged. It's bizarre how clueless they are. Knowledge of how Prime works is based upon nothing but a rudimentary understanding of hybrids... which wouldn't be so bad, if they had some type of business background. That complete absence of knowing how any of the automotive fundamentals actually work make any type of argument futile. When you bring up the concept of mass-appeal, there's nothing but an arrogant reply in return. It's the same thing every time too. Toyota is late. That is so horribly vague, there's no point. Late for what? Who cares if early adopters have nothing to purchase. Rarely will a vehicle targeted at them ever appeal to the masses anyway. Mainstream shoppers have very, very different priorities... the lesson Volt enthusiasts learned the hard way. Ordinary consumers couldn't care less about a vehicle that isn't affordable. It's difficult to believe anyone could be so blind. You'd think that would be obvious. Clearly, it is not. History is repeating the cycle again. Those gullible people who don't bother to actually research are beginning to post snide remarks. You can see that same smug coming back again. Ugh.

2-11-2018 **Big Oil Fear.** The poorly informed tend to look for conspiracy. Not understanding complex problems results in that jumping to conclusions like that. If you are not for what they are endorsing, you must be against it. In reality, situations are rarely that extremely. Often, they true stance is somewhere in the middle. That doesn't work well for online commentary. So, personal attacks result. Today, it was my apparent support for the oil cartel. That couldn't be further from the truth. But with such rudimentary knowledge of how hybrids work, that tends to make sense. If you aren't in favor of EV here & now for everyone, you must be an opponent. Ugh. That kind of thoughtless, knee-jerk response is what Volt rhetoric shoveled for years... which turned into a monumental fiasco. Anywho, I responded to that nonsense with: Assumption based on limited & anecdotal evidence is incorrect. In fact, you couldn't be more wrong. My effort is to push for plug-in hybrids as quickly as possible. That elimination of traditional vehicles will result charging infrastructure setup at the same time. Jumping straight to EV is totally unrealistic. No part of production or sales is ready yet for that scale. Comprehensive evidence of that is plentiful. That belief that revolution is necessary is a fundamental mistake. There's no reason to present the situation as a fight when you know an evolutionary step can be quickly achieved and set the stage for that paradigm-shift.

2-11-2018 **Wishful Thinking.** Drawing conclusions with little to no data was common in the past. Now, some just declare victory without any supporting facts. They just plain don't care. They call your observations wishful thinking. Anything to stop the progress of Toyota. It's really sad... and fortunately, very easy to rebut...

Here's actual achieved results in 2017 outside of North America:

191,600 sales of C-HR hybrid.
130,900 sales of Yaris hybrid.
58,500 sales of Corolla hybrid.

That show very real growth potential when those are rolled out in this market. No wishful thinking required.

Here's more actual achieved results, Toyota's worldwide annual sales totals:

1.22 million = 2012
1.28 million = 2013
1.27 million = 2014
1.20 million = 2015
1.40 million = 2016
1.52 million = 2017

The data tells a very different story. There is clearly no decline as claimed, only a dip as gen-4 Prius availability approached with undeniable market growth following.

- 2-12-2018** **Retroactive Credit.** Surprise! We can claim more of a tax-credit on our 2017 return than expected. That was something I had just accepted as an opportunity missed, when it expired the end of 2016. We weren't ready for the idea of running new conduit & wire, then purchasing 240-volt chargers. Heck, my wife wasn't even going to consider replacement of her car until 2018. But things fell into place with several upgrades all within a few month's time. We got a remarkable amount done in the first half of last year and it is now going to quite literally pay off. In addition to having enough tax-liability to claim \$4,502 for each of our Prime purchases, we can also claim several hundred for the charging setup we invested in for our home. The amount can be up to a maximum of \$1,000. It's a 30% reimbursement. I'll have to dig out our receipts to see how much we qualify for. It was expensive, since we didn't skimp. 2 cans. 2 meters. 2 conduit lines. 2 sets of wiring. 2 breakers. 2 outlets. 2 chargers. Sweet! Strangely though, there are a few supporters scratching their heads wondering how rewarding those of us who took the risk will benefit from a retroactive credit. Don't they think we'll put that money to good use? It equates to free recharging elsewhere, funding to promote public charging-stations by patronizing them without concern of having to pay. Why not? It's exciting to help promote. A bit irked, I pushed back their pushback with: Don't be so quick to dismiss. Retroactive is how you encourage early-adopters to share what they learned. That gesture of acknowledgement is very powerful.
- 2-12-2018** **Priorities.** The final, foolhardy messages attempting to obscure Volt's downfall are now being posted. It's an end more painful than the sudden, abrupt stop, we witnessed with diesel. Quite literally overnight, the impediment to green advancement vanished. It was dead. With this, it's like they are beating a dead horse. Rather than focus on the clear winners in the next stage of ending the reign of traditional vehicles, they are trying to hold onto the memory of victories from long ago. Bringing up the past... looking backward instead of forward... is an obvious sign of denial. The job now is to promote realistic challengers. Prius Prime is the clear leader. It is the only affordable offering capable of standing out among a showroom floor filled with strong sellers. Oddly, that means the regular model of Prius will be cannibalized in the process. But that's progress. For those who have an outlet available, it's a very reasonable consideration. It holds enough potential to possibly sway those considering a Corolla or Camry too. That's why GM's approach of simply offering as much EV as possible made no difference. Someone shopping for a traditional vehicle couldn't care less about getting a maximum return. They just want a simple transisition to electric. Only needing an ordinary 120-volt outlet and not having any concern whatsoever about the engine starting is really, really important. It's a basic approach that won't intimidate. This is the same thing Hyundai & Kia are hoping to aggressively pursue. That's an opportunity GM never showed any interest in... which Volt enthusiasts have learned in a very painful way. They refused to recognize what mainstream shoppers really want, what they consider priorities. Toyota carefully studied this, taking it very seriously. I pointed that out on a regular basis, as I did yet again today: Know your audience. Understanding their priorities is key to drawing their interest. They seek a well-balanced choice, not one making sacrifices to go faster & further.

2-13-2018 **Late & Laggards.** The desperate efforts to save some pride from Volt's demise has been interesting to witness. So many people are now writing obituaries, those posts of rhetoric simply fall on deaf ears. No one cares anymore. Commenters have better things to spend their time on. GM squandered, missing opportunity after opportunity. It has been a disaster of epic proportions. Seeing such a grand experiment fail on such a colossal scale is remarkable. Everyone in the early-adopter crowd know Volt well. It was nice car... to lease. Few actually owned one though. They didn't want to take the long-term risk and saw no reason not to take advantage of such appealing lease offers. This is the statistic they did their best to suppress. That's why conquest continued to get so much attention. To address the problem of retention meant asking for a fight. So many went elsewhere when their Volt's lease expired, the remaining group of enthusiasts became frighteningly small. That's how a knew the goodbye was real. Those still left starting naming off big names of the past, people who moved on and were rarely ever heard from again with respect to Volt. They now own other plug-in vehicles. Heck, one of them even became such a huge Bolt supporter, he recently got banned from the Volt forum. That's when you know it's over. Anywho, the few left keep trying to start a narrative of Toyota being "*late*" and often resort to "*laggard*" name calling. It's so childish. Nothing is ever provided to support their claim. They are just desperate to get attention off of Volt. All those obituaries are difficult to deal with. What's even more of a problem though is the acknowledgement of true innovation... and many are happy to point out the lack of it from GM by just offering the most battery-capacity, rather than actually developing more advanced tech. I was happy to join in that discussion today with: More credit is given to having more battery, even if the vehicle guzzles electricity. It has been the braindead mantra of bigger being better. Actual innovation has been pushed aside. That's why the effort to deliver a battery chemistry & design that doesn't require liquid-cooling treated as a shortcoming, despite it being an obvious step forward. This is also the reason why the use of heat-pump, carbon-fiber, and aero-glass are all looked down upon. Technology advancements and cost reductions are not considered innovation. That's a very real problem.

2-13-2018 **Goodbye Messages.** It has been interesting to read post after post about the death of Volt's biggest promotion source. This was the sign-off from a long-time participant today: "*GM knows what to do (like supporting this website and promoting electric cars) but just cannot bring itself to do what is right.*" That was followed by a goodbye. 7.5 years after rollout began, with the obvious rise of "*anemic*" offerings from other automakers, there is literally no hope remaining. They exhausted every possible excuse and insulted every possible source of conflict. The rhetoric was amazing. When you evade & deny for that long, such an outcome is inevitable. They didn't want to accept the growing evidence of trouble. That meant the problem would never be dealt with. Rather than address shortcomings, the choice was to avoid mention of them. So when I brought them up for constructive discussion, it was always a shoot-the-messenger response. To think that a select group of people would become such staunch enablers. They were the very thing they hated most: fanboys. Coming to realize their error after defeat is the ultimate vindication for me. They wanted a fight to the death, but never imagined actually losing... and would never, ever consider surrender. Ironically, all I was ever looking for was an ally. There is no way to win the war against traditional vehicles without friends supporting other automakers. Clearly, that won't come from GM owners. Their numbers will be far too few; instead, I'll be looking toward those choosing plug-in hybrids from Hyundai & Kia. Perhaps we'll see high-volume sales from Honda, Chrysler, and Mitsubishi too. What Volt couldn't accomplish, they have the potential. That serious concern of "*too little, too slowly*" has been confirmed. We got yet another "*over promise, under deliver*" from GM. Volt demonstrated the opportunity for its technology to be exploited, but that step was never taken. The initial offering is fading away into memory without any successor. All those tax-credits were wasted on conquest. The expectation of that generous subsidy being used to establish a base of loyal buyers wasn't pursued. The ultimate question of "*Who is the market for Volt?*" has been answered. It was a niche GM did not want to transform to a mass-market offering. Goodbye.

2-13-2018 **Playing Offense.** I went on the attack this evening: To those who turned a blind-eye on the management problems related to both the EV1 and the Two-Mode rollouts, choosing to focus exclusively on engineering instead, you've learned a very painful lesson. Volt failed to attract GM's own loyal shoppers, a problem that will be greatly compounded when the tax-credit expires. Now, we watch attention shifting over to the struggle Bolt is having with the very same problem. Those shopping for a GM vehicle couldn't care less about a compact wagon. They want to purchase a SUV. Where is that choice? GM revealed the Saturn Vue plug-in SUV back in early 2008. What's taking so long? We need to ask what should happen next. No more efforts to change the topic. Those attempts to focus attention elsewhere were childish acts to avoid dealing with the problem at hand. What should GM do? Management must decide how to move forward. Supporters can help with that. The time to take a stance is long overdue. Blindly trusting they'll make the right decision will allow the history of mistakes to repeat again. State goals. Be concise. Stand firm.

- 2-14-2018** **Change.** The turn of events recently has been remarkable. Watching things fall apart for Volt is not how I anticipated the end to come. Ironically, that daily blog for Volt was a cheerleading website... and cheerleading was exactly what I posted late last night. They weren't happy. I thought it was best to share the love, considering what today is supposed to represent. After so much hate, closure of any sort is a true step forward. Good or Bad, it doesn't matter. The time to move on has come. So much opportunity has been wasted. Choosing to fight fellow plug-in supporters rather than focus on goals was too difficult to accept. Pride is very difficult to overcome. GM screwed up. Who cares? You fall down. You get back up and try something else. Continuing to try again with the same thing isn't wise. Volt failed twice. Neither gen-1, nor gen-2, was able to capture the market. Sales are shrinking, rather than achieving the growth promised for so long. Just think of what could have been if that second model with a smaller battery-pack had actually been offered. The lower cost would have been quite a tradeoff. So what if range would have been reduced. The resulting weight reduction would have delivered higher efficiency and less need for power. Enthusiasts were unwilling to compromise though. Now, they see the consequences of their choice to retain the status quo. Fighting change was unwise.
- 2-14-2018** **Love.** I'm not giving them any chance to recover. It's over. Done. They have been called out for being hypocritical. Volt was to be the icon of the future. No worry about finding a place to recharge. You could enjoy electric-only driving without ever any concern. They declared EV offerings a terrible approach, a market doomed to failure. Now, they find their own arguments a contradiction. Looking back, its easy to see how often they promoted purity of no gas the goal. Finding out Volt could not fulfill that promise as well as Bolt is the ultimate in examples of irony. They defeated themselves, beating the farm on the very thing they disliked. Oops! They own favor of avoiding use of the engine proved it wasn't really necessary for their audience. My reason for asking the "Who?" question is obvious now. I recognized the conflict and was attempting to politely nudge them back on course; instead, they accelerated in the wrong direction. It was quite rewarding to post this summary of the situation and ask the course-correction question: Remember how anti-EV this group had been? All that "range-anxiety" promotion has faded away as Bolt took the spotlight. Where does that leave Volt approach for GM?
- 2-15-2018** **No Fate.** They are victims of their own choices. I continued to point that out too: This site turned fanboy. As sales for Volt got worse and gains for other plug-in hybrids became obvious, rhetoric grew. Any post pointing that promises were clearly not delivered was unwelcome. It turned into an effort to defend reputation at all cost. There was no more objectivity, no effort to progress forward. To complicate matters, GM has pretty much abandoned Volt in favor of Bolt anyway. Now well into year-8 of sales for Volt and still no mainstream offering, what hope is there? We've seen this history ploy already. Two-Mode suffered a similar fate. Fanboys eventually just gave up. What purpose does this site now serve?

- 2-16-2018** **It's Over.** Watching things crumble to dust provides a sense of wonder. Nothing is left. There isn't anything to fight for anymore. It's all gone. I put it this way: Model 3 deliveries have begun here. Leaf gen-2 arrivals will soon become a reality. Clarity, Pacifica, and Outlander sightings now happen. Prius has moved on to embrace the plug. We expect new offerings from Hyundai & Kia. It's over.
- 2-16-2018** **Criticism.** Seeing recognition & acknowledgement that I wasn't actually the problem has been pleasing. A few have turned on their own with the hope of something constructive emerging: *"Take some constructive criticism for a change. You are a contributing factor for why I no longer post and have moved on from this site. While you may not agree with the OP, name calling and profanity should not be necessary to make your point. Why would someone want to have to spend their life moderating what you post and reminding you of basis civil discourse."* I climbed up on that same soapbox when they were finished: The goal was and will continue to be getting GM to offer something profitable for the masses. All those posts stating *"too little, too slowly"* were genuine concern that GM was missing out on opportunity to deliver something appealing its own shoppers prior to the tax-credit expiring. I was one of those who stuck around because I wanted Voltec to diversify quickly. Who cares if some of that GM success would transform from conquest to following the footsteps of Toyota. The other automakers are pursuing that path to profitability too. GM screwed up. So what? We're still in the early stages anyway. True, no more gloating superiority for Volt, but that's no reason to give up. Join the rest who want plug-ins to succeed. We can't end the reign of traditional vehicles alone. All the automakers must send the same message now.
- 2-16-2018** **Didn't Care.** The use of insults & profanity always amazed me. How do they expect anything good to come from that? It's not the slightest bit constructive. But when there is literally nothing left to gain, convincing yourself you went down with a fight is important to those dominated by pride. Honor is not earned from surrender and there concept of compromise is considered a sign of weakness. Ugh. What a waste. Fortunately, I was able to stay true through all that rhetoric. Seeing the nonsense spin into efforts to inflict harm is not anything I ever want to be associated with. that's why I keep repeating my own purpose over and over: To achieve & sustain high-volume profitable sales has always been the goal. What sets this group apart from all the other Volt supporters is that wasn't taken seriously. Instead of actually embracing what needed to be done, those here kept exclaiming the faster & further mantra... which has overwhelmingly been proven a terrible decision. That approach failed to achieve the goal and shows no prospect anymore. As other automakers have confirmed, a balance of price & performance is the better choice.

- 2-16-2018** **Uncaring.** The desperation is building to remarkable levels: "*2012 Toyota, feeling the pressure, attempts a plug-in hybrid, but only gives an EV range of 6 miles, or 11 blended.*" He's trying to rewrite history and using lies to distort it. That is supposedly how you cover your tracks. I wonder how effective he expects this final effort to be. A few searches is all it takes to reveal Toyota's interest in plug-in hybrid augmentation back in 2009. As devoted supporters, we knew that gen-2 design supported 100 km/h driving with just electricity. Unfortunately, battery technology of the time fell far short of market expectations. So, Toyota focusing on refining design while waiting for those advancements in the world of rechargeable batteries to take place. After all, the phone & computer efforts were pushing hard for cost-reduction and energy-improvement. He doesn't care about what actually happened though. The intentional misleading confirms it. With so much information readily available proving those 11 miles were not blended, it's hard to believe he would think people are naive or gullible enough to just accept what he posts. Treating people like idiots is not how you earn their support or respect. He keeps lying anyway. This was the latest example. What I find most baffling though is trying to figure out what purpose looking backward serves. What does it serve when the present is such a disaster anyway? Apparently, pride clouds logical thought. He believes changing perception of the past somehow makes the current situation better. Ugh.
- 2-17-2018** **Perception.** Speaking of looking back and attempting to rewrite history, I found it necessary to point out how that actually happens today on the big Prius forum: Anyone else notice the effort to make a vehicle styled to stand out vehicle has been given a stigma by using the "*polarizing*" label? People unknowingly pick up on the term and pass it along. That's how you effectively undermine a product. Those excited about it not being like everything else on the road is the trait that antagonists attack... relentlessly, using the label so often in a negative context that it eventually becomes a core part of the narrative they wish to portray. That effort to impede does indeed work too. We have seen this quite a number of times with Prius history. We have also seen the reverse. Remember the SUV back in the mid 90's? Those wanting them to become a daily commute vehicle gave it the "*car*" label. That seemed absurd at first to be calling a vehicle with heavy-duty suspension, aggressive tread tires, and 4-wheel drive something you'd drive everyday to work a "*car*". Yet, the term caught on to become the norm anyway. Long story short, ask yourself why "*polarizing*" seems an appropriate fit. Do you really want a vehicle that looks like everyone else's, plain and about to become outdated?

2-17-2018 **Bitter Ending.** The frustration related to that final nail in the coffin of the long dying daily blog for Volt has been interesting to witness. Those left know that what I had promoted was right all along for the larger market. Their carefully worded replies couldn't conceal the disingenuous plug-in offering from GM. It was a niche and they have known it for a very long time. That's why I was so relentless asking: "*Who is the market for Volt?*" Nothing was ever delivered for the wide audience. Hope without anything supportive would eventually give out. This 2-week span of no new topic to discuss has done that. Even their personal attacks fell apart: "*And BTW, you're not actually considered part of this group.*" After so many years of arguing, there was nothing left. Even the lies fell apart. After posting 2 links to videos I had to rebut with real-world detail, it was this summary to bring it all to a bitter ending...

Why would I want that? This group was established based on the belief that the following would be delivered by late 2010:

- 40 mile EV range
- 50 MPG depleted efficiency
- priced nicely under \$30,000

Conflict arose right away, when constructive discussion came up asking how that could possibly be achieved. Toyota had been pursuing the plug since late 2003, when they rolled out the gen-2 Prius able to deliver a top EV speed of 100 km/h (62.1 mph). Back then, it was clear that energy-density was far too low and battery-cost far too high to exploit that aspect of the hybrid system's design.

In late 2007, they repeated the statement of battery-cost being too high still. This group took the "*not ready*" part of that out of context, making it seem as though Toyota was actually against lithium batteries. It was a clear effort to misrepresent, yet many here became enablers to promote that message of deception. Calling it out is when my presence took a very unwelcome turn.

From that point on, the misleading about Prius really ramped up. Later when the first Toyota plug-in offering was rolled out, the lies about goals and how it actually worked really got intense. The ambiguous reference to "*electric-only*" rating was taken advantage of. The hard-acceleration test during the EPA measurement cycle was at the 6-mile mark. Many here worked to make people believe no battery-capacity remained at that point, attempting to conceal the 5 miles still available.

Despite countless reputable websites calling out that attempt to misrepresent, some continued the subterfuge anyway. In fact, someone did in this very thread. Allowing lies like that to persist is why this venue fell apart. People of integrity (true Volt supporters) moved on, leaving the dishonest enthusiasts behind.

Now, we see the potential for Toyota to actually deliver what GM set out to deliver becoming a reality:

- 25 mile EV range
- 54 MPG depleted efficiency
- priced starting at \$27,100

That system is designed to accept a larger-capacity battery in the future too, without requiring generational changes. A simple mid-cycle upgrade could deliver increased EV range... should cost drop enough and energy-density increase enough.

Remember, the goal is to replace traditional vehicles by offering a choice compelling to loyal shoppers... those on the dealer's showroom floor. That potential to draw new interest to a plug-in is key. It requires a MSRP that's competitive in a vehicle loaded well to appeal to ordinary consumers.

In other words, I don't agree with what this group has promoted. So, I am grateful not to be thought of as part of it.

2-18-2018 Efficiency Rating. Wow! Some EV supporters are totally clueless about what the numbers actually mean. Confusion that emerged from my mention of an efficiency rating resulted in a number of bizarre responses. You'd assume someone promoting plug-in vehicles would be aware of how their consumption is measured and what the various related terms actually mean. Turns out, many don't. They just latch on to the concept of plugging in, then support it without actually studying the topic. It almost just boils down to Oil = Bad and Electricity = Good. That certainly covers the mindset of those troublemaker Volt enthusiasts. They couldn't care less how inefficient their vehicle was, just as long as no gas was used. That's really unfortunate. Waste is still waste, even if the fuel is clean & renewable. Frustrated about having learned how much this new audience still has to learn, I posted: Writers here really need to publish & promote an article explaining what those numbers actually mean. Far too many EV supporters assume incorrectly. I have seen quite a few comments in various articles with that same mistake repeated. "*kWh/100 mi*" is a measurement of EV efficiency. It states the amount of KWH the vehicle takes to travel 100 miles. It has absolutely nothing to do with how many miles you'll get per charge; yet, we see replies everytime a rating is posted with that belief.

2-18-2018 Costly Mistake. There are some who still don't get it. That trophy mentality will make them pay the price. In the meantime, there's still a state of blissful ignorance... well, flat out denial. It's clear certain individuals just plain don't care. The hollow victory of a short-term lead is all they are interested in. I'm happy to point out that focus should be on the long-term, changing the status quo rather than just celebrating a perceived lead: Prime is designed to take on direct competition with traditional vehicles. Owners will experience many drives that are exclusively EV and get absolutely outstanding overall efficiency regardless of when the engine runs. The smaller battery-pack gives it that edge needed to keep MSRP business strong, no tax-credit required. Starting at \$27,100 makes it a very realistic for deep penetration into the mainstream. I drive my Prime hard, with 2 no-recharge trips over 1,700 miles each (much at 80 mph) and having to deal with the extreme cold of Minnesota winter. No big deal. 98.5 MPG as of 10.5 months (14,500 miles) and climbing as the temperatures warm. Remember audience. Prime's target includes showroom shoppers. Being able to grow the market is vital. Focusing only on low-hanging fruit (early adopters) can be a costly mistake.

- 2-18-2018** **Status Quo.** It is interesting how some spin what you just said to mean the opposite: "*Sounds like you are happy with the status quo.*" That's a clear indication they actually did read & understand what you posted. The hope is by firing back the same sentiment, readers won't notice. Somehow, they think the reversal will hide the behavior. It's like when someone guilty of something accuses you of that very thing. Anywho, I see how desperate the Volt enthusiasts have become. Their venue for daily greenwash has collapsed and they want someone to blame, even though they are the ones who brought it to that end. Gotta love the irony. I let them have it with this dose of reality: Sounds like you are unfamiliar with diminishing returns. Investing heavily in faster & further did not result in market growth. In fact, quite the opposite happened. The risk of cost, resulting in a MSRP too high to compete directly with traditional vehicles, has been confirmed too great of a tradeoff. Sales dropped. GM should have kept the power & range unchanged for gen-2 and focused on making Volt an affordable choice for their loyal base of owners looking to replace their aging GM vehicles. Status quo for an interim generation would have been a wise choice. Gen-3 could have been the upgrade which offered the next improvement for power & range. Now, there's a risk of losing everything. The generous tax-credit will expire prior to having established profitable & sustainable high-volume sales... the return GM sacrificed by choosing to not deliver a well-balance design. Their favor for faster & further resulted in a vehicle mainstream consumers (Chevy shoppers) weren't interested in.
- 2-18-2018** **Ask Questions.** My follow up to that group of losers... those who ultimately lost their greenwash venue... by doing what I routinely do, ask questions: What is GM's electrification plan? With Toyota, we already see that Corolla & C-HR hybrids are selling well elsewhere. So, they are now faced with the decision of whether or not to roll them out here or go straight to plug-in hybrid. Next year, the EV model C-HR will be rolled out in China. So, there will be that option here too at some point. For larger vehicles, the production of Highlander hybrid in Texas will become a reality next year. From GM, we have no clue what the next steps may be, just vague ambitions... which is what this group used to thrive on. But even that has faded. It's that lack of any message that cause people to stop participating. So, what is or should be the plan?
- 2-19-2018** **Innovate.** Desperate efforts to spin the loss as something else, we got this: "*I keep hoping Toyota will innovate again.*" Their fanboy site is dead and they know it. Today marks 2 full weeks without a daily post and I was delighted to chime into that attempt to lick their wounds: Innovate = to introduce something new; make changes in anything established. Delivering extremely low-cost way of offering EV drive doesn't qualify. Delivering high-efficiency electric-only cabin heating doesn't qualify. Delivering carbon-fiber for a lighter weight hatch door doesn't qualify. Delivering aero-glass for higher efficiency and wiper elimination doesn't qualify. Delivering a collection of safety features standard on all vehicles doesn't qualify. Rolling out hybrid systems to all vehicles for a simple path plug-in offerings doesn't qualify. Transitioning hybrid systems from NiMH batteries to lithium doesn't qualify either. The word "*innovate*" doesn't mean the same here as anywhere else. That is why this is a fanboy site... which is what makes this a fanboy site without purpose anymore.

2-19-2018 **More Innovation.** Clearly annoyed by my comprehensive reply about being innovative, I fired more ammunition at their attempt to recover. There is no way I'm letting this go. Their reign of greenwash is over. It was amazing how terrible some of their posts had become. Attacking the messenger turned to dishonesty on an entirely new level. At least in the past, there was some basis of truth. Now, they are just saying whatever they want, without anything to support their claims. It's what happens when pride takes over. Facts don't matter anymore. Goals don't matter anymore. Cost doesn't matter anymore. All they want is to protect reputation. That's sad. This is how I responded to that nonsense:

btw, in Japan you can options from Toyota that aren't available here...

- AWD option for Prius
- Thermal-Resistant paint
- Solar-Roof recharging
- CHAdeMO recharging

...which is why this group associates anything not related to power or range a waste, not considered innovative.

2-20-2018 **Old Audience.** Attempts to join in, to say that's what they wanted all along is a sign to watch for: *"Most people here have been yelling for the past several years for a AWD, EREV, Voltec power plant in a Equinox/Terrain platform."* Their true stance is easy to confirm. Just look for patterns. They didn't ever actually do anything. It was nothing but an online campaign to build an impression of progress. No outreach beyond posting messages is a complete failure. The point of exchanging information online among enthusiasts is to build support, to become supporters. They never did. They just kept reciting rhetoric to each other, the same old audience. If you don't make an effort to entice mainstream consumers, what's the point? I sounded off to their nonsense with: Barely a whisper with no lasting effect, drowned out by those fighting to keep the spotlight on Volt. Opportunity was missed. Calling the effort to break that status quo (finally move on) trolling is sad. This site was founded as strong endorsement of what was hoped to come. Why is there still no effort whatsoever to do the same for the supposed desire for diversification? Making excuses and diverting attention elsewhere only makes it worse. That total absence of a message forward is why some other site will take over.

- 2-21-2018** **New Audience.** Abandoning the dead fanboy blog to post on websites more in tune with the plug-in market as a whole presents new challenges. That new audience isn't well informed. They don't think things through either. They just see how the technology works and assume that's the only issue. It goes far beyond just good engineering. Those nasty Volt antagonists learned that lesson the hard way. Blinded by enthusiasm, they didn't bother to study acceptance, hence my repeating advice: Know your audience. Not everyone is fortunate enough to have an outlet available. For that matter, even fewer have enough amps. There are very real logistics issues needing to be addressed. I brought that to their attention with: Initially, it's easy to embrace the plug. The lack of diversity presents a simple path to follow. The situation becomes quite complex as you try to move beyond that though. The perfect example is the dead silence that comes from facing the reality of a multi-plugin household. The effort to supply enough electricity to that first charging location is thwarted by the need to add a second. It's much more difficult to find a convenient place for the second charger and there simply may not be enough amps available without major rework. It's unfortunate they don't recognize the problem yet, but it will emerge as a very real barrier at some point... as will other unforeseen challenges related to mainstream penetration.
- 2-21-2018** **Lost Purpose.** It came down to pointing out the fact they did everything possible to avoid acknowledge of: This is a fanboy site that doesn't want to admit it is a fanboy site. That identity clash ultimately tore it apart. There was always a push for EV purity, but an anti-EV sentiment. Then when Bolt came along, Volt became a lost cause. What is the purpose of this site now?
- 2-21-2018** **Purpose, advocate.** I ask questions: What is the plan for Volt? We see GM favoring Bolt, but that's only in the realm of plug-in support... which is tiny. GM's presence at the autoshows is all Pickups & SUVs. Their interest in cars is basically abandoned now, just like it was leading up to the bankruptcy. They are slipping into the same financial trap again. With the GM tax-credits hitting phaseout the end of this year, it makes that struggle with Volt even worse. The growth necessary to be able to share a presence with Nissan, Hyundai, and Toyota simply isn't realistic. Those legacy automakers have a clear advantage in terms of both production-cost and market-targeting. What will GM do?
- 2-22-2018** **Purpose, antagonist.** They respond with efforts to divert attention: "*BTW, over the same time frame, PHV/Prime sales: ~61,000*" I was happy to sound off about that: That is not a BTW, since the purpose of PHV/Prime was profoundly different than Volt. GM bet the farm on Volt, placing the entire fate of plug-in offerings on its success... and failed miserably. That's why the namesake of Bolt came about. GM was forced to start over, abandoning all that "*range anxiety*" campaigning to now endorse the very thing it was against. Toyota never had high-volume plans for gen-1. It was simply a mid-cycle rollout to just 15 states for the sake of research to build a viable gen-2 upon. Phase 2 of that research never happened. Toyota learned what it wanted sooner than anticipated. So, the effort was halted. In the meantime, rollout of new hybrid models to someday also offer a plug took place. We got 2 new models of Prius, a compact SUV, and a compact CUV. They also ramped up lithium battery production, moving all but an ECO model of Prius away from NiMH. Now, we see there is indeed a viable gen-2 offered... and Toyota didn't squander tax-credits on conquest sales... leaving them in a profoundly different position than GM.

2-23-2018 **Facing Reality.** It is very difficult; though, some do try: *"I still think GM is in the EV market kicking and screaming."* I found that intriguing, especially as it invites the opportunity to respond with some closing insight:

The reason why this group has such repugnance for me is now becoming difficult to deny. What I've been pushing for all along is exactly what they need. Those with long-term vision and experience see it as obvious. They have had an extremely difficult time with just getting beyond the tax-credit though. Volt's dependency on it meant only an audience of enthusiasts would be interested. Volt was doomed to being a niche as a result.

But now in 2018, there's a necessity to deal with sales that are not fully subsidized. Next year, that financial crutch will be completely gone. That means reaching mainstream shoppers. Growth isn't possible otherwise. The key to that is a concept this group hates with a passion... cooperation with other automakers, giving up superiority for the sake of moving beyond that initial market. Gasp!

Having to reach out a hand in partnership is difficult. I sucked it up right away, seeing GM as the automaker with the greatest potential of being able to break out from those challenges holding back plug-in vehicles. I saw that they had to opportunity to exploit batteries once production-cost came down and energy-density went up enough to make them directly competitive with traditional vehicles on the showroom floor.

They are too proud to also suck it up at the moment. Hopefully, that will quickly change. Joining me in the fight against the reign of gas guzzlers isn't a level of maturity this group wants... yet. Read the previous posts in this thread. Their attempts to mislead and divert attention are clear evidence of them kicking and screaming like GM. Fortunately, there are now other partners are showing very good potential.

It's really unfortunate that so much time & effort was wasted on conquest. It is not too late. There is opportunity to make up that lost ground.

2-23-2018 **Sending a Message.** Being clear & concise is a dead giveaway that the person is making an honest effort. That's what is often hated about me. I'm that broken record, the scratch they keep hearing. Over and over again, my message is present and cannot be avoided. Stating it today certainly stirred a lot of anger: *"My message was has always been that the offering must be targeted directly at showroom shoppers and be both profitable & affordable with sustainable high-volume sales."* That's how you get labeled as a troll... especially when it is posted about the topic of sales. They feel emotionally stirred and take that as an effort to provoke, rather than being a reminder of purpose. See, when purpose goes unfulfilled, the group struggling will come up with other achievements to focus on instead. It goes back to the teacher giving the student a failing grade for not following instructions. Even if the student did remarkably well with whatever homework was turned in, the failure to actually do the work assigned is a very real problem. They get anger for not getting the reward they feel they deserve. I see an attempt to manipulate. So, you said a message so clear, there is no doubt of the attempted deception. In this case, those needed sales were not achieved. You must deliver what is required. Period. Then if you do, there's always the opportunity for extra credit.

2-24-2018 **Cooperation.** You don't state goals when you want a someone who shares your values to remain a foe. The idea of cooperation makes the "*vastly superior*" sick to their stomach. That's why we get a constant stream of "*fugly*" & "*slow*" comments. They literally have nothing useful to contribute, so they revert to the childish act of being a bully. Calling names and drawing attention is something the rest of us learned as what not to do as some of the first lessons taught in school. It's hard to believe such primitive acts can dominate situations so often. But when you have nothing else to lose, they don't see any reason to play fairly. That sounds a lot like the political situation we are in now too. Unfortunately, it is a reality it both the plug-in hybrid and the electric-only vehicle markets. That's really sad... but also an encouraging sign, since it confirms very real change is taking place. The problem with that is progress forward means some initial efforts will be revealed as unsuccessful... and not everyone deals with failure well. Learning what works and doesn't work isn't supposed to hurt someone's pride. Most people take the constructive criticism as upgrade suggestions. But when a product like Volt comes along, where there's no realistic chance of upgrade money being available, those stuck with that product unable to achieve high-volume sales face a very real problem... and having to cooperate with a former foe for help is too much to accept. So, they fight. Ugh. I certainly try to extend a hand though: The reason why this group has such repugnance for me is now becoming difficult to deny. What I've been pushing for all along is exactly what they need. Those with long-term vision and experience see it as obvious. They have had an extremely difficult time with just getting beyond the tax-credit though. Volt's dependency on it meant only an audience of enthusiasts would be interested. But in 2018, there's a necessity to deal with sales that are not fully subsidized. Next year, that financial crutch will be gone. That means reaching mainstream shoppers. The key to that is a concept this group hates with a passion... cooperation with other automakers, giving up superiority for the sake of moving beyond the initial market.

2-25-2018 **Short-Sighted.** Reading through the long series of posts over the past 3 weeks, the pattern became easy to see. When you only live in the here & now, seeing anything else becomes nearly impossible. You make up excuses to justify your stance. It doesn't matter what's presented at that point. You've made up your mind that the decision made was the best one and nothing else matters. Whether or not someone points out a disastrous situation building doesn't matter. Everything is just fine. I hadn't expected the upcoming tax-credit phaseout to create such determination to save pride. Rather than Volt enthusiasts moving on to Bolt like the supporters, they are standing their ground. All bets are placed on faster & further finally winning over the masses. No logic about other priorities matter. They see that as the only solution possible. It's like the recent hope of winning the SuperBowl by having one of the best thrower in the league. That only works if all plays are somehow tied to throwing. If not, your doomed. They don't see that though, since all games leading to that point have been wins. The catch is, with Volt sales, all were to early-adopters drawn to the opportunity conquest presents. With a \$7,500 tax-credit or extremely low lease payments, why not? Trouble is, ordinary consumers don't think that way. The low prices won't be available for too much longer either. Losing at some point is evitable. But they don't see that far. The short-sighted nature of their perspective based solely on small victories is a terrible guage for the larger win. Sales on a much larger scale aren't realistic.

- 2-26-2018 Purpose.** Lack of it was why that now dead daily blog was attacked so often. The enthusiasts remaining used it as a venue for posting greenwash material. My attempts to inject constructive discussion and get the topic back onto that original message of promotion never worked. They'd just get angry at whomever was taking advantage of the ability to post anonymously, then take out their frustrations on me. I became the scapegoat. They'd blame me so often for their sorrows, the fact that I wasn't responsible for what they were blaming me of didn't matter. I had supposedly done what they came to despise. It was a odd situation. Since the only real data they had was the dropping sales of Volt and the modiacre efficiency, focus on performance alone was quite a stretch. I never cared about faster & further either. They knew my push for diversification... offering a second model of Volt, then later a SUV variant... only made things worse. The act of addressing the obvious need to expand production meant addressing shortcomings. That was painfully difficult for them and painlessly simple for me. It's the reason why they worked so hard to always keep the Toyota rhetoric focused on Prius. Consideration of Camry hybrid wrecked virtually all of their arguments. That larger, faster, and more powerful system delivers incredible efficiency and stands great potential for plug augmentation. Honda's newest offering, the plug-in hybrid Clarity, makes that all too clear. That effort to portray Toyota as a laggard have fallen apart, exposing GM as having that very problem as a result. Each attempt to label me as hypocritical only exposed them of that guilt too. Without any choice remaining but to become a team player, they chose to lose instead. Why state a purpose only to draw attention to the problems you are facing? So, they didn't.
- 2-26-2018 Final Replies: ELECTRICITY USE.** I fired off a series of replies, as the ship was sinking into the abyss... EV1 was an exciting offering from GM. It was a full electric vehicle, which made remarkable use of battery technology of the time. Small & Expensive didn't even matter then. It worked and showed potential. PNGV was to deliver the family-sized vehicle with the power & affordability that EV1 didn't. So, complimentary offerings were a great idea. Different propulsion technologies would co-exist just fine. Problem was, electricity was very dirty back then. With coal being the dominate source, it was actually worse for a air to use that for propulsion then some type of hybrid... especially with Prius having earned a SULEV rating from CARB. The belief though was that would get cleaned up over time, due to the growth of the solar & wind industry. So, no concern... until GM pulled the plug on the program.
- 2-26-2018 Final Replies: STOP GAP.** I had no idea just how relevant this would be after so many years later... A nasty campaign was launched by GM when the gen-2 Prius rolled out. The final year of gen-1 Prius had become profitable and the sales of this new generation had already hit mainstream level, despite no tax-credit being offered. The rise of the SUV with the promotion of being "*good for the economy*" made the attacks on small vehicles that were clean & efficient especially vigorous. People feared change and they no had a symbol to focus their feelings on. It got pretty nasty, but not as childish as the attacks now. It was a blatant effort to greenwash. Media sources would publish information that was just plain not true. In fact, this is how the diesel scandal came about. Being dishonest was not an issue. It was all about saving the status quo. Sound familiar?

- 2-26-2018** **Final Replies: SIGNS OF TROUBLE.** The ever-changing story from just this one particular automaker was always a sign for concern... GM changed its mind about hybrids after its financial situation became a concern. There was a substantial investment in development of the technology. That brought about the focus on making SUVs more efficient, the biggest potential return on such move forward. Two-Mode was born as a result. It would be the Prius killer, a technology that could be spread throughout the fleet to make everything cleaner and more efficient. Great! Only problem was... the technology was expensive and it didn't work well. Power was reduced to make the vehicle more efficient & cleaner. It showed less potential than what Ford & Toyota were both pursuing. So, focus shifted to adding a plug. Bankruptcy interfered with that, but Volt emerged as the ultimate launch of GM's first battery-centric vehicle for the masses.
- 2-26-2018** **Final Replies: STATING GOALS.** It was obvious the enthusiasts had trouble to come, since they couldn't even say what their intentions were... That's been the source of the problem since day 1. GM intentions would have sounded realistic, if it wasn't for the aggressive self-imposed deadline. How in the world could so much be delivered in such a short amount of time? Turns out, it couldn't... and a few people here got burned really bad by that, holding a grudge and looking for a scapegoat. Gen-2 would be the solution to that. After all, sales were low enough with gen-1 that a significant number of tax-credits would still be available then. Unfortunately, GM followed the suggestions of enthusiasts of Volt rather than supporters. That difference meant catering to a small niche, rather than adapting the technology for a larger audience. That ended up being a horrible mistake. Gen-2 sales ended up dropping, rather than sparking a plug-in revolution. Now we see the nemesis rising, Prius plug-in. Even with distribution to only have the country the first year, sales still bet Volt... which is what made things turn very ugly here. Volt losing the spotlight was unacceptable, especially with other automakers like Honda & Chrysler showing so much potential too.
- 2-26-2018** **Final Replies: PARTNERSHIPS.** The idea of cooperation is repulsive to them, as if it is an admission to failure... Reading through the posts in this thread, that pattern of superiority becomes easy to see. Volt offers more range and more power, so that makes it better... period. Any reference to other consumer purchase priorities or to the importance of either automaker or dealer business is just shunned off as an effort to promote Toyota. It such a desperate act, pretending GM should have no concerns for anything other than range or power. Reality is, we see Hyundai and Nissan and Honda and Chrysler and Mitsubishi and Toyota and Ford all striving to deliver on those priorities deemed unimportant in the name of pride. Who cares if GM isn't recognized as leader anymore. The goal is to build a strong team. Like it or not, the success of plug-in vehicles requires cooperation. That means sucking it up and working to establish partnerships.

2-26-2018 **Final Replies: EXPECTATIONS.** They don't have a clue which direction to take, which is why a fate from inaction is now playing out... The purpose of this site changed from exclusively supporting the plug-in hybrid Volt to discussing daily topics about anything related to electric propulsion & support. A big part of it was the shift from "*range anxiety*", which was very much an anti-EV approach, to embracing the EV. That's what actually ruined this site. The expectation had been set that vehicles like Leaf and Model S were the competition. When that didn't work out, attention shifted to Prius instead. Mixing of messages like that and no longer having any clear purpose caused a number of regulars to leave. Some more simply left when their lease expired, since they were only conquests with no loyalty to GM. Indication of lost purpose became clear when topics about Volt dwindled. As time progressed following the struggle with gen-2 rollout, the parent site started to mirror daily blogs. The topic would be posted there first, then repeated here after a day or two. Blaming the change exclusively on me doesn't hold merit. I was the one pointing out the change and attempting to start-up the next chapter. Expectations were changed by others.

2-26-2018 **Repeating History.** It's bizarre how some people are so blinded by the idea of success that they refuse to acknowledge patterns of mistakes. What I've witnessed lately is a deep hatred from having made that error in the past. They blame something, then never look back... ever. There isn't any recognition of repeated actions. That contributes to a history which becomes more and more distorted over time. My confirmation of those events are these blogs. Having documented each as they unfolded in great detail, it's simple to recognize that past accurately. Important tidbits of information easily overlooked or forgotten are right there for the reminding. There is no stone left unturned when you read back through those days as they played out, when I was frustrated and wanted a record of what happened. Having a resource like that is really nice. It's quite uncommon though. So, you often get accused of lying. Anywho, their interpretation of what happened long ago becomes so misleading, they don't notice anything. It's all dismissed as an effort to undermine, blaming you rather than ever taking the time to wonder if they contribute to the problem. In this case, I was digging deeply to find out if the cycle would be restarting again. Because if it does, there will be significant losses. There's no need to cooperate with someone hell-bent on harming you... even if it ends costing them. They were warned, after all. The choice is between pursuing an upgrade proactively or just sitting back and reacting to whatever happens. Oddly, the decision to just hope for the best and accept the consequences is what they are going with... again!

2-27-2018 **Selling Points.** Ultimately, that's what the research should lead you to. After identifying goals about what needs to be sold, you then need to figure out how to sell it. Pushing for what the enthusiasts deem of value, beyond just faster & further was very important. Proper representation depends upon getting lots of accurate feedback... which is why I went directly to the source... especially since that audience was absolutely clueless about how business works. It's amazing how simplistic they always believed the situation was. They'd say "*If GM would only advertise Volt, sales...*" over and over again. That was so idiotic. Promotion is one of the few things an enthusiast can actually have a great deal of influence over. Just look at the commercials Tesla owners filmed to spread the word themselves. Consider how much owners of Prius have done over the decades. Neither automakers needs to advertise when you have that many endorsements from owners. Yet, those supposedly supporting GM never got off their butts to do anything. It was so odd to see them do nothing but complain and attack the messenger. Interestingly, my efforts to find out what they would endorse didn't lead to any type of revelation. There really isn't anything to focus on outside of EV range. Taking a close look at Malibu & Cruze, you see why GM so heavily advertises them. They have many nice amenities and are really fast. Comparing electric-only driving distance to Prime is the only thing Volt has going for it; otherwise, you just purchase a Chevy car... which is exactly what loyal GM customers have been doing. Selling Volt is extremely difficult. There's so little to stand out, showroom shoppers simply aren't interested.

2-27-2018 **Playing Nice.** When a paradigm shift begins, that unstoppable threat to the status quo stirs quite a bit of emotion. The reaction is to find a scapegoat, someone to blame for that inevitable outcome. I have been watching that slowly play out with Volt. That's why I always played nice. You can't ban someone who is polite and stays on topic, even if the facts posted stir some anger. Change happens. It's the natural course for any product. You know the early-adopters will have little in common with mainstream-consumers. Hope is that whatever trait responsible for sales initially will continue to be of interest to that harder to reach audience. That's why I pushed so hard for a definition of EREV. Being so vague and having changed several times over the years, it was no longer a selling point... because even among enthusiasts, they had no idea what it actually represented. Is that vehicle also an EREV or what makes it different? No concise answer spelled doom. But those without a business background have no idea that such a distinction is even necessary.. hence getting labeled as a "*troll*". Even though you are trying to help, they interpret those actions to clarify as an attempt to expose a vulnerability. Technically, that is true too. The act of pointing out the lack of an easy-to-understand definition is exposing a vulnerability. The difference is providing the definition solves the problem. The enthusiasts absolutely refused... without any idea of the consequences of such inaction. They only see you as not playing nice. They want group-think as their guide, not someone who stirs emotion. Ironically, stirring emotion is exactly what you want. That's how a coach prepares a team for competition. You win by understanding strengths & weaknesses, then build excitement by getting everyone to work as a team to take advantage of that knowledge.

2-28-2018 **Facing Reality.** It has been over 3 weeks since the last daily blog topic was posted. The same thread has been used for final thoughts. It should be obvious that the enthusiasts are at a complete loss. They have no idea what to do with their only venue now dead. No where else is there a place for them to conceal their identity or hide posts they don't like. It's the end of 11 years of bliss. They could say & do whatever was wanted to keep their artificial dream alive. It wasn't real though. Business need would eventually catch up, revealing their tiny niche as a hopeless cause. Sadly, it didn't have to be that way. Potential for a constructive outcome was within reach. They just didn't want to make compromises. Trading off capacity for affordability or power for efficiency was unacceptable. Fight any type of opposition. It was a self-destructive choice; yet, that is what they fiercely protected. A bitter end is what they are dealing with now. Facing reality like this is interesting to observe. It reminds me of diesel's death. It was abrupt & undeniable. There simply isn't anything to fight for anymore, nothing to defend. Surrender isn't necessary. New battles may emerge from new foes later, but this war is over. All is lost. The absurd obsession with EREV nonsense served no purpose. It was a ever-changing set of goals without mutual agreement. People got frustrated with the confusion that caused, then left. Without an objective, why bother? They didn't understand audience. Who were they targeting. For that matter, who did they represent. I pointed out how that lack of clear message would be their downfall. There's no possible way to grow sales without addressing those basics. They didn't. Now, the consequences are obvious. So, they lash out to save their pride. I just fired back, to get the last shot out: This transition from early-adopter to mainstream-consumer was inevitably going to be painful. So, calling "*troll*" from pointing out the status quo stir was anticipated and prepared for. No group of enthusiasts will welcome it, since that change requires acceptance of traits they don't find appealing. Going from standout to ordinary makes it a harsh reality to accept. Blame me all you want for highlighting this new chapter in plug-in hybrid history. Glad I could serve as a scapegoat. It provided excellent candid feedback I couldn't acquire from any other source.

3-01-2018 **Final Replies: LAST WORD.** Watching the blog finally die, long after it should have been sunset, is odd. All those years ago, I fought to make their forums the focus. It was a unused part of the website. People preferred the daily blog. It was nothing but a brief exchange of thoughts, refreshed every day. There was nothing that persisted... other than the daily reset. It was a maddening existence, a source of greenwash rhetoric. They fell deep into group-think, transforming the hope of it being a valuable resource into just a gathering place for fanboys. It got so bad, they could make up whatever narrative they wanted... since there was no accountability. No logon was required. You could post as whomever you wanted and history was never tracked. And if you didn't like what was posted, the comment could be hidden. They selected to read only what they wanted, dismissing anything that didn't cast a favorable light. All these years later, as things are coming to an end, they chose to make it bitter: "*You are driving traffic away! I post GM and EV news but you don't!*" That obviously wasn't true. Their dishonesty & hostility is what actually drove away most of the traffic. All the bait-dropping by the enablers made it especially nasty, knowing they were attempt to spin whomever responded to it as a troll. Always being polite and working hard to stay on topic, that attempt to place stigma didn't work. The definition of that label simply didn't apply. I was the one staying true to purpose of the blog. They abused. They harassed. They didn't care. It had become a venue for chest-pounding. I simply replied to that nonsense with: It's not me. I post about GM products and GM shoppers. Someone else always jumps in to inject a comment about Toyota, drawing focus away from GM. That pattern is easy to recognize.

3-01-2018 **Sales Results.** Count of Prime purchases is climbing. It's being recognized as a top-selling choice already. The potential is obvious... hence the flurry of attacks. That's annoying, but it doesn't matter. I'll just keep filming videos in the meantime. That collection of real-world material is priceless... and well ahead of need this time. Having experienced generational upgrades before, knowing the significance of this one and preparing for its huge potential is vital. I'm scrambling to research & document as much as possible. It's quite a challenge, with so much other stuff to participate in too. My life is filled with friends & family and a thriving career... hence the positive attitude and such a hopeful outlook. Being on the precipice of this new chapter in plug-in history makes it even more exciting. There's a lot to look forward to. So, no need to dwell on the present... even though it too is so positive. Looking further out, understanding the potential, I posted this about last month's Prime sales: Doesn't matter. The middle of the country has nothing to sell yet. No supply means distorted demand impressions. The coasts are all that got 2017 models. The 2018 are only now being delivered. So, once Spring arrives, we'll get a better representation of actual demand.

- 3-02-2018** **New Video Opportunity.** I have been testing out the latest updates from a phone-app being updated to support Prime. It already does a great job showing Prius data. Like the phone-app I used in the past with the PHV model, it has PID codes to read information you wouldn't normally see. This is the stuff that really teaches you about the hybrid system. It's that deep understanding which empowers. When you can actually see values with a technical connection, it can really open up a new world of appreciation. There's a lot required to make a system clean & efficient, without becoming too expensive. I will soon be filming some drives. Using the ability to capture video on the screen of the phone itself, rather than a translate or transfer, the quality should be outstanding. I will be able to display battery level (the actual value, not the useable representation), along with the power output, and battery & motor temperatures. There's even an illustration that shows you when regenerative braking switches to friction. It's really exciting to have such a resource available. I'm very thankful to the development team who shared it with us. Their work to is really appreciated.
- 3-03-2018** **Video: Early Spring - To Work.** New application. Lots more data to share. Using the latest update from "*Hybrid Assistant*" has allowed me to capture a lot more information in a single window on my phone while driving. Combined with the window & dashboard cameras, there's quite a bit of real-world data for you to see. Watch this wealth of knowledge for both your education & entertainment. It's just my daily commute to work. But using the technology for a clean & efficient drive leads to an entirely different situation when dealing with that traffic... [Early Spring - To Work](#)

3-03-2018 **Final Replies: SALES GROWTH.** That state of panic has subsided. It's over and they know it. The fanboy venue is dead. It now serves as a monument of the naive. They fell into the very trap they denied could ever exist. No matter how much the pattern of repeating history was pointed out, they didn't care. It was an impossibility. That could never happen. Yet, it did. no matter how much their beloved vehicle fulfilled their desires, it simply never appealed to the wider audience... and sales indisputably confirmed it. Not only hadn't growth been achieved, the sales of Volt are now rapidly declining. There's no potential to build upon either. The market clearly isn't interested in an expensive compact hatchback. GM shoppers want SUV choices. The doom they steered toward must finally be acknowledged. I was happy to provide a summary of the situation:

Doing everything possible to avoid dealing with sales growth has been the theme of this daily blog for a very, very long time. Spinning stories to evade the lack of progress problem has been an intense effort for enthusiasts. But with stability, it was manageable.

Sales leading up to gen-2 rollout were flat. We saw monthly returns between 1,600 and 1,700 quite consistently. That value was well below the need, offering no guarantee of profitability or even sustainability once the tax-credit expired. The rollout of gen-2 didn't change that situation.

2 years later, we are now witnessing monthly sales drop below 1,000 with no expectation of improvement. Less expensive (lower MSRP) choices from other automakers are now entering the market and GM shoppers simply aren't interested in the purchase of a compact hatchback.

Enthusiasts here did an embarrassing minimum to promote the great technology they had. Volt barely had any presence outside of the blogging world. We now see plug-in owners groups emerging to fill in that missed opportunity, where Volt is barely a participant. There are virtually no Volt owner resources still. We see videos, applications, lots of how-to sharing for other vehicles. Why not for Volt, especially after so many years?

The answer should be obvious. There was such an obsession with range & power that the other aspects of appeal were neglected, dismissed as unnecessary for sales growth.

Enthusiasts were wrong, very wrong. But rather than make an effort to change that, taking advantage of the evolving market pause, they continue to squander time by avoiding what needs to be done.

3-03-2018 **Final Replies: TRAINING.** This post was the ultimate goal, leading up some shaming. All those claims over all those years of being helpless were outright lies... and they can no longer evade that truth. From the very beginning, they had the power to influence. Rather than being reactive, a proactive approach should have been taken. That's what the whole fiasco around EV1 taught us. That lesson of having a voice louder than the propaganda of a single automaker was clearly not learned. Their problem from the start was the refusal to create a partnership. GM was superior than others and their smug attitude was all that was needed. They believed they had a "*vastly superior*" product to promote, so there was no need to ensure mainstream buyers understood what that actually meant. The nonsense of "*EREV*" made that all too clear. It's meaning was uncertain. Different enthusiasts interpreted different ways. It was a fundamental flaw in their approach. No cooperation from within or without. GM support was conflicted. Plug-In support was conflicted. It was a disaster. As enthusiasts, they made that worse by not taking any initiative. There was nothing to show for all their years of posting. I collected priceless findings from my years of research, participating in hostile venues for the sake of getting direct & unfiltered feedback. They remained clueless, asking why I was there on a regular basis. I found it ironic how they'd dismiss my replies and having nothing of their own to reveal. It was nothing but fanboy spin to defend & offend. Constructive efforts never emerged. What a waste. There was so much potential, so much missed opportunity. Oh well. It's not like I didn't tell them over and over and over again... as I did today, one last time: How many of you here have stopped by your local dealer and offered training, demos, or even printed material? Poorly informed sales staff is within your power to change. That situation is missed opportunity. You all complain about the lack of promotion, yet do nothing about it.

3-04-2018 **Video: Early Spring - From Work.** My commute home, captured with the new app, gives you a lot of real-world to watch & consider. Seeing the actual kW value from the electric motor is quite informative. You get to see the actual battery state-of-charge value, compared directly to the percentage shown on the dashboard representing the usable capacity. (There is always a buffer saved at the top & bottom for battery longevity.) You can see motor & battery temperature, in addition to the the coolant temperature for the engine. There's an indicator to inform you when the friction brakes are engaged, so you can tell when just it switch from regenerating electricity. Notice the improved lighting for the dashboard capture too. The quality of filming continues to improve each time I drive. It's very rewarding to be able to share detail like this now. My original drives from all those years ago sure are crude in comparison... [Early Spring - From Work](#)

3-04-2018 **Energy Storage.** Anytime something very positive comes up for Toyota, the antagonists bring up fuel-cell vehicles. All they see is the lower efficiency of hydrogen conversion. That narrow-mindedness prevents any type of constructive exchange. They draw the line, then attack. It's sad. They don't bother to look at the bigger picture. It is always an assumption that large quantities of electricity will always be readily available and very inexpensive. They are quite wrong. Making it worse, they don't recognize the importance of diversity. It's a one-size-fits-all situation as far as they are concerned. The idea of co-existing technologies is unacceptable. The concept of mutual benefit eludes them. That's sad... and quite a barrier to overcome. I keep trying though: How else will massive amounts of electricity be made available for rapid transfer to commercial vehicles? Do you honestly think the grid can supply it or having local banks of batteries on site? In other words, you clearly haven't the bigger picture yet. That's typical for those making "*fool cell*" remarks.

3-04-2018 **Video: Early Spring - Charge-Mode in Winter.** Charge-Mode can boost overall efficiency, if used wisely. For example, you recharge the battery while on the highway so you can later avoid an engine warm-up for city driving long after it cooled down. I have done this while on vacation, when there isn't a place to plug-in where we stop overnight. This video demonstrates how that could be done, condensed into a single drive for the sake of filming simplicity. In this case, we stopped at a craft shop along the highway while on the drive home. I engaged charge-mode after getting back on the highway, then shut it off shortly before getting off the highway. Using this feature while cruising takes advantage of engine efficiency while traveling at a sustained rate. The charging itself takes place at a rate faster than what you get when plugged in to recharge. Like with a regular hybrid, the gas engine is used to generate electricity. But with Prius Prime, you have greater flexibility about when & how that energy stored in the battery is to be used later. Watch the wealth of detail available on the video. Note that the temperature outside is still cold, so MPG is lower than in warmer months. That's because air is more dense and winter-formula fuel is less efficient. Nonetheless, results are impressive anyway... [Early Spring - Charge-Mode in Winter](#)

3-05-2018 **Last August.** Remember how different things were back then? Bolt was brining its first year to a close. Taking the market by storm, showing GM superiority to Tesla, didn't happen. In fact, Bolt was nearly dead on arrival outside of the early-adopter market. Ordinary consumers have not shown any interest at all. It's nothing but a curiosity. That "*someday perhaps*" is the common response. There simply wasn't and still hasn't been a movement toward acceptance by the masses. A big part of that seems to be the complete absence of any charging infrastructure. People don't show any desire for a car that may leave them stranded. In other words, we're back to why Volt was promoted so much. Only thing is, the demand for Volt is pretty much non-existent. Total disinterest is a very real problem. That's why the article from back in August with this title drew attention again: "*Why Does Anyone Buy a Toyota Prius Prime?*" With inventories so low and clearance time in full swing, Prime was basically an unknown still. That's changing, as this recent comment posted for that article represents: "*Well, as of February 2018 sales showed a big jump on Prius Prime sales, and Volt sales are way down. I was so surprised as I had also considered the Prime a much inferior product. I 'm not the only one, seems like every review from the many magazines and other sources agree the Volt is a much better product. I guess the only explanation is the belief in Toyota brand regardless of the product.*" Antagonists of Toyota still cannot comprehend how a well-balance offering is more appealing than one which favors performance. That terrible mindset of GM's product being "*vastly superior*" remains a big problem. They just plain do not understand the ordinary consumer. You know, the kind who wants an affordable, comfortable, reliable vehicle to get from place to place with. Not being willing to pay a premium for more range & power baffles them. They cannot relate to the mainstream perspective. That boggles my mind. How can such ignorance persist? Anywho, I replied back to that with this: Know your audience. From an enthusiast perspective, the assessment of "*inferior*" is easy to justify. But from an ordinary consumer perspective, that same set of criteria is considered overkill. Why pay a premium for a vehicle that is less efficient in both EV & HV modes and offers fewer features?

- 3-05-2018** **Yet, Again.** Watching history repeat is a source of intrigue. The enthusiast never seem to get it, as this confirms: *"This just shows that Prius/Toyota PHEV buyers don't really care about EV performance or EV range, they are still mostly gas heads who thinks in terms of MPG. And market sales shows."* Balance doesn't make sense to them. This is why the problem of innovator's dilemma is so hard to overcome. They figure since EV performance and EV range was a strong selling point initially, that it will continue to be as the audience grows. Finding out that's not the case is costly mistake. Ordinary consumers will pay for a feature if it is affordable. That's why there are package options. Some choose them, others don't. Offering only a maximum is like only trying to sell a vehicle fully loaded. It's simply not worth it for everyone, especially those who just happen to stumble across the vehicle while wandering around at the dealer. That chance discovery will get dismissed at an instant if it raises the sticker-price too much. This is why Prime is hated so much by certain individuals. Having such a low MSRP compared to Volt gives it a significant advantage. It's a far more compelling choice to someone with thoughts of perhaps buying a Corolla or Camry. Annoyed, I shot back with: Same old rhetoric... GM enthusiast doesn't like mainstream shopper priorities. GM enthusiast insults the vehicle most appealing to that audience. Trading efficiency & features for the sake of fulfilling an expensive want simply isn't worth it... and the sales are now beginning to show it. We saw this nonsense repeated over and over throughout Prius history. It was ugly. It was slow. It was a market leader.
- 3-05-2018** **Learning.** There was an antagonists clearly quite upset by my final reply: *"Maybe you should stop by fueleconomy.gov and get a little learnin' yourself."* Knowing how rude & insulting he has been in the past, my reply showed how well prepared I am for a fight: I learned a long time ago how some post using vague & outdated links for the sake of misleading. Again, what have you done to promote Volt? Seriously. Salespeople really do need that knowledge sharing from owners. This is what I shared yesterday... [Early Spring - Charge Mode](#) ...to help people better understand charge-mode. Just think of how useful that would be when stopping at a dealer for a test-drive only to find the battery isn't charged. You just go for a drive in charge-mode, then switch it to EV on the way back. No plug necessary to experience the electric-only driving. Go on, keep belittling Prius, or finally step up to start promoting plug-in vehicles.
- 3-06-2018** **Expensive.** There have been quite a number of EV announcements recently. Nearly all luxury models though. It's the Prius conundrum finally playing out. All those years ago, Toyota's system delivered a smooth & silent ride only available from a luxury vehicle. Mainstream consumers thought that was great. Luxury consumers pretended that wasn't the case. With the hybrids, avoiding the inevitable wasn't too hard. But now with Tesla making such an impression in Europe and the affordable EV choices emerging here, the ability to ignore that paradigm-shift is becoming quite difficult. Not only are ordinary middle-market shoppers beginning to take notice of the smooth & silent, they are also discovering the lack-of-power belief to be just a misconception. The industry response is to bump up the game by focusing almost entirely on expensive offerings. Fortunately, we see Nissan & Hyundai already striving to break through the ploy with affordable choices. Toyota's effort isn't as obvious, since their focus is on components rather than the vehicle itself. You get the point though. They are preparing to take full advantage of the next generation battery. In the meantime, choice will be limited. That makes you wonder what GM will end up doing. My guess is very little until then. The same is likely for Ford as well.

3-06-2018 **Goodbye.** Angered by my obvious win, I got this: "*...where he's not wanted, with non-sequitur comments...*" It was buried within a rant, in an attempt to vent frustration from the blog having died. An entire month since the most recently daily topic brings everyone to the same, undeniable conclusion. The owner decided to stop feeding the enablers. Seeing them fight constructive discussion, insult & belittle anyone not in agreement, and outright dismiss facts and lie, is simply not worth supporting. They can just use the forum instead. That's all I wanted all along anyway. So, the anger is understandable. I get what I wanted. Using a venue which strives for some integrity is much better than being a breeding home for antagonists. To one of them especially rotten antagonists, I posted in response with: Breaking of the status quo is rarely welcome activity. As for claiming non-sequitur, that's the enablers at work, doing everything they can to divert. It's doesn't matter though. Time was wasted, exactly what the "*too little, too slowly*" concern was all about. Despite so many claims of GM being years ahead of everyone else, this weekend a friend of my purchased a Kia Niro PHEV. There simply wasn't a SUV choice available from GM. Opportunity missed. With the tax-credit expiration approaching, the situation should have been taken seriously. There was so much the enthusiasts could have done to help promote...

3-07-2018 **Ambiguous News.** The vague announcement anticipated from GM in January didn't happen until today. As usual, the comments are so ambiguous, this news is nothing but imagine-building nonsense. It's amazing how little was actually said. All we are told in the long press-release was that Bolt production would increase late this year. That was it. How many? What seems such a logical question resulted in a flurry of hostile responses from GM defenders. They felt deeply offended by us not blinding praising such an announcement. It's the same old gullible spin of the past, where the enthusiasts feed on the vague then amplify expectations for GM, thereby removing any accountability in the process. We aren't given any specifics; yet, that is supposedly enough to declare superiority over all other automakers. Based on what? There was literally nothing to refer to. Making matters worse is the fact that GM depends heavily upon LG for virtually all of the vital components for Bolt. That relation goes well beyond just being a supplier. There are very real limitations that cannot be quickly overcome. Offering an increase is complex & expensive. That's why the way Toyota will leverage hybrid design for plug offerings provides greater flexibility at lower risk. Anywho, it boiled down to posting this summary: More and more, the impression is that Volt will fade away. There simply isn't a market within GM's customer base for an expensive compact hatchback. The realities of production cost could not be avoided. Later on, it's easy to see a small SUV with a plug emerge. So much for their supposed industry lead.

3-08-2018 **Common Error.** Whenever GM makes a crazy vague announcement, it stirs posts about Toyota. Nowadays, that means we get misleading & misinformed comments about Prime. This time, it was: "*I put it in EV mode and it kept automatically bumping it out of EV mode.*" It's easy to see the unfortunate reality of someone unfamiliar with Prime to make assumptions about how it works. After all, how would you research it? There is no quick-guide available... yet. That button labeled as "*EV Auto*" can easily be misinterpreted as meaning it is some type of EV mode invoke. It's not. Instead, it means you want the system to come out of HV mode as quickly as possible to resume EV mode when power demand is no longer peak. Many have no clue they got it wrong, thinking you are forcing into EV mode to stay. That's such a simple thing to learn, it's not the slightest bit of a problem for new owners. But for someone doing a quick review without any study whatsoever, they'll assume incorrectly... as was the case this time. Who knows how he'll interpret this attempt to convey that knowledge: That was your mistake, a common error among newbies. EV mode is default. Pushing any button instructs the system to also use the engine. In your case, you likely switched it to "*EV Auto*" mode.

3-08-2018 **Patterns.** They are simple to observe, if you take the time to look for them. The gullible & lazy nature of so many who randomly participate in green vehicle threads make them easy victims of intentional misleading though. They just believe the narrative being expressed, rather than doing a little research of their own. That most definitely was the case topic. This particular individual got quite angry with me. He clearly didn't have the background. His assumptions were obvious. There was nothing provided to support claims. Even the most staunch of enthusiasts will make some type of reference to raise/restore credibility. He had nothing. GM had never done wrong, ever. No automaker is perfect. That's why there are generational upgrades. Heck, that's why we get mid-cycle refreshes with more than just cosmetic tweaks too. Learning from experience is normal. In fact, it is an expectation. The catch is, you try to avoid repeating the same overlook again. GM doesn't. In fact, quite the opposite happens. We get these statements of grand achievement yet to come... but, it rarely ever does. Volt gen-1 fell well short of expectations. Volt gen-2 did as well. And now, we see Bolt floundering in missed goals. The same pattern keeps repeating. Rather than aiming for the middle, something realistic, it is always a claim to superiority. Ugh. This is why GM stands out among the legacy automakers. Others have learned not to do that. GM clearly hasn't. Yet, the die-hard enthusiasts don't notice that pattern. Why? Are they just so poorly informed, my mention of it is the first they have ever heard such a claim? Anywho, I posted this to draw attention to repetition: No, I'm just well aware of GM's reputation... over promise, under deliver. Notice how the announcement is void of any actual detail? That pattern is all too familiar. Tell us, what specifically will be delivered? When? Where? How many?

- 3-09-2018** **New Attacks.** There is a very real hate for anyone who stirs the status quo. The act of trying to be constructive is clearly not looked upon favorably. Level of hostility from recent posts make that quite obvious. Nonetheless, I persist: None of the other legacy automakers set such unrealistically high goals. GM did and missed them quite a number of times... hence their reputation. Calling someone a hater for pointing that out is an absolutely terrible way to get constructive feedback. Again, GM set a target MSRP for Volt by 2010... missed it by a wide margin... tried again for gen-2... missed again. The reason for such a vital goal made sense, they needed that MSRP low enough so Volt would be competitive with traditional vehicles without tax-credit dependency. Neither Toyota nor Hyundai stated that goal with the same deadline. Yet, both actually delivered already. Prius Prime and Ioniq PHEV have prices that low. We still wait for GM.
- 3-09-2018** **2019 Corolla.** The reveal was today. With Corolla being the best-selling vehicle of all time for the entire industry, likelihood of it representing the tipping point for traditional vehicles is quite strong. This would be a very good reason for Toyota to invest as much as possible in the traditional technology, making the final fling worthy of competition for years to come. After all, you don't want to waste resources on something that won't last. Meanwhile, everything else will see that shift to hybrid in bulk sooner. Look at how impressive the new Camry hybrid is. Anywho, this upcoming Corolla will introduce a next-gen CVT. It will include a "*launch gear*". Think of it as a type of low gear for the cone & belt transmission. This approach will allow for efficient starts from the vehicle being stopped, in addition to making the CVT itself more efficient. Not needing a "low" for power anymore allows the belt size & angle to be optimized for cruising, since less demand will be put on it. Oddly, it will still offer shift-points with paddles, even though there really aren't gears to shift. This is why the introduction of the hybrid model (available as Auris in Europe and Corolla in China) will eventually find a place here. There's still enough of a difference. Who knows how things will play out. If Prime really does redefine Prius as more of an upscale offering, a Corolla with a plug would fit right into the product-line. It's a big step toward sunseting traditional tech for the entire fleet. The tech must be spread. Product diversity (good business) requires variety.

- 3-09-2018** **Reluctance.** Not understanding the complexities of automotive business decisions make this comment a really big deal: "*The reluctance that Toyota shows towards putting a plug on their vehicles is so strange.*" From that person's perspective, they sense reluctance. Adding a plug seems such an obvious opportunity being missed. That often comes from not having any clue what the tradeoffs are. Those challenges from just the engineering approach are immense. But then when you factor in the resistance to change from competitors, as well as customers, you end up with a confusing mess. This is why software developers (like myself) never aim for more than 90% success. That extra 10% is incredibly expensive to address. In fact, with so many unforeseen potential issues, even just reaching an 80% success rate can be quite a stretch. To minimize risk, as well as cost, the approach of incremental updates is taken. In days long before the computer, this was known as the "*muddling*" technique. Nowadays, we just called that upgrades. You know what you deliver won't ever be perfect, but feel comforted by the ability to adapt to an ever-changing market. With respect to Toyota's stance right now, I put it this way: Waiting until the price-point is competitive isn't reluctance, it's smart business. You bring up the base in the meantime, which is exactly what Toyota stated they would do... what we are witnessing now. The step from hybrid to affordable plug is far easier than from traditional to expensive plug. Remember, sales at mainstream volume won't have tax-credit subsidies available.
- 3-09-2018** **Cannibalization.** The short-sightedness continues: "*Prime is already cannibalizing Prius sales.*" You'd think the transition would be obvious. But then again, online commentary often comes from those who really don't give much thought to what they are posting. That becomes quite clear if you ever ask someone what their purpose is. They can't actually articulate goals... or refuse to. That's a sign of bias, in addition to not thinking long-term. It's really annoying to have to deal with that. But you have to, Since newbies aren't aware of the efforts to undermine. Keeping the response simple is what tends to be most effective: Cannibalization implies an unintended consequence. That most definitely isn't the situation. Toyota wants to transition from hybrid to plug-in hybrid.
- 3-09-2018** **Hate.** This is what usually brings about the short-sightedness. The person has some dislike or problem from the past that has mutated into hate. Once that happens, they really don't see anything else. So, we end up with hypocritical accusations and double standards... which is how you identify hate. Watch for those signs. Anywho, this is what stating goals is so important. They can be broadly applied and measured objectively. So, when I detect the hate, I call in out in some manner to draw attention to the situation and away from the emotion: No automaker should be given a free ticket to make unrealistic promises, then never be expected to get called out on it. We want choices targeted at showroom shoppers, so dealers can confidently stock plug-in inventory. Heavy dependence on tax-credit subsidies for low-volume conquests sales is most definitely not what we want... yet, that's what was delivered. Labeling discussion of it as hate doesn't fix the situation.

3-10-2018 **New Participants.** The previous chapter in plug-in history, that early-adopter phase, consisted primarily of those with engineering backgrounds. They were either actual engineers or knowledgeable in the realm due to their extensive exposure to niche vehicles. This was similar to the earliest days of hybrid history. A profound difference is emerging though. This next batch of active online participants don't have any business background. They are basically clueless. That's bad, really bad... since the next phase is mainstream penetration. Reason for this is simple. We're seeing an onslaught of high-performance EV announcements. Coming from luxury automakers, where paying a very high-premium is the norm, that's no big deal... for them. But for the audience of ordinary consumers, those people who come into a dealer to shop, there's a distorted perspective. When you don't have anything specific in mind, gravitating to the high-performance the high-premium delivers is easy. The catch is, legacy automakers won't be stocking that type of inventory. Everyday vehicle purchases are simple sales with affordability as the focus. Whether it is a low sticker-price or low monthly-payments, that is the key to the business-sustaining sales the dealers & automakers depend upon for profit. Niche vehicles don't provide that. Unfortunately, these clueless new online participants don't understand that. They are so focused on that in-the-now perspective, seeing beyond low-hanging fruit sales or the discounts from tax-credits doesn't happen... and anything you point out in respect to that is viewed upon as hate. It's really unfortunate.

3-10-2018 **In The Way.** That was how I saw Volt. Had the promises been fulfilled, it would have been different. Instead, it was just meritless bragging. Mainstream sales were not achieved. Now, we see Prime stepping up to fill that role. In fact, we routinely get comments about Toyota "*imitating*" what GM delivered. That obviously isn't true. Toyota didn't sacrifice affordability for the sake of more range & power. Yet, we get claims of Prime not advancing the automotive industry forward. Reaching that audience of ordinary consumers is far more difficult than those nasty antagonists ever want to admit. They somehow think sales will suddenly surge among the masses, despite the loss of the generous government financial incentive. How? Sales are terrible now. Losing \$7,500 will make the situation even worse. I was annoyed... and find those enthusiasts very much in the way, as I stated: Early Adopter = Tax-Credit subsidized purchase. That stage is rapidly coming to an end. Toyota knows this and is positioning its products to be directly competitive with traditional vehicles. The loss of that incentive will have little impact. Their hybrid reputation and solid performance record will make the transition to plug options easy. GM will be in a world of hurt soon, as the recent statement from its CEO to have tax-credits extending clearly confirm. The choice to deliver Voltec in a small vehicle with emphasis on range & power has proven to be a big mistake. Sales growth was not achieved. Claiming Toyota is "*standing in the way of a better tomorrow*" by disregarding the terrible business choices GM made is just plain wrong. GM squandered the early-adopter opportunities by focusing on conquest. Toyota focused on appealing to their own showroom shoppers instead... an investment that is about to really pay off.

3-10-2018 **When It Began.** The death of that daily blog has allowed my thinking time to shift back over to the big Prius forum. True, I learn more about the market by participating on those diverse & hostile venues, but returning to friendly territory is a welcome break. Today, I was summoned to provide some comments about the past. Turns out, I've become a bit of a historian with all my efforts to document. That's cool. Anywho, this particular feedback was in respond to dealing with those opposing anything disruptive to the status quo:

I still remember that first time witnessing a freak out. My mere mention of a hybrid sent that SUV owner into a state of panic, as if she had been confronted by death itself. Rumors of these new green vehicles had caught her attention and created such a deep fear of losing her SUV, the encounter with me triggered an intense emotional reaction. Her faced turned red and she started screaming about having to give up that vehicle she loved so much. It was surreal. It was 17 years ago.

The crazy large SUVs hadn't been introduced yet. Gas was less \$1 per gallon. The term "*climate change*" hadn't even been coined yet. We were just blissfully consuming oil with little concern for carbon or smog emissions. Think about how much has happened since then.

Proving an automotive-grade battery could be robust enough to last the lifetime of a vehicle was still a monumental challenge. Most people didn't even believe they could deliver enough power to propel the vehicle to be safe on roads. Most people also thought that hybrids needed to be plugged in to recharge. It was a very different time.

When Prius began to shock the world, greenwash attempts emerged in abundance. Many were exploits of misconceptions. Those hoping to undermine steps forward pushed assumptions in the wrong direction, leading you to incorrect conclusions. As time proceeded, the deceptions got more vindictive. Eventually, things became desperate. Rather than just omit vital information to mislead, some turned to dishonesty. They would just outright lie. They just plain did not care. They weren't ready for their world to change.

The most effective tool I have found to combat those efforts to retain the status quo was video loaded with lots of data. It's extremely difficult to distort reality with such detail information readily available. The footage reinforces Prius reputation while at the same time exposes claims of supposed superior technologies as meritless. Just ask the antagonist to show you their data.

Long story short, there are people who will work to impede progress any way they can.

3-11-2018 **Supply & Demand, part 1.** This was interesting to read & respond to: "*GM doesn't talk numbers because it was badly burned after its then-CEO predicted production and sales numbers for the Volt in 2011 and 2012 that it didn't come remotely close to meeting. And, quite frankly, given all the cynicism and pushback by EV enthusiasts (your comment is arguably a typical example), what would be the upside to the company of doing so?*" The comment/suggestion/question was from a perspective of removing all accountability, rather than working to make the setting of expectations more realistic. Those the words of someone fearful of continued losses. No surprise, coming from a staunch GM supporter. So, he didn't take well to my request for detail... rather than just accepting the ambiguous announcement without any actual thought or consideration. Needless to say, I fired back: The downside is the announcement is taken as an empty promise. Setting realistic expectations should be the initiative. That's how you avoid cynicism & pushback. Remember how Toyota set an expectation of 13,000 sales in the United States for Prius PHV's first year? That wasn't a high number like GM's plan for Volt, which may have disappointed some supporters, but it certainly was realistic. The final tally ended up 12,750. It provided an upside of proving that Toyota was taking a serious approach the market, showing they were accurately interpreting demand and doing their best to match supply. Remember, over or under production is costly to both the automaker and the dealer.

3-11-2018 **Supply & Demand, part 2.** Wanting to just how different GM's approach was with Volt, I replied to my own comment. Keep in mind that GM had hoped to achieve minimum mainstream sales volume (60,000 annual) by the end of year-2. That was first-generation expectations GM set. Enthusiasts watched the nightmare of missed goals unfold, resulting in a shift of those same expectations to the end of year-2 for the second-generation. That point in time was just reached. The goal was missed to such an extreme, they are angry at anyone drawing attention to it. Selling only roughly 1,000 monthly is far short of the 5,000 expectation they set... the precedent they pushed heavily. Falling so far short, despite such a large tax-credit, is why the blog ultimately died. Support was abandoned. That failure was good reason to try something else. My question has been what? Specifically, I'd like to know why the attacks on Prime continue. Will they be pushing the EREV approach in some revived form (change the definition, yet again) or just switch over to their former enemy, endorsing the EV instead of pushing a "*range anxiety*" alternative. I really wanted feedback before that final thread on the blog vanishes. So, I added: Prius PHV was a mid-cycle release to only 15 states. So, it was inevitable that it would be perceived as a compliance car anyway. Fortunately, the research Toyota hoped to gather from that effort paid off. They were able to get a clear understanding of where the market was and where it was likely to go.

- 3-11-2018** **Target Market.** Coming from a new plug-in website, I was especially intrigued: "*Feel free to build a list of main street auto vendors more aggressive on EVs than GM.*" That group of regular comment posters include strong support for Nissan & Tesla. So, the scope of that particular comment was what I wanted to push to find out more about. My guess is this's just another post without substance. They focus so intently on the here & now, addressing the wider audience isn't even a consideration. Many just blow off the idea of that next audience as years away, something to be addressed by the next-gen rollouts. That's why Prime isn't taken seriously. They see no reason to strive for appeal to ordinary consumers yet. I beg to differ. If the design doesn't stand a chance of appealing to my Mom, it is too limited. She's a great example of the indifference far too common in our market. That audience has absolutely no idea how their vehicle works, they just want something affordable, reliable, safe, and comfortable. That's why I get so annoyed with the performance obsession from enthusiasts. They are so blind to mainstream buyers, it's virtually worthless to ever argue. Regardless, I still keep trying: Changing the entire fleet or just pushing a showcase model? There's a big difference. The latter only focuses on low, hanging fruit (early adopters). Reaching the masses (ordinary consumers) is far more difficult. In other words, the term "*aggressive*" doesn't identify target market.
- 3-12-2018** **Spin. Spin. Spin.** The hate that comes from being on the losing side of a long fought war is difficult to overcome. That's why you give the losers an opportunity to vent. They need to get it out of their system. It's why I haven't abandoned that Volt blog entirely. Using me as a scapegoat is a means of unloading that stress. Winning some battles gave them a false belief of an ultimate victory. GM wasn't interested in that war. So, I could see their efforts were futile. I was also quite curious what they were holding on to. What was the point? What did they hope to achieve? What did they actually lose? Regardless of those answers, it is necessary to make sure this chapter comes to a close. Pushing even harder for closure by shouting a little can be quite effective. That's often how beating-a-dead-horse threads get shaken up to arrive at a conclusion, to end the spin. So, I gave it a try here: GM'S OWN LOYAL CUSTOMERS, SHOWROOM SHOPPERS LOOKING FOR A GM VEHICLE TO REPLACE THEIR OLD GM VEHICLE, HAVE BEEN ABANDONED. They are stuck choosing traditional guzzlers and you just plain don't care. Thanks for the confirmation. It wraps up the chapter on the fall of Volt nicely. Just imagine if GM had focused internally, rather than wasting time & money on conquest.

- 3-15-2018** **Focus on SUV.** Ford finally got into the game. Remember the last time they did that? All the attacks on Toyota from GM enthusiasts fell apart. A new, much more influential, enemy emerging meant a harsh & abrupt end. This marks the first page for a new chapter in plug-in history. The one with emphasis on affordable EV rollout is over already! Now, there is suddenly a turn of interest back to hybrids... specifically, choices in SUV form. Ford is basically abandoning their "car" advancements. Interest in truck platforms is so intense, they simply aren't going to bother anymore. A bunch of unibody designs are on the way. The bulk coming from SUV choices is what their audience wants. But rather than pretend that isn't the case... as GM did, they are declaring intentions for focus on that. In fact, they even stated this will pass Toyota's efforts. No detail was provide. It didn't matter, since that put GM in a spectator position. Not even acknowledging GM as competition is quite an offensive maneuver for Ford. Of course, anyone paying attention could have seen the pressure building. Volt now on its 8th year of sales and no SUV using that same technology even announced is very disappointing. There's no way to spin anything positive about that... which Ford is well aware of. Interesting, eh?
- 3-16-2018** **Clueless.** The problem of Volt being in the way is quickly fading. Rather than always getting a "better" mention whenever Toyota's design is highlighted in a published article, it's now just a footnote with a growing negative slant. In other words, GM had its chance, but nothing became of it. So, we are getting a refreshed look at Prius history and future potential. was intrigued what the Volt forum had to say about the article, with the hopes of taking it to the blog for feedback. Sure enough, there were posts. None addressed actual efficiency of design. They all focused entirely on battery-capacity. The attitude of more being better is so prevalent, they don't even recognize other approaches as a solution. It's so stupid, I can't help but to shake my head. Using less electricity in the first place should be a priority. They obviously don't see it that way. Carrying around that extra weight and requiring more time at the charger is a non-issue, as far as they are concerned. That's sad. I just happened to have a post to reply to with that very denial too: Turns out, those on the forum still don't understand. 31 kWh/100mi = Volt. 25 kWh/100mi = Prime. The offering from Toyota is clearly more efficient than GM... specifically it consumes less electricity to travel the same distance.
- 3-16-2018** **Unwanted Attention.** It needed to be said: The blind obsession with capacity will continue on, in some other venue but with better controls. That has always been and will continue to be the point. It's really unfortunate. Wasting electricity is still waste, even if it is clean. Think about the context of that discussion topic. Why would you want an electricity guzzler hogging the charger? The mantra of "*less is better*" really comes through in this example... which is what makes Prime a better system than Volt. Reality is, Prime will get an upgraded battery-pack at some point... perhaps a mid-cycle update. Without doing anything other than swap the pack, it will appeal to an even wider audience. That is the point of improved energy-density. The added capacity would allow for greater kW draw too, resulting in a power increase. Added capacity wouldn't help Volt. Added power wouldn't either. In other words, GM's choice to compensate both EV and HV efficiency shortcomings of Volt by just adding capacity is becoming easier to notice. In this case, we have ChargePoint drawing attention to it.

3-17-2018 **Personal Attacks.** When you don't like the message, you shot the messenger: *"Who feels like pulling up John's post from before where Prius PHV was the answer and GM missed with only a 4 seater? Not me :) Then if I mention my Volt uses much less gas than his Prime in MN, he pivots to ICE MPG as he racks useless miles driving around in an effort to justify his stats."* Having witnessed so much and having watched so much history rewritten, I'm surprised they'd bother. Knowing none of it works. Why? There is literally nothing left to gain. For that matter, there's nothing to defend. It's all gone. A soapbox still remains for posting though:

That history is what reveals the problem with those who participated here. Way back then, I raised concern about *"trophy mentality"*. It started with that *"230 MPG"* campaign. There was such an extreme fixation on that single attribute of the vehicle, red flags emerged about the willingness to accept balance. And sure enough, vital aspects of mass-market sales were simply abandoned. That reply... all these years later... still confirm it.

Calling the attention to point out other aspects, like HV efficiency or base MSRP, make those with that problem cry *"pivot"* trying to avoid acknowledgement of being well balanced. As for making a claim about driving around to justify stats, who do expect to believe that? It's clearly not true and there isn't even anything to support that. Seeing the *"vastly superior"* attitude still taken, rather than doing something to help GM customers actually get plug-in hybrid choice, is sad.

Mocking Toyota and Prius doesn't change anything. It probably doesn't even make you feel better, since you know more plug-in hybrid choices are on the way from Toyota. You also know that Honda Clarity will be stealing away sales from Volt, as Chrysler Pacifica has begun to do. There's the enigma of Hyundai Ioniq too.

GM needs a something that can be sold in high-volume for a profit, not a trophy. Finally adapting the tech in Volt for use in a SUV, like Trax or Equinox, is the solution we wait for. Ford announced intentions to deliver their own plug-in hybrid SUV. Kia Niro and Mitsubishi Outlander already have.

3-17-2018 **Smug.** How else would you describe a cherry-picked sampling followed by a comment like this: *"Put those numbers in your Prime and Smoke It."* That's a true sign of defeat. It never ceases to amaze me how constructive discussion attempts end up breaking down to childish name calling. That's why I never got banned from that daily blog for Volt. I kept the things active with my counter-posts and was always polite doing it. For that matter, I kept the discussion on-topic too. The enthusiasts hated me for that. I thrived on their feedback. It was an incredible source for opposing perspective. True, they suffered from group-think. But at least what they believed was candidly stated. No holding back is what made that particular venue so valuable. They'd use their best material. Then when it was exhausted, they'd turn to insults. That's how I knew there was nothing left. Anywho, that happened today. He was very upset with the efficiency rating and had nothing constructive to counter it with.

- 3-17-2018 All Talk, No Action.** As expected, there was upset from me calling out those who don't ever do anything other than post rhetoric. No one is supposed to notice their pattern of enthusiast propaganda. They try to pretend to be constructive, but most posts are without any substance. For example: *"Anyone who asks, I'll gladly state the pros and cons of the Volt."* Naturally, when asked, nothing is ever provided. Unwilling to play the game anymore, I stick to the painful realities. It's amazing how much effort is put forth to spin, distract, and attack. What a waste. None of that actually helps advance them forward. You have to share & educate. Simply stopping by a dealer to show them a few things about the car from an owner's perspective is a powerful means of stirring interest. Without that, what incentive is there to even bother? Expecting excitement from a vehicle that requires answering a lot of questions and only getting a modest commission in return isn't realistic. You have to give them something they can easily entice the customer with. You can also go directly to customers. There's this thing called the internet, where people go to for more than just blog & forum information. My sharing of videos on YouTube has drawn interest from a very diverse audience. There's no reason they couldn't do the same. Anywho, I stated a con, knowing that message would get through and cause even more upset... perhaps enough to provoke some action, finally: PRODUCTION COST is too high to make it competitive with other GM vehicles.
- 3-17-2018 Parting Advice.** Not much has changed. The advice now isn't really any different from how it all started: This is the opportunity. Don't let that slip by. Seize it. Seeing the other automakers jumping on board, making announcements of their intention to deliver SUV choices with a plug, is what those who participated here waited for. We all know how difficult the transition is... especially for GM. Volt floundered. So what? It's ironic, but that has passed. A new chapter has begun. Knowing that Ford is going all out, that barrier has been replaced with anticipation. We're witnessing a paradigm-shift with the entire industry. This is when the intent from GM should be solidified. Mistakes of the past can be avoided this time around. Clearly state what ordinary consumers, not early adopters, will purchase. That means no subsidies and competing directly with traditional SUVs. Support GM by focusing on audience, their own loyal shoppers.
- 3-17-2018 Video: Early Spring - Engine Warm-Up.** Near the end of the drive, you'll see the purpose of this video. It's to demonstrate a full warm-up cycle of the engine. Leading up to that is a climb out of the river valley at highway speed, passing someone on the highway, an opportunity to drive at 80 mph, and hard-acceleration from a stop. All that drained the battery quicker than usual, but it worked nice for a well-rounded EV drive sample. On the display, notice the "usable" capacity of the battery-pack dropping to 0%. On the readout from the phone-app, actual capacity drops to 13%. At that point, the cold engine finally starts. Watching coolant temperature for the engine closely, you'll see it climb to fully-warmed threshold. At that point, the engine shuts off and driving without resumes. The engine will start again when more power is needed or the HV capacity for electric-only is used up. The engine will shut off later, automatically when conditions are right. This is how such high HV efficiency (driving without plug-supplied electricity) is achieved. Carefully study detail provided by the phone-app. There's a lot to discover about how the system in Prius Prime operates... [Early Spring - Engine Warm-Up](#)

- 3-17-2018** **Final Post.** It really is coming to an end, 6 weeks later: Spin is the most compelling part of the blog. Participants here did not believe in balance. So, regardless of what was stated, it would end up being interpreted as an absolute. This final exchange was a nice example of that. What was the most informative was how business-need was never taken seriously. Thinking great engineering would be enough was futile. Yet, the idea of tradeoff for the sake of appealing to a wider audience was always dismissed. As for the attempt to find a scapegoat to explain dwindling Volt interest, give it up. When those impressive lease deals expired, former owners moved on. Early-Adopters fulfilled their role and mainstream consumers weren't interested. So at the end of all of this, there is still no plug-in hybrid for GM's own loyal customers. That long awaited Trax or Equinox with Volt technology will happen someday, but the hope being years ahead of other automakers didn't work out.
- 3-18-2018** **True EV.** Attacks elsewhere are having trouble. They emerge, but the audience isn't receptive. The antagonists weren't aware of just how much of a fanboy site their blogging venue had become. Using me as a scapegoat blinded them to what was actually happening. They'd forget both friend & foe. There had been a diverse group of posters. That participation is what caused it to thrive. That all fell apart over time, mostly due to the lack of any clear message... except EV purity... which ironically, is what ended up tearing it apart. Looking back at post from long ago, you can see a strong endorsement for what Bolt became. They really didn't want Volt. After all that, it was a lesson hard learned about stating goals. Nonetheless, there are still a few unwilling to recognize that conflicted past or what it means for the future. I took the offensive on today's spin attempt on one of the new venues: The reality of being a "*true EREV*" is just marketing. That claimed "*full*" power is actually an extra boost to an already quite capable of all aspects of driving. It is unnecessary, a want. I have to deal with that spin from Volt enthusiasts routinely. They claim the engine in Prime is necessary, but can't ever support the claim with real-world data. Meanwhile, I keep publishing video after video confirming their FUD nonsense. Notice in the following example how the engine never starts the entire time plug-supplied electricity is available. The power & speed demands are handled just fine entirely with just the 2 electric motors... [Early Spring - Engine Warm-Up](#)
- 3-19-2018** **Misleading.** The new attacks on new venues continues: "*Everything I read everywhere, including the Toyota Manual, and multiple reviews all indicate if you floor it, prime will start the gas engine.*" That's an outright lie. There's quite a bit of promotional material where Toyota explicitly states the "*pedal to the floor*" is all electric. My response was followed by attacks on me personally, blatant attempts to avoid having to actually provide any proof of his claim. I finally ended up posting: That is false information, being spread by people not bothering to confirm sources. The engine does **NOT** start when you floor it in EV mode. What do you need as confirmation of that? I have already shared video showing the 68 kW draw (pedal to the floor) with 0 RPM for the engine. This is the type of real-world data we'd like to collect for each of the automaker offerings. Reviews & Hearsay with incorrect information are still far too common.

3-19-2018 **Meaningless.** Back on that now almost completely defunct blog, there's some of their own parting thoughts being posted. Naturally, I get called out with efforts to discredit: "*Personally, I stopped reading his meaningless posts...*" From an fanboy perspective, what I post is indeed meaningless. They couldn't care less about sales. It was always just having something to be proud of, something to brag about, something to make them feel better than others. In fact, I remember the one particular individual still holding a grudge bragging about how Volt would deliver 60 MPG after depletion. He had no evidence whatsoever to support that. In fact, everything known about the "series" type hybrid stated the opposite. Volt would be less efficient than Prius when in HV mode. He was proven wrong in an embarrassing manner too, by his own peers. So, you could imagine how much he feared I'd remind everyone of that. I didn't though. I just kept reminding everyone about purpose... even if they continue to find it meaningless: Enthusiasts have been shunning business-need since the automotive age began. Dislike for the necessity of a vehicle to deliver high-volume profitable sales is not compatible with their wants. Posting about range & power is much more exciting than accountability. That's why anything related to being held accountable is negative voted until the content is hidden. This group established the precedent, declaring Volt "*vastly superior*". Yet, the sales that were to come about as a result never materialized. That's why I post asking what the goal should be now and will continue to until GM finally offers something for its own showroom shoppers capable of competing directly with its own traditional vehicles.

3-19-2018 **Anti-GM.** It is quite remarkable how some people get so frustrated, they don't perceive anything but hate. It's like people struggling with a problem. Any advice you provide is taken as criticism, with the intent to make them feel bad about their situation. No matter what you say, they never hear anything positive. They search so hard for a negative motive, as if you are setting them up for failure by undermining any opportunity they may have, that trust is gone. They choose to never take a chance. Ironically, it's that close-mindedness which causes them to miss opportunity. Anywho, I got this today: "*You have an irrational hatred of General Motors, and this site, particularly.*" I posted a reply, knowing it will just get negative voted until hidden anyway. Nonetheless, it is my own opportunity to reply:

Quite the opposite, I support GM. You want so bad for me to be anti-GM, but that isn't the case. I recognize the engineering and see the potential. It's the terrible configuration of Volt which I keep drawing attention to that irritates the heck out of you. Missing opportunity after opportunity for GM to get on the right track makes it even worse.

We've seen the market reject Volt due to its packaging & price. You know all too well that a second model with a smaller battery-pack... which I pushed... would have been what swayed favor enough to entice GM shoppers. But that never happened. GM focused even more on SUV offerings.

Trax emerged as a popular choice as a result. That seems the best candidate now for the technology in Volt to finally migrate to. Too bad if the High Priest was right about what the next steps should be for GM.

And yes, I know you'll spin it to say that's what is coming in the next 18 months anyway. But I'll just point out that the "*too little, too slowly*" concern fits the situation nicely. Waiting until a 2020 model, after the tax-credit has run out, is not at all what anyone had hoped for.

Remember, my goal for coming here all those years ago was to seek out allies. Toyota had designed a system to exploit battery tech, once it finally became affordable for the masses. Automakers like Nissan & Hyundai are joining in. GM should be part of that. Their own goal of "*nicely under \$30,000*" is still quite relevant... whether I'm here to point it out or not.

3-20-2018 **Goodbye.** I thought this was a good way to wrap things up: Telling yourself what you like to feel better doesn't change the situation. GM has the potential, but has rested on its laurels not actually taking that step. Volt tech must be adapted & spread. Twisting that to make it be about Toyota was the efforts of others, not me. My goal has always been to get GM to offer something appealing to its own loyal shoppers, not conquest buyers. Remember, all that emphasis on sustainable & profitable high-volume sales?

3-20-2018 **38 Minutes Later.** What an amazing sense of timing. 6 weeks after the mysterious silence of that blogging site, something from the owner was finally posted. Knowing for the past 2 years things were falling apart for Volt, it was obvious new daily topics would be a challenge. There simply wasn't anything good to post. Gen-2 was a disappointment. Engineering expertise had been wasted. We all saw the potential gen-1 failed to deliver, but there was always a lingering confidence the upgrade would correct previous executive choices. Don't blame those who designed it. Blame the decisions behind the design. In other words, management screwed up... twice. There was simply no way to spin a positive about it either. The reason why was simple. Gen-1 supposedly had a purpose of proving the technology. (We know that isn't true, but that's the narrative enthusiasts pushed.) Gen-2 would be the version that resulted in high-volume sales that were both sustainable & profitable. That obviously didn't happen; instead, the main writer of those topics had a nightmare to deal with. 6 weeks ago, it came to an end. Nothing was published. The final thread just kept going... day after day... week after week... until 38 minutes ago. A new post emerged right after I said my goodbye. (Hmm. Was that just a coincidence?) The site owner stated new articles by new writers were to come. That's it. Nothing else. No purpose stated. Audience unknown. Just a break in the silence.

3-20-2018 **Tax-Credit Worry.** We're seeing growth in the concern for tax-credits expiring late this year. For GM supporters, that emotion comes in the form of worry. They are all too aware that GM squandered opportunity, focusing far too much on conquest. Sacrificing actual change for the sake of publicity is already looking like it will be a costly mistake. Volt was a flop. The technology from it carried over nicely to Bolt, but that too has been a flop. Remember how GM was going to squash Tesla? Rolling out over a year sooner than Model 3, we were supposed to see Bolt dominate demand. Supply was to be stretched to the limit, with wait-lists confirming the legacy automaker's ability to compete with the well respected EV leader. Instead, the anticipation for Leaf put a huge damper on the market. Ordinary consumers wanted that offering from Nissan. Early Adopters would get their want fulfilled by Tesla. GM simply fell by the wayside. After all, who wanted a great performance, long-range EV in the form of a compact wagon? It was a bizarre mismatch offering. No investment in infrastructure (no high-speed charging network of any sort), combined with the MSRP destined to struggle when the tax-credit phaseout begins is a big problem for Bolt. Dealing with that basically means abandoning Volt in the process. GM's message of what solves "*range anxiety*" is a very nasty issue. They polarized their own solution. Oops! Anywho, rather than figure out how to overcome that, some choose to divert attention instead. They find insults to Toyota pleasing. By calling the automaker a "*laggard*", they hope to cast a halo worthy of praise for GM, enough to get tax-credits extended. I asked: What is the goal of the tax-credit? You can't just label some automakers with "*laggard*" but not state what that actually means. We want quality, not quantity. Simply cramming a large battery-pack into an inefficient system isn't much for progress. Guzzling electricity isn't the kind of advancement to endorse. Wasting fuel of any sort is still waste... especially if you are waiting for that vehicle to finish using the charger. Making the motors, inverters, chargers, and heaters use less electricity is advancement not recognized by the misguided method of determining worth we currently employ. Why continue an approach that doesn't properly recognize engineering achievement?

- 3-20-2018 Profit & Generalizations.** There's one particular PHV owner who frequents the big Prius forum with such vague posts, they become a source of misconception concern. He has no intent to mislead, but doesn't recognize his contributions can be harmful. At some point, they won't be considered innocent mistakes. Pointing out the issue can only happen so often before acknowledgement cannot be avoided. Until then, it is dealing with stuff like this: *"I would say the same goes for all plug-ins."* Drawing conclusions without sighting detail or reason is never a good idea. State why. Don't just make a claim. Ugh. Anywho, I hit back with: That's a generalization based on what? We know for a fact that Toyota's battery choice for the initial offering of Prime gave cost-containment high priority. They specifically told us that the packaging decision was to keep it affordable. So, even though it could be small, expecting profit is realistic. That is key to sales. Toyota would like to achieve high-volume with this generation. First year sales of 51,000 put them on the right track for that. In short, not all plug-ins.
- 3-21-2018 Max Defrost.** Apparently, the power argument for EV mode has fallen apart. Antagonists can't claim the danger now that more people are learning what "EV-Auto" mode actually is. Their attempts to spread that misconception are failing, so another is attempted. They are always watching for new exploit opportunities. In this case, it is trying to mislead people about how defrost in Prime works. The physical dedicated button on the dashboard is the MAX button to make the maximum defrost mode engage. The hope is you'll assume that's the only defrost available, since it forces the gas engine to start. The regular defrost does not. That's why it is located in with all the other electric-only options. Featuring it on the screen among the climate-control settings does make it easier to overlook. Antagonists hope you won't discover that. It's why they get so angry and lash out when I bring that to the attention of everyone reading the discussion. Then of course, I get accused of lying or not understanding. It's quite pathetic how desperate some have become. Being so dishonest without any care is quite a stance to take. You really don't expect that. But they'll do anything to misrepresent Prime. Being deceptive to lead them to believe the engine must run to keep the windshield clear when it is cold or damp out is now something I'm seeing more and more of... especially now that it is getting to warm out to need that electric-only feature. That goodness I filmed a bunch of EV video during the Winter.
- 3-22-2018 Collapse.** The restart of that old blog with a new set of writers and a uncertain purpose is bringing out all kinds of upset: *"I guess if GM doesn't want to sell to me in the future (I own a Volt and a Bolt) then Tesla or a foreign company can have my next purchase. Nice going, GM."* I can't imagine how much of a wake-up call it is reading that on a venue I don't participate. It's my message of missed opportunity conveyed by others. They enthusiasts did everything they possibly could to shut me up, claiming what I said was meaningless. Now, new voices are sounding off with the very same sentiment. Engineering expertise was wasted. Being years ahead only stands true if progress continues. Ironically, the accusation of resting on laurels about Toyota turned out to be the case for GM instead. I knew it would. The corporate approach hadn't changed. Management was still focusing on easy profit... which trapped Volt as a niche. Enthusiasts denied that could ever happening, choosing to be carelessly optimistic. That hope has been crushed. We are now witnessing the collapse.

- 3-23-2018** **Getting Worse.** That same message of disinterest keeps getting repeated: "*GM has been hedging its bets with the Volt and Bolt, but are not willing to lead the industry by putting EV tech throughout their product range.*" I pushed and pushed for diversity. It started simple, by just suggesting a second model of Volt. The enthusiasts absolutely freaked out. Fearing the worse, they sighted claims of trying to kill Volt entirely by diluting the design with a second model offering a smaller battery-pack. They were so insecure, that just plain was unacceptable. Nothing convinced them of sincere intent. Mistrust of the supposed competition blinded them to the actual enemy. Opening their minds to other automaker supporters for the sake of promoting plug-in vehicles as a whole was impossible. GM was vastly superior, period. They were blinded by hate of the past, preventing them from achieving a new future. They dug their own grave. That's why I blogged so much about that past, as it was unfolding. I knew that present would someday become an unfortunate part of their history, by their own choosing. And sure enough, each worsening post is confirming that foresight.
- 3-24-2018** **Expectations.** Fortune does not favor the foolish. Assumptions can be costly. The enthusiasts who blindly followed without doing any research are now feeling remorse: "*After buying my 2014 Volt, I was so impressed with the technology that I assumed that I would soon be replacing my Subaru Outback with a GM PHEV SUV. GM has proven that they are not all in with EV drive.*" Their problem came from study of only the engineering. That's an easy mistake to make. They believed the effort put forth by GM was to be an on-going investment, one of many steps forward. That's why whenever I brought up Two-Mode, its history was immediately dismissed. Enthusiasts felt it had no relevance to what was happening now. They were wrong, very wrong. I recognized the pattern and was shunned for it. They attacked relentlessly, claiming my true purpose was to undermine GM's efforts. Sadly, I have been vindicated. That pattern was indeed playing out. It has been confirmed that the effort with Volt fizzled. GM hasn't shown interest. There's nothing to expect anymore. True, something will eventually emerge. But the hope of leading is gone.
- 3-25-2018** **Speed, part 1.** People obsess with it. We've been brainwashed into thinking faster is better, even though need was exceeded years ago. Marketing caters to want, selling you more power than you'll ever actually need. They focus on rare circumstances, trying to portray them as normal. Others will present the situation as if you are in grave danger if you don't have that. It's a game that is ultimately lost. We've seen that payout with computers. Faster was no longer the most important priority. That's how laptop computers transformed into tablets, pads, and phones. Speed simply wasn't a selling point anymore. We're not quite there with cars yet, but mighty close. That means you still need to play the game a little. So, when the topic of "fastest" came up again, I chimed in to answer that question: Prime is governed at 103 mph. I tried it out on a lonely highway in South Dakota. I also tried it with the PHV. It is governed at 104 mph... which are both worthless trivia. Knowing you can sustain a cruise at 80 mph for 2 hours non-stop and achieve MPG in the upper 40's is information of true importance.

- 3-25-2018** **Speed, part 2.** To my surprise, there was quite a bit of positive feedback to my post. This comment added some dimension to the discussion: "*I got tired of people asking me if the car could keep up with traffic on the freeway...*" Bringing a little history perspective into the topic was an unexpected plus. So, I added so more to find out just how constructive we could get: It was amazing (and quite annoying) how widespread the power misconception was. People genuinely thought electric motors wouldn't have enough power for freeway speed. My guess was household rechargeable batteries of the time were weak. So, they just assumed automotive-grade would be too. Of course, there are some who... still to this day... trying to undermine Prius by spreading FUD like that.
- 3-26-2018** **The Other Shoe.** Former enthusiasts continue to sound off: "*Yet another sign GM just doesn't care about EREVs anymore...*" This came from the fight GM's CEO has engaged in against the state of California, pushing for those standards to be lowered. She wants requirements for fuel-efficiency to be reduced, eliminating that increase the previous administration had targeted. Rollback & Elimination of improvement goals is sickening. When you know the technology is realistic, why fight against using it? This is especially concerning with the knowledge of just how much damage to the environment will happen as a result. But even worse, it's handing over opportunity to others. Rather than engaging automakers producing vehicles here in the United States, they turn a blind-eye to the doors the resistance opens elsewhere. It's not like the rest of the world will ignore climate-change or oil-dependency. Only we will. Allowing them to develop & refine technologies while we remain back in the past is economic suicide. Why would anyone sacrifice so much just to retain the status quo? Turns out, GM is willing to throw away what they had worked toward. Today, we found out Terrain will get a diesel option too, adding to the non-pickup choices from GM. Ugh. Seeing Cruze & Equinox offered that way was bad enough. But we all know Two-Mode was supposed to be the efficiency choice for GM's future, offered as a hybrid and a plug-in hybrid. Instead, the choice has become diesel. There's nothing to deny anymore. That other shoe has dropped.
- 3-26-2018** **More Generalizations.** It's too easy to jump on the same bandwagon: "*Toyota, Subaru and a few others are quite behind the curve...*" This time, it was a poster on a blog who seemed to not give any thought to what was actually posted. He just made the claim with nothing but an anecdotal observation. That's unfortunate. But maybe it is possible to get a change from pushing back with more than just a gentle nudge: Reality is, Toyota produces 1.5 Million hybrids per year now... each with an electric-motor & battery-pack. No amount of rhetoric can conceal that production shift. The foundation is being laid by getting dealer & consumer to abandon traditional vehicles. That first step is the hardest. Each purchase after that is far less intimidating. It's unfortunate you perceived them as behind, since they clearly are not... and you have been informed why.

3-26-2018 **Video: Early Spring - Bike Trail (To).**

On a gloomy Spring day, when the sky is gray and the temperature still chilly, thoughts of going to your favorite bike trail dominate your mind. That opportunity to actually use it is still a month away, but driving to that scenic location to capture valuable data on video could happen right away.

If the 4K camera didn't overheat, I would be able to share round-trip footage of that entire trip. With the variety of conditions... country road, open highway, extreme hills, and a climb in & out of the valley... it would be quite a scenic drive. So, I gave it a try. Here are the results:

TO: 31.1 miles / 104.2 MPG = 0.298 gallons

FROM: 31.2 miles / 79.3 MPG = 0.393 gallons

OVERALL: 62.3 miles / 0.691 gallons = 90.2 MPG

The advice given to Prius Prime owners is to save EV driving (plug-supplied electricity from the battery-pack) for non-highway driving. With the variety on this trip, that was an easy thing to do. Watch the "*EV Mode*" indicator. Also, what what happens on the crazy up & down of those hills and the effect that valley where the trail is located.

On those glorious days of Summer, I hope to get down there for actual biking. Who knows if I'll be able to capture that drive. There will be hours delay before the drive back too. Efficiency from the warmer weather is much better too. Nonetheless, the results of this particular round-trip provide ample real-world data to consider.

Hope you enjoy watching it... [Early Spring - Bike Trail \(To\)](#)

3-26-2018 Video: Early Spring - Bike Trail (From). To my delight... and relief... the video in both directions turned out. Being able to document the entire drive was important. But with technical obstacles, you just never know. Opportunities to try again if something doesn't work are few and far between. I got lucky with this. It was my first vacation day of the year, where I figured there would be a little relaxation time between household tasks I still needed to do. Rather than go out for a coffee to blog, I setup camera and hoped for the best. It paid off too. I think being able to refer to this footage later will come in really handy. Detail at this level is hard to come by. That's how the rhetoric is able to persist. It goes on and on if you don't have anything but hearsay to counter with. This is video with multiple feeds... 4K driving location & conditions, dashboard gauge information, and data from an OBD-II reader... all assembled into a convenient link that's easy to share. Yeah! Too bad I didn't have such a powerful resource at my disposal in the past. That sure would have made the online combat a whole lot easier to fight. Here's part 2, the drive back home... [Early Spring - Bike Trail \(From\)](#)

3-27-2018 Leadership, intent. Figuring if someone is poorly informed or if they simply are trying to mislead is very difficult. Take this example: *"There's a huge difference between a hybrid like the Prius and a 100% battery electric vehicle. While other auto companies have been working on architectures, drive and power systems for some time, Toyota has been focused on Fuel Cell which for a manufacturer is much closer to ICE than a BEV is. Unless Toyota have a quite large group hidden somewhere working on this then they are a considerable ways behind the rest of the industry."* Did the just succumb to the hydrogen rhetoric or are they completely clueless about how Prius actually operates? It's very hard to tell and you don't want to offend someone who is just naive. There are a lot of people passionate to improving emissions & consumption that have no idea how any of the technology works. Some don't have any engineering background whatsoever. This may even be there first encounter with anything beyond just plugging in their phone. There's a lot of incorrect assumptions you can make with such lack of education. Oh well, sometimes you never find out the true intent is. But at least I know Toyota is doing far more than this person was aware of: That's interesting. I didn't think there were any newbies on this site, still unaware of Prius Prime. That model offers full EV. You can accelerate up to 84 mph and sustain that speed using only electricity. It offers an electric-heater more advanced than Volt. In Japan, you can even get a CHAdEMO connection for fast charging and a solar-roof for green charging. I'm approaching the 1st anniversary with mine. 16,100 miles so far, with 2 trips over 1,700 miles mostly driven at 80 mph. Despite that, along with a Minnesota winter, I have a lifetime average of 101.7 MPG. In short, that claim about Toyota not being focused on delivering EV is quite incorrect. They have been refining design & production of motor & battery all along, you just hadn't noticed yet.

3-27-2018 Leadership, change. I got the impression from this that the person simply has no engineering background: *"Prime simply adds a plug to a hybrid. Good that they did but this is still a totally different animal than a 100% BEV built from the ground up to be a BEV."* Reading other posts, the vague nature of those claims seemed to confirm that too. It's strange to think some people have no idea how certain advancements come about. It's like they are totally unaware of the upgrade process, assuming a new product comes out of nothing and it an immediate success. Those are the same type of people who think a singer with a #1 hit had incredible talent, that their 20 years of refinement singing in dumping venues to get to that position never happened. The odds of an overnight sensation are virtually impossible. Reality doesn't favor luck. You have to work very hard to succeed. This type of extreme thinking is why change is so difficult. The status quo always has a large group fighting to retain that stability, fighting change any way they can. It's starts simple, like when an definition is altered, then you just keep telling yourself nothing actually changed. I dealt with that denial all the time: Nope, that's just semantics, easily disproven by Honda Clarity and Hyundai Ioniq. Both are offered as EV, despite also having a model with an engine. The body used for that is not relevant to the production & sale of the vehicle. Consumers will get an electric-only driving experience regardless. So what if the electric-only is short-range? You still get the full EV driving experience. I routinely see 0 RPM on the tachometer for the engine on my entire commute.

3-27-2018 Leadership, failure. How someone handles the failure of others is a sign of leadership too. Toyota can't do it alone. Neither can Tesla. Whomever it may be pushing to draw in a new audience, there will always be a point to which they realize doing it alone is impossible. GM never had an market for their small hatchback or their small wagon. Those plug-in vehicles were clearly design to appeal to outside buyers, to score conquest sales. Their own customer base didn't change. Those same owners of old traditional GM vehicles will replace them with new traditional GM vehicles. Status quo remained the same. That's not leadership. Recognizing that and providing the means to change is. We are witnessing Toyota and Tesla do exactly that. Hyundai and Nissan are standing strong immediately behind them. It's a team effort. Breaking ground isn't the only task required; yet, it is the only which gets deemed leadership. The idea of each doing their own part to fulfill their own need to a concept beyond the grasp of the simple-minded. Each automaker must excel in its own way. GM's obsession with Pickups & SUVs meant it should have focused on Pickups & SUVs. After all, that's what Two-Mode was all about. We didn't like that obsession. But it was obvious from the start the effort to develop Volt did not have a sincere goal of changing their customers. There was a trophy-mentality right at the beginning of it all. It was doomed to fail as a result. There's no benefit from "*I told you so*" now either; however, that history does reinforce audience. Leading means understanding who you intent to lead.

3-27-2018 Leadership, semantics. It only took a few more comments being posted before he backed himself into a corner. The lashing out and belittling of Toyota came about from the Fuel-Cell investment. There are some who only want purity, a single choice for all. The idea of diversity is unacceptable. That one-size-fits-all belief is clearly alive & well still. So, anything that Toyota did was a step in the wrong direction, regardless of what it actually was. The example his sighted as where Toyota went astray was with RAV4. That EV was the solution... abandoned, in his mind. Only problem, his argument took on the purity requirement. The vehicle had to be built for the sole purpose of being an EV. No conversion of any type was acceptable. Oops! He contradicted himself. I jumped in by pointing out that neither Honda Clarity nor Hyundai Ioniq would be acceptable based on his criteria either, despite both being pure EV. Having a counterpart of any sort meant the automaker was really trying, it was an after-the-fact hack. Catch is, that has been proven untrue. Prius had EV ability way back in 2003. That's where the 100 km/h ability originated. But without enough battery to support that, the ability was never exploited. The tech back then was far too expensive, with energy-density far too low. So, we had to wait. The design was already in place for electric-only travel, hence the low speed & power ability Prius did deliver in the meantime.

3-27-2018 **Risk & Spin.** There are a lot of people online who are poorly informed, which results in their posts contributing to spin. It gets so bad sometimes, they become antagonists by pushing their incorrect perceptions so hard. That's quite remarkable to discover after having fought with someone so hard only to later discover what bit of information it was that they were not aware of. My hunch is this is one such example: *"Toyota is like Ford. They were on a path to be competitive in the future, then they decided they'd rather fall behind and risk destroying the company."* Lacking any type of economic, accounting, or marketing background makes such a statement easy to feel passionate about. Destroy? How? Pushing a product likely not capable of sustained high-volume profitable sales may look impressive from the autoshow presentation, but that isn't at all what a dealer will support. They couldn't care less about the engineering achievement. That business uncertainty is far too deep of a concern to take on the risk. So, they don't. They seek a more realistic solution instead. I put it this way: Changing their base from traditional to hybrid is a path to the future, one far more realistic than getting people to jump straight to EV. Think about how simple offering a plug-in model to the mix will be with the hybrid selling well. Remember, the true competition is their own traditional vehicles. In other words, you're not looking at the big picture for EV sales. The heavy dependence on tax-credits limits them to early adopters. Reaching the masses is far more difficult.

3-27-2018 **Lost Meaning.** What is leadership? Some don't put any thought into how change is actually achieved. There's an over-simplification. I see it a lot. This was an especially annoying stir. Having to face it, yet again: *"No Plug, No Sale."* When a slogan loses its meaning, you have a very real problem to deal with. The mantra becomes a disconnect. They say it, but don't understand its purpose. For that matter, you usually can't even get the person saying it to explain their own intent. The devil is in the detail. Ask for it. Most of the time, that ends the discussion. They really don't know. In this case, I followed up with this perspective: NPNS is itself antique. It's so vague, there's no value. Meaningful comment come from specifying detail, like price or range. The variety of offerings a plug can provide makes understanding goals vital. In this case, a worthy hybrid offering sours appeal for transitional models and paves the way for plugs. Again, the most difficult step is the one away from transitional. Going from hybrid to plug-in hybrid is much easier.

- 3-27-2018** **Perception.** The idea of what leadership can be continues to suffer from the simple-minded, those believing only one path to success exists. Ugh. RAV4 provided a great example of that today. Toyota revealed the next-gen upgrade today. A number of plug-in supporters threw a fit, complaining about how Toyota isn't investing in EV production. Naturally, they turn to fuel-cell advancement as the primary argument. It's amazing how that lack of support for diversity blinds them to all the work being done to replace traditional choices. They couldn't care less about hybrid, despite that being such an obvious big step away from guzzling. That NPNS mantra overwhelms logic. They only perceive progress by a measure of how far EV capacity reaches. Change for ordinary people not needing or even wanting such range is not of any concern for them. That's really unfortunate. It's how we got into the SUV mess in the first place. If people in general actually cared about wasting resources, they certainly wouldn't have chosen that vehicle type. But they did. And rather than face that reality, they turn a blind eye and place judgement against Toyota for actually addressing it. Ugh. What can you do other than point out what's happening? I try: Notice how many SUVs are sold by GM; yet, there is still nothing beyond the traditional choice? No plug-in. No hybrid. What expectation should be set for an automaker with a perceived lead, but nothing actually revealed for their primary customer?
- 3-27-2018** **Cost Effective.** Lack of business understanding often leads to over-simplification. How to best deal with that continues to be a mystery. It's challenging to get someone to recognize something they have been overlooking for years. That's what makes exchanges online turn into intense debates which ultimately can lead to hate. They just don't believe you. Without training in the topic, it's nearly impossible to convey the idea. Then when you consider the brevity of posts in forums & blogs, the odds of getting someone to see beyond their own exposure falls apart. It's pretty much futile. This is why concepts like being cost effective fall on deaf ears. They see a niche effort and give far more praise than it actually earned. That's why they insult & offend those that don't make advancement obvious. Those efforts behind the scenes aren't ever given credit. Only what's showcased is acknowledged. Appreciation for the complex doesn't happen. It's a sad reality. They judge the book by its cover and don't see the value in anything else. So, a rebuttal like this is basically a waste: Scaling up existing production is quite different from not producing at all. Any type of plug-in requires motor, battery, controller, and charger parts to be built. Refining that process prior to scaling up is time & effort well spent.

3-28-2018 **Meritless.** The title of this article sure caught my attention: "*Hyundai IONIQ Leaves the Prius in the Dust.*" To what was that referring? The opening line made me even more curious: "*Hyundai's extended-range hybrid proves the automaker knows more about EV technology than Toyota does.*" Huh? I was really baffled at that point. Knowing the source, it was promising to be a good read. That was posted on the Volt forum, since that old blog is totally dead now. The supposed new daily topics never happened. Perhaps the interval will change to something like once per week. Whatever the case, that group of individuals would surely tear that new fodder to shreds. So, I read the article before reading their comments. Nothing. There was literally nothing of any substance. It lacked any type of merit whatsoever. The detail seemed to be a strange mismatch of specs. It was quite confused. How should such a bold statement lead to such nothingness? Turns out, that article was written over 2 years ago... prior to rollout. The writer was just guessing and totally mixed up information. The comments posted were just as confused. Their lack of any unified message was obvious. Still, after all this time, they have nothing to fend off Prius with... even when dragging another automaker into the discussion.

3-28-2018 **New Combat, Old Foe.** The death of the Volt blog has caused some to migrate, looking to resume their antagonist trolling elsewhere. Oddly, they don't even try to blend in. Their provokes are blatant. So, I'm left with the quandry of how to respond. What worked best in the past was direct confrontation in the form of a question. Today, it was attacking Toyota for not having rolled out an EV yet. The fact that the other automakers, including GM, have all announced plans that are 18 to 24 months out doesn't matter. The fact that Toyota has been investing heavily to shift from traditional to hybrid doesn't matter. The fact that there's still a heavy dependency by the supposed leaders on tax-credit subsidies doesn't matter. All they care about is making Toyota appear behind. It's just like using me as a scapegoat. If they can direct attention away from their own problems, it makes them feel better. What a shallow & selfish attitude. It doesn't matter to that. Winning new combat of any sort, especially with an old foe, is considered a victory. Ugh. I kept my reply to that nonsense short: What do you suggest for quickly phasing out traditional vehicles on the grand scale? Think about the effort needed to first spread TNGA (Toyota New Global Architecture) in order to achieve the lower cost, higher volume potential.

3-28-2018 **Timing.** The poorly informed... or limited perspective... are not just antagonists. Some are supporters who don't bother to study the whole situation. They prefer just their own little corner of the world. Interestingly, they do reach out sometimes: "*So how many states is prime currently carried in?*" Asking questions is an encouraging sign. Of course, I don't know how that information will be interpreted. Nonetheless, I shared the knowledge:

2017 model-year cutover prevented the initial spread from growing. You don't send new inventory to dealers at clearance time.

2018 model-year rollout is impaired by the usual winter sales doldrums. You don't send new inventory until spring arrives.

It's all normal business. Profit is not made with unpredictable deliveries.

Keep in mind the first-year rollout was worldwide. Toyota delivered 51,000 spread across several major markets all at the same time.

3-28-2018 **Audience.** It continues to be quite a challenge trying to figure out if someone is sincere or not. When there is a person who hides behind an avatar, there really isn't any reason to trust them nowadays. That's why so many of the blogging sites have switched over to account signon. It doesn't matter which of the providers you choose for handling your posting activity. The point is to supply readers with background information about you and a means of following your comments. That accountability is priceless. It raises the integrity of the site as well as reinforce rules of etiquette. You simply cannot hide behind anonymity anymore without that effort looking suspicious. That's why when things like audience are brought up, it doesn't make sense that someone you see posting on a regular basis wouldn't understand what you are talking about. How many times can the same message be repeated? It's ok to call them out. The internet no longer finds deception, misleading, or concealment acceptable. Even so, I still try to be polite: Wow, you haven't been paying attention. Knowing your audience is all about consumer, dealer, and automaker relations.

3-29-2018 **Banning PHEVs.** The first city in the nation to ban plug-in hybrids from public chargers just made the news today. They only want EVs to recharge. If the vehicle has an engine for when the battery-pack is depleted, they feel it should be used. That counters exactly what we've been trying to promote. Even a short-range PHEV can drive entirely without gas if given the opportunity to recharge along the way. Why should a vehicle with greater capacity be allowed priority, especially if it isn't even going to be driven that far? Who should be making such an arbitrary choice? Absolutes like that are trouble. Worse though is that reality that true supporters of plugging in have failed to address this... despite knowing that diversity is key to market growth. Ugh. I jumped into the very active discussion today with:

I see a lot of complaints about vehicles with slow charging rates. I also see them about small battery-capacity. Notice how no one wants to address the next stage in being green?

Some plug-ins guzzle electricity. It's a very real problem when you step back to consider the bigger picture, when many are waiting to charge and time is limited. Why should those that waste be given priority to recharge?

31 kWh/100mi = 25 kWh/100mi

That equation is detail revealing the problem, because those electricity consumption-rates can make a big difference. They are not equal. Taking more to travel the same distance becomes an even worse problem when you consider the next person in line waiting to plug in.

This is why EVs are great for us enthusiasts, but still not quite ready for people still quite content with traditional vehicles. We need to work out these issues before they give a plug-in purchase some consideration.

3-29-2018 **It's Over.** They certainly are trying. The EV blog posted a review on Prius Prime and the troublemakers immediately emerged to do their best to undermine. I didn't bite. There's no reason to even bother. Volt is withering on the vine now, without any clear purpose anymore and subsidies about to fade away. It's really unfortunate the tech wasn't diversified. So much for the supposed leadership. Anywho, unwilling to play their game, I posted: Reading those same old attempts to degrade & belittle plug-in Prius over the years has been quite interesting. It's an exercise in futility. They don't understand the audience. As enthusiasts, they feel necessity for range & speed, placing that as a very high purchase priority. Ordinary consumers don't. They just want a well-rounded vehicle... reliable, affordable, with a nice mix of features. Toyota recognizes this and strived to deliver exactly that. They targeted mainstream consumers, as they clearly stated during the rollout. The couple looking to replace their older Prius and no longer have the young children have a compelling choice. You don't like Prius Prime, just wait for the other plug-in hybrids. There are a number which could also offer a Prime model. This isn't rocket science. It's an expected step forward in the phaseout of traditional vehicles.

- 3-30-2018** **Almost 1 Year.** Ownership in all 4 seasons, which are quite pronounced here in Minnesota, is almost complete. 1 day left until its first year anniversary. 16,292 miles on my Prime so far. 102.6 MPG average, which includes the nasty cold in this northern state and 2 trips to Wyoming each over 1,700 miles (mostly 80 mph travel and no plugging in). That's a solid real-world result, an easy to understand step-up from regular hybrids in an affordable package. We are at the threshold of that paradigm-shift becoming noticeable. The technology for plugging in is well proven. This next stage is delivering affordability. Toyota is pushing that message hard... and taking a lot of flack for it, from early-adopters with no concern for tax-credit dependency. Fortunately, we have Hyundai coming in close behind with their own affordable offerings. That endorsement is vital. You need choices in the market all sending the same message. That's why there was so much hostility coming from the GM crowd. We witnessed 7 full years of their don't-give-a-crap attitude toward affordability. There was much talk about cost-reduction, but none of that translated to a sticker-price appealing to ordinary consumers. So, it's up to those like me already driving the solution to share their experiences. Being able to report such remarkable results after a full year of ownership is very exciting. Hooray!
- 3-31-2018** **Daily Dump.** The death of that daily blog has been a severe blow to antagonists. They had a venue to dump their rhetoric daily. Every morning there was excitement about the opportunity to refine propaganda material. Then at the end of the day, the thread would be abandoned. It was a seemingly endless cycle of undermine training... which finally came to an end. Hey, when you don't have a product capable of speaking for itself, you speak ill of the supposed competition. Quite a bit of hate emerged from those Volt enthusiasts. Thank goodness their collapse emerged from within... exactly what I warned them about for years. GM struggled with internal conflict prior to the bankruptcy. Seeing signs of that approach still existing afterward should have been taken seriously; instead, their mindset was to pretend all was going to be just fine. That fundamental mistake has cost them dearly. Bolt represents the ultimate antithesis to Volt. That's left them completely defenseless. Their own beloved GM turned on them. All that anti-EV campaigning forgotten for what? Volt seems to be abandoned entirely. No message of the technology being used elsewhere has emerged. Bolt appears to be leading the way to an all-electric future, one where the idea of "*range anxiety*" is solved by just having a larger battery. It's so hypocritical, the enthusiasts are at a complete loss about what to do next. There are no steps forward. It's a dead-end they got to on their own with all that AER propaganda. All-Electric-Range was self-deprecating. Oops!

- 4-01-2018** **Easter Egg.** Since today is April Fool's Day, Easter Sunday, and my 1st Anniversary with the Prime, I've been hoping for some type of surprise. I got one too. It's not mind-boggling. It's actually rather obvious. I hadn't ever given it any thought though. The HD radio has a 15-minute buffer. Being digital, that makes sense. You get the ability to rewind or pause what you are listening to. Since I rarely ever get calls on my phone, the idea of that feature applying to it hadn't crossed my mind. Today though, I witness it firsthand. The radio suddenly went quiet, a pause symbol appeared on the screen, then I heard the phone ringer. I answered (pulling over on the residential street was easy) that call, then hang up when done... all using the buttons on the steering-wheel. When the connection ended, the radio automatically resumed exactly where it had stopped. I pulled up buffer info on the screen. Sure enough, it was just like when you pause a DVR. I could pick up exactly when I left or jump ahead back to the live broadcast. Sweet. I'll count that as a "easter egg", since the feature would be something you'd need to hunt for. It's a stumble-across ability, rather than being an obvious benefit.
- 4-02-2018** **EPA Rollback.** I'm seeing a look of advertisements now for Terrain. That's the next size larger SUV from GM than Equinox. It's a beast, yet they are presenting it as an everyday vehicle. The next size larger than that is the Suburban... which delivers a combined estimate of 18 MPG. Labeled as a "*family hauler*", there's no doubt of the obsession with size & power. The minivan and van are dead, family haulers long forgotten. Brainwashed into thinking a 355-horsepower 8-cylinder engine is necessary explains why the EPA finds the idea of rolling back the efficiency mandate so easy. Who is going to oppose when such a large voice in the industry is praising giant guzzlers? We are slipping back to conditions over a decade ago, back when few cared about oil dependency or clean air. It is sickening to find out some people just plain don't care. This is why I was so hard on the Volt enthusiasts. They were naive, they argued with hostility claiming this could never happen. Yet, here we are... facing several enemies so selfish, they couldn't care less what our children inherit. Even though we had the technology to prevent financial, political, and environmental struggle, we chose not to use it. Ugh.

4-02-2018 **Lost Now.** Those antagonists from the dead daily blog have no where to congregate anymore. Each is trying to stir trouble on new venues. It's not going well either. We're calling those efforts out. For example: *"battery technology moved, today's is cheaper to have a big pack of low-cost low-power cells than a smaller pack of fast charging cell"* It was an attack on Prime. They despise the idea of sharing public-chargers... knowing benefit is greater the smaller the size of the battery-pack. That gain from a short recharge while stopped at the grocery store is greater for Prime. In just 10 minutes, I can get from my local shopping lot to home entirely on electricity from time I was there. Efforts of those enthusiasts-gone-bad were to never arrive anywhere without electricity available... making the gain from recharging far less than what Prime would experience. Again, this is more self-deprecation they are now suffering from. They shot themselves in the foot with their choice of how to promote Volt. Big Oops! Oh well. Too late now. Being dishonest about the circumstances only makes it worse. I called him out on it too:

Without actual data, there's no reason to believe that claim. The devil is in the detail. There are tradeoffs, not a single factor to making the decision. For example, that claim of *"with at least 40 miles of range like the Gen 1"* was very misleading with so much detail excluded...

2011 = 35
2012 = 35
2013 = 38
2014 = 38
2015 = 38

Notice how none of the model-years ever actually delivered 40-mile ratings. During the warm months, 40 could indeed have been delivered. But in winter, not even close... and heater type makes difference, a factor not mentioned anywhere.

Notice how vague GM's statement is? They thrive on ambiguity, releasing information that really doesn't tell you anything specific.

In other words, read with care and look for what's missing.

4-03-2018 **Sales.** As expected, the fade away of the Winter doldrums has resulted in a climb for all. Prius Prime did especially well, despite the fact that inventory is almost exclusively limited to remaining 2017 models in the half of the country rollout reached last year. Soon, we should be seeing new inventory elsewhere. That means the potential goes up significantly... while we see the enigma known as Volt. What GM intends to do next is a complete mystery. We just got word that sales results will only be posted quarterly now, rather than monthly. That's quite a change for an automaker which thrived on those numbers, feeding the stockholders with hopes of profit dividends. But with Volt only selling at the volume it sustained back when gen-1 was struggling, there's little hope for gen-2. All those improvements didn't lead to the much needed growth, prior to tax-credit phaseout. We all know the situation will become far worse when that generous subsidy vanishes. The guess is Volt will too. After all, GM other message today was that Sonic production will end and Impala is likely to be phased out too. The preference of GM to only sell Pickups & SUVs is rather blatant now. That puts Bolt in a very awkward position. It also puts Toyota in a interesting situation. They can exploit that American desire by pushing the hybrid RAV4 even more. That sets the stage quite nicely for a Prime model. Anywho, we see the Prius with the plug doing well with a very encouraging outlook. 2,922 for the month of March was great. The 4,128 for RAV4 was impressive too. (4,064 for the regular model Prius.) But what really stands out is the non-hybrid model of RAV with 34,937. It's an incredible volume, especially with Camry drawing 35,264 at the same time. 31,392 for Corolla is nothing to overlook either. It puts some perspective on the challenge still faced for mainstream acceptance of anything other than traditional choices.

4-03-2018 **Overdue.** The end is being ratified by former enthusiasts: *"GM definitely needs a Volt-based PHEV in the lineup. Either replacing the Volt outright or offered along side. Chevy Trax, Equinox sales numbers were the best they've ever been last month. Even taking a small slice of those sales with a CUV/SUV Voltec vehicle would immediately launch it to the top of the EV sales board."* Their disappointment is obvious. That nasty Prius owner who kept sounding off concerns about time wasted and opportunity missed has been overwhelmingly vindicated. It's really unfortunate they fought the wrong battles. Losing the war as a result hurts. I don't feel bad. The hell they put me through... and I ended up being correct. All along, I kept saying diversity is was necessary. They feared that would dilute the message, impeding any progress that could be made. Talking about learning the hard way. There is still a glimmer of hope. All is not entirely lost. Though, it is a new war they must fight now. The early-adopter audience is gone. This new audience consisting of mainstream consumers is far more difficult to sway... especially when there won't be a tax-credit available. There are major challenges to still overcome as a result of past mistakes. Oh well. All I can do at this point is agree with their sentiment: Yup. Offering something in CUV/SUV format will draw upon a large potential market. The idea that there's a market for a compact hatchback still, especially with the upcoming tax-credit phaseout, is futile. Everyone who wanted one got one. There's nothing left to prove for the technology. With the obvious demand for Outlander and seeing the potential with Niro, it is time for GM to focus on mainstream shoppers. A larger vehicle is overdue.

- 4-04-2018 Perception.** It's a powerful element. Used for undermining, it can tell a story of struggle & loss. Used for promoting, it can convey a sense of hope. What ultimately gains attention is the presentation of detail. For example: *"For how well Toyota generally designs things, adding a battery here seems like a total after thought. I need to be able to throw a bike or dog crate in back there."* In this case, that doesn't even need to be numeric measure. Numbers aren't always necessary. Sometimes, all you have to do is present more facts. For the reply to this, I just supplied more information by sighting what others can easily observe... if they take the time. Give it a try by simply posting what hasn't been discussed. Remember, perception can be altered by excluding detail. See: That's just online spin. They don't want you to recognize the possibility of an upgrade for this current generation. We know with certainty the approach was cost-savings, to provide a robust battery sooner that it would take for the next round of chemistry updates to be delivered. Like with several other plug-ins, it is realistic to rollout an improvement mid-cycle. As for throwing in a bike, you can. There's plenty of room. And for dog crates, a medium would fit fine in the area where the seats fold down. You need bigger, you buy the bigger Prius or RAV4 when it is later offered with a plug. Heck, the C-HR could work too. In other words, there's no reason to portray this first offering as an end-all-be-all solution.
- 4-04-2018 Slow & Small.** It didn't work. That line of argument failed to reach beyond that of early adopters. Yet, some enthusiasts keep trying: *"The slow as molasses and small battery factors have been my major issues with the PP. Wish Toyota would get more serious about PHEVs/EVs."* I wonder how much longer that will continue. There is no audience left for that anymore. The active discussion venues have very different priorities. History is on the side of mainstream consumers too. It's very easy to dismissed efforts which failed to reach them, especially after so many years of trying. I fired back at that nonsense with: Toyota is much more serious than the spin using *"slow & small"* as an excuse. Unlike GM, they took COST very seriously, building a flexible platform that could offer a PRICE low enough to compete directly with the true competition... traditional vehicles ...even without a tax-credit. Of course, anyone paying attention knows that size & power was never the key to success for Prius anyway.
- 4-04-2018 Cannibal.** They keep trying. When one topic fails to stir interest, they try another. Now, it's the attempt to portray Toyota's transition from hybrid to plug-in hybrid as an accidental oversight... which makes sense to them, since the claim of Bolt replacing Volt is the narrative they are now telling. That doesn't make any sense though. Why would GM simultaneously develop gen-2 Volt and their gen-2 EV at the same time? That's a huge waste of resources, one that cannot be addressed without being hypocritical. So, they try to divert attention. Ugh. It would actually make sense if that next-gen Voltec had been on a platform GM's own customers would be interested in... like a small SUV. It wasn't though. The same conquest audience had been targeted instead. Again, what a waste. At least Bolt offered a tall rear-seating area.... like a small SUV. Anywho, it should be easy to see how Toyota will be able to offer a Prime model of Camry and RAV4. Both are strong hybrid contenders with lots of potential for supporting a plug. That's progress, not cannibalism. Oh well. They can relish in their fictitious victory. I'll keep asking why their claims don't support what we are actually seeing: Planned progression is not *"cannibal"*, since offering a plug is the next logical step. That's quite a contrast to GM, where Bolt is the antithesis of Volt. Remember all the *"range anxiety"* promotion?

- 4-04-2018** **Losing Money.** I was delighted to see this called out: "*They sell it at a loss...*" That nasty antagonist constantly trying to mislead about Toyota continues with his meritless claims. Others are taking notice: "*Do you have evidence as to your assertions or are you just blowing smoke as to Toyota?*" Knowing how dishonest he has been in the past, it's obvious he doesn't have any evidence. It's nothing but a desperate act of repeating the same claim over and over again until it is accepted as the truth. When people continue to hear the same message, they tend to not question it. That's how you normalize an extreme. It works with dishonesty too. That's all it really takes to mislead when the venue is loaded with enablers. Of course, all it takes is a few to question credibility of the statement itself. You can talk about that antagonist in the third-person for extra emphasis. I did too: After being asked countless times over the past few months, he obviously has no evidence. In fact, he hasn't even bothered to provide any reasoning as to why you'd even doubt profit. Toyota produced and sold 51,000 Prime worldwide last year. Most of the inner working are the same as the regular model of Prius. Basically, just swap batteries and add a clutch & charger.
- 4-04-2018** **Competition.** Rewriting of history usually takes place when the person disliking that reality chooses to misrepresent it with an alternative of their own. They seem somewhat credible by twisting facts and omitting vital detail. In this case though, it was just flat out dismissal: "*The original Prius never had any real competition...*" That complete absence of any effort at all to even try was good reason to punch back hard without any interest in rebuttal... which I was delighted to do: That's a load of garbage. Competition against Prius was intense. There's was what became dieselgate, efforts to mislead about Prius by promoting diesel through dishonest means, on one side. On the other, there was GM with it's anti-hybrid campaign pushing Hummer with the backing of a \$10,000 tax-credit. Nothing in support of battery or motor propulsion had been proven yet either.
- 4-04-2018** **Just In Case.** The double-standard from an antagonist now disenfranchised: "*It really feels like GM wants to have enough experience that if a rival suddenly starts building an EV in large numbers and starts to take market share from GM, then GM will build a car that people really want.*" Seeing the same of Toyota is impossible for them, even though we see that effort being pushed even harder. Knowledge of how Toyota architected powertrains based on TNGA and is pushing hard to get that deployed throughout the fleet, it should be obvious. That lowers cost across the board and refreshes virtually all of the high-volume offerings. Combined with the experienced being gained from Prime/PHV advancement, there shouldn't be any conclusion draw other than it be preparation to start building large numbers. Yet, that is what we are dealing with still. Their stance is remarkable; however, it is not surprising. They've always had the choice of what to accept. Seeing this attitude shift is confirmation of that. Rather than actually achieve mainstream sales as long promised, they are preparing to do so. That is a recognition of problem they had previously denied. Claiming a just-in-case approach means affirming there was a need to better understand audience after all... since what was delivered clearly didn't appeal to those consumers... those shoppers at GM dealers.

4-05-2018 **Already, competency.** Was this an attack or someone woefully uninformed: *"Toyota needs to focus on batteries and battery technology IF they want to complete. In terms of business this is what would be considered a lack of a core competency."* It is still very difficult to tell on that general audience venue. Unlike the daily blog for Volt when you knew they just wanted to belittle Toyota, intent is far from certain here. So, I jumped into the discussion with: Prime already delivers a full EV driving experience. You can go up to 84 mph, complete with electric heating & cooling. Camry delivers a more powerful motor. RAV delivers all-wheel drive. That core is clearly being addressed already.

4-05-2018 **Already, disagree.** The response was dismissal. But was this an attack? I still couldn't determine intent: *"I disagree. A plug in hybrid is very different than a pure EV. The battery parameters as well as the electronics have to be redesigned."* My hope was the poster was simply naive about the design, making incorrect assumptions: You cannot disagree with a fact. I can pull out onto the highway and maintain a cruise at 80 mph, even with the heater running... never using any gas. It's all electric. Those behaviors of Prime are like a pure EV, period. Assuming the hybrid system wasn't designed to do that is your mistake. You overlooked the redesign that already took place.

4-05-2018 **Already, why?** Nope, still unknown. However, it did appear that his measure of progress wasn't technical. It seemed more just a generic assessment based on whether or not the vehicle had an engine still. This is what summed up his soapbox sermon: *"Then why does Toyota NOT have a pure EV out to compete with Tesla?"* I climbed up after he was done:

First, you failed to acknowledge that oversight. Again, you cannot disagree with a fact. Prime delivers EV driving. Period.

Second, the answer to your question is another fact. Toyota has a very different consumer base than Tesla. Their consumers purchasing Corolla, Camry, and RAV4 couldn't care less about a \$35,000 vehicle. They simply don't want to spend that much.

Know your audience.

Third, we will be getting more plug-in choices from Toyota in the next 2 to 3 years. In the meantime, they will continue to rollout TNGA and use Prime to educate dealers, salespeople, and consumers.

Keep in mind, legacy changes are far more difficult than the low-hanging fruit Tesla has been enjoying. It's all about producing millions of vehicles per year, not just appealing to eager early adopters.

4-05-2018 **Already, uninformed.** Turns out, he really didn't have any idea what he was talking about. His assumptions were that the design was a heck, the same as the aftermarket upgrades we saw a decade ago. It makes me wonder if the Volt antagonists were really just too stupid to realize they made the same mistake. Being clueless for at the beginning of a discussion is one thing, but holding onto that false narrative for years is entirely different. So, I went for clarification:

Interesting. You genuinely don't know what a Prime is. Those assumptions are incorrect. I'll have to re-evaluate my approach. That description of what Toyota's plug-in hybrid system is perceived to be is quite different from what they actually delivered.

Prime uses a PSD (power split device) designed to offer much higher RPM and is connected to a secondary PSD in place of a reduction-gear. Combining that with a one-way clutch allows it to deliver an EV experience at all speeds, without sacrificing electric-only efficiency.

That is very, very different from the hack years ago that aftermarket providers offered. Their design simply added battery-capacity, without allowing more power & speed like Prime does.

Prime also offering high-speed DC recharging. In Japan, the CHAdeMO option is available. Prime also uses an electric heat-pump for cabin warming, a more efficient option than what some EVs employ.

In other words, Toyota was able to deliver a redesign without you noticing. That's how a paradigm-shift takes place, when it is so subtle, the change gets overlooked.

4-05-2018 **Already, thanks.** Sure enough, he really didn't understand. My patience... and apparently just the right amount of push... managed to draw attention to his mistake without causing embarrassment. So, he didn't take offense. Instead, I got a thank you. Phew! It's always a risk. You don't want to create a new enemy, especially when you know how long a grudge can be held. Some of those Volt enthusiasts remained angry at me for years. But I had to do something. Whether you are trying to stir a misconception or you are just an enabler of it, that's very real damage to the market. Potential is lost when incorrect information is spread. In this case, he was wrong about how Prime operates. I pushed to find out why. My reward for doing it judicially was finding out how to approach future encounters like this. It's how misconceptions are squashed. You must find a way to overcome them. It takes effort and sometimes things take a turn for the worse. In this case though, it worked out nice.

- 4-06-2018** **Already, observations.** It didn't take too long after that to confirm the problem was conclusions were being draw on nothing but anecdotal observations. No substance behind the claims made confidence for eliminating doubt solid. That belief of Prime being just an after-thought matched up with what the Volt enthusiasts believed. They didn't understand what had actually been delivered either. Their assumptions had also been based upon design from long ago. That's what happens when you don't actually read what's posted, when you brainlessly negative vote information to hide it. This is where that label of "*deplorable*" originated. You can't just turn a blind-eye to what displeases you. Pretending there isn't an issue doesn't make it go away. Yet, those die-hard GM supporters did exactly that. Volt was "*vastly superior*", as they exclaimed over and over with the hope that you'd never question how that was achieved. More range & power was all you needed to know. That fact that Toyota strived to deliver something affordable was meaningless, as far as they were concerned. That's how why we encounter such naive beliefs elsewhere now. Fortunately, that reality if tax-credit dependency is making itself known even without much effort now. The venue for breeding antagonists is dead. Now, it's just an effort for Prime supporters to get word about what Toyota has already done. Squashing misconceptions isn't easy, but success with others of the past ultimately happened. We just need to keep repeating detail of the design. I'll continue to provide that information with video. Another is on the way.
- 4-07-2018** **2018 Inventory.** Exactly as predicted, anticipation has been replaced with confirmation. Phew! The new model-year (2018) is being delivered to regions that didn't carry the previous model-year (2017). That always made sense. You don't introduce a new product during clearance time. It's a logical approach to sound business. Passionate emotion must be replaced with sensible patience. Now that Spring is just about here (4 to 6 inches is forecast for tomorrow, but a week from now temperatures should reach the 50's), it makes sense ramping up sales. Before that, you just don't get many shoppers. No one wants to deal with the mess. Even test-drives are a challenges when it's still cold & wet. I did a quick such. 9 dealers had a total of 42 Prime freshly delivered or scheduled to be. That's a very thin spread, especially when you take into account the big Toyota dealer a few miles from me don't have any inventory yet. Rollout is usually slow. Dealers & Salespeople need to become accustom to the new offering. With Prius, that often comes in the form of well researched consumers leading the way. They study the material provided by early owners (like me!) who share their real-world experiences. Each generation has seen great success with that approach. Interest grow as inventory climbs... right on schedule with Toyota's sound business plan for sustained & profitable high-volume sales. Woohoo!

- 4-07-2018** **Outright Lies.** There are a few Volt enthusiasts who hate Prius so much, they'll just outright lie about it. To make the claim really stick, they'll make the situation sound as if you're getting called out for being dishonest. Here's the entire quote I was faced with today: *"Defog isn't defrost. The fact that you think blower air clears just fine means that you are making excuses for something that is incapable of doing. In Northern California, the winter is rainy and foggy. That means every time it rains, the defogging is needed. That means the engines starts in the daily rainy weather for about 6 months of the year!! Stop your spin!"* That came after a folly of posts attempting to belittle & misrepresent Prius Prime. There's a very real resentment for EV abilities that Toyota vehicle delivers. Exceeding Volt in several important regards makes the antagonist desire to insult range & power quite difficult. Prime's efficiency & affordability is more important to mainstream consumers... and they know it. So, posting lies about how the system works is what they have resorted to.
- 4-08-2018** **Called Out.** My rebuttal was terse, yet polite. I really wanted to make the point but without pushing too far. It was an effort to educate, not to offend. I want to avoid a repeat of this same encounter elsewhere. Making the video a clear source of contradiction to his claim will hopefully squash the obvious attempt to mislead. This is what I posted, along with a link to the video itself: I am pointing out facts with detailed captures of real-world driving. When someone makes a claim that is false, attention will be drawn to prevent the mistake from being spread. That footage & data clearly shows under those conditions the gas engine is not required and was never used. What started as an incorrect assumption will not be allowed to become a misconception. The 18.7 mile drive in that video was at 32°F in very wet conditions. You can clearly see the snow falling and the air quite moist; yet, there is no fogging whatsoever using the regular blower. That MAX mode simply is not necessary.

4-07-2018 **Video: Early Spring, Winter Returned.** This is what I published... [Prius Prime - Early Spring, Winter Returned](#)

Squashing misconceptions is an important part of Prius history. Having video available to counter the intentional spread of misleading claims is essential.... which is exactly what this particular footage provides.

On the dashboard of Prius Prime is a dedicated button for clearing the windshield of moisture. When pushed, it will engage the MAXIMUM mode for the blower. This starts the gas engine, since your request was for the fastest and most powerful means available.

If you don't need MAXIMUM clearing, you just use the regular window blower option. This is the feature included with all the other settings on the Climate-Control screen. The key difference between this and the dedicated button is it will not start the gas engine. This option is entirely electric.

Those individuals determined to undermine the success of Prius Prime will lead you to believe an electric-only option is not available. When confronted, they'll claim the feature in Climate-Control is not effective in cold & moist conditions.

This video features those very conditions, an extremely wet commute to work with the temperature at freezing. Watching the detail provided very clearly shows the gas engine is unnecessary, that the entire drive was exclusively with electricity and at no time was window clearing ever an issue.

To those dishonest about how the plug-in hybrid system works, you now have this video to prove you wrong and expose your attempts to spread a misconception.

And for those who took the time to read this entire comment, yes, that is indeed a Tesla Model 3. By lucky coincidence, this filming just happened to be my very first sighting of one. I was thrilling to have the camera capture that moment.

4-08-2018 **New Audience, New Document.** It is somewhat surreal promoting Prime. The mainstream market is basically clueless about plug-in vehicles, just like when Prius was new. The first generation hybrid model went almost completely unnoticed. Sound familiar? That's the same way PHV was. Now, we see this newest generation about grab the attention of ordinary people. Most won't purchase one though. Just like with the no-plug generations, it won't be until the next that takes the market by storm. That's the natural progression of technology. Each audience has a very different approach to adoption. In this case, many will accept the idea but not embrace it until an upgrade comes along. That may not necessarily be a Prius either. We could see the first really big seller as a RAV4 or C-HR here. Cars simply aren't that much of a draw now. Of course, that doesn't mean Prime won't sell like hotcakes. It just means the other offering will be even more popular. That's what is leaving me scratching my head about next steps. It seems as though I should focus more on the concept rather than the vehicle, creating a document for the technology rather than a true user-guide. There's much to teach, lots of opportunity to share, an entirely new audience to inform. Thankfully, I don't have to do it alone. There are many who like to contribute ideas. That's what makes the gatherings so fulfilling. In-Person exchanges are very insightful.

4-08-2018 **6 Minutes.** That was the extent of my stop to get coffee from the Starbuck's in the grocery store. Parking in front at one of the charging-stations makes a quick in & out possible. I get enough of a recharge to travel the remainder of the distance home using only electricity. In just that short amount of time, the charger sent 0.3 kWh to my Prime's battery-pack. That's roughly 1.5 miles of range. The drive to my house is half that. Since we often stop there to pick up something fresh for dinner, that EV opportunity is especially nice after having driven well beyond the pack's capacity. It's also a nice top-off during peak hours, when I'd pay a higher-rate. Instead, it's free while shopping. That's an effective way to attract business.

4-08-2018 **Video: Commute Home (Ultra Cold).** Archived long ago. Shared today... [Prius PHV - Commute Home \(Ultra Cold\)](#)

This is footage & data collected years ago from my Prius PHV, but never published. It was a very busy time in my life then, so the approach was to save what I could for use later.

This drive was the commute home, to the old house on an extremely cold Minnesota evening. This plug-in generation didn't have a battery warmer, so efficiency in such low temperatures was really a statement of impressive design. The system worked very well.

This is one of my more complex captures, where I used an ODB-II reader to save data for visual presentation. Each passing second wrote data to a file in spreadsheet format. From that, I converted the numbers into image frames to combine with the window & dashboard video.

It turned out really nice; though, the cameras available back in 2014 weren't as good as what I use now with the Prius Prime.

4-09-2018 **Traction-Control Off.** I never believed in spinning tires wildly to get out of slippery snow. It leaves a streak of ice behind for the next person who encounters that same spot. Why would you knowingly do that? To make matters worse, it hard on the tires. If you get out and look at the location afterward, the snow will be sprayed with a light layer of fresh rubber. That's why having a means of disabling traction-control wasn't ever any interest to me. Nonetheless, that button is available in Prime. No magic override from an option on a hidden maintenance screen with this model. It's right there on the dashboard. So, I gave it a push. I hadn't all Winter and this was hopefully the last snow of the season... unlikely, I know, this is Minnesota. Anywho, the results were spectacular. The car went from having a solid grip on the road to swaying from side to side. The reduction to traction that had really surprised me. You don't realize just how much the technology is working to keep you safe until shutting it off like that. Whoa!

4-10-2018 **Threatened By Change.** His rant got surprisingly intense. Starting with dismissal, it became a defending of pride. Volt was better, period. Sales didn't matter. He just insulted all the Prime owners and moved on. That was intriguing. My focus is always on the automaker, not people who choose to purchase. In fact, I congratulate & thank owners of all plug-in vehicles. It's the short-sightedness that has always been the problem. If a choice for the masses doesn't emerge prior to tax-credit phaseout, there will be very real problems to deal with. Anyone who dismisses that is a barrier to success. After all, the goal is mainstream acceptance. So, who was this person hell-bent on taking me down? His attack pattern perfectly matched that of the past, just like what I dealt with from the EPA spin attacks. Coincidence? Nope. Doing some searches, I was able to confirm his id had recently been switched. With over 30,000 posts, it was easy to see how he feel threatened. This change is just like how the others from long ago fell. Overwhelmed with evidence of a paradigm-shift, his kingdom has fallen apart. There's nothing left to defend anymore. Seeing Toyota, Honda, and Hyundai/Kia take over is devastating. So, he finds a scapegoat to blame. Shoot the messenger with the hope that distraction will save some pride. It's sad, really sad. It's undeniable evidence of change too. This new chapter defines "*vastly superior*" as a vehicle capable of competing directly with traditional vehicles... not simply offering more range & power.

4-10-2018 **Looking Around.** It's becoming very difficult to not see change. Accepting what it actually is can be quite disheartening. That realization of it being an abandonment of cars expresses a clear indifference to emissions & consumption. We are at the precipice with EV rollout. Tax-Credit phaseout means that challenge to appeal to ordinary consumers will become much harder. Very few had been taking that situation seriously anyway. Now with the inundation of bulky guzzlers, we have trouble brewing. It is rather fortunate that those large bodied vehicles can more easily support a large battery-pack. But the cost will make the technology more of a reach to obtain. We know GM and Ford are actively moving away from smaller vehicles. It's when you have other automakers, like VW and Chrysler, staying silent there's a need to look at the recognized efficiency leaders... like Toyota. I see a ton of RAV4 and C-HR in dealers lots. Toyota is racing to establish choices that will appeal to the masses as plug-in hybrids. Camry should survive the SUV/CUV onslaught, but only due to it being the market leader. That makes the choice to make Prius Prime more of an upscale offering an obvious choice now. Those who thought that an absurd conjecture 2 years ago now have reason to take pause. It's beginning to really make sense. Honda's new Clarity is somewhat of a bulky beast itself... what Volt should have been. The much larger interior justifies the price. No smaller offering though. Thankfully, Hyundai offers Ioniq. They quickly diversified to both a larger sedan and a CUV. So, we do see targeting plug-in hybrids at the affordable size. Not many though. The same is true for EV offerings. Looking around, it's easy to see the cars are starting to become fewer. That makes the transition to electricity appear to be even more of a problem. But then again, tipping points can be reached faster when the journey to it is filled with carelessness.

- 4-11-2018** **2019 Refresh.** It sounds like a mid-cycle refresh for the hybrid Prius will be more than just a few cosmetic tweaks and some possible system refinements. The rumor circulating today is it will take on a look similar to Prime. That makes sense. There was much benefit to the polarizing look. But once its role was fulfilled, it's time to move on. Why must the entire product-cycle be squeezed into a 6-year span? With vehicles now being designed on computers instead of being craved out of clay in full scale, it doesn't make sense not being receptive to market feedback. If there's a trend to take advantage of or a shift in market desire, why not capitalize on it? You search for interest, then jump when the opportunity presents itself. That's why the computer design was adopted in the first place. That flexibility reduces time & resources needed to reach production. I see the refresh as a refreshing new trend. Why must a longer product-cycle still be required? After all, aren't suppliers looking for opportunity too? Not being able to plan the next year to chase an advantage emerging how money is made. You don't want to get stuck with a product facing a downward trend. Becoming the trend is far better. Somehow other manufacturers have been able to incorporate flexibility into their business approach. Why not automakers too?
- 4-11-2018** **6 Years.** Some still assume that's how long the first Prius was around. They have no idea there were actually 2 offerings within what they believe to be a single generation. That has come up several times just today alone, due to the 2019 rumor. I posted this in response: That misconception is an interesting one. It reveals much about the understanding/recognition of how generation is actually defined. What criteria do you use? Gen-0 (many programming languages start counts at 0, not 1) was the first 3 years. The following 3 were what we know as Gen-1, to account for the 6 people assume was all the same. That unknown past comes from only being available in Japan. It was a major update very few here knew about... the bumpers were gray, the screen wasn't touch, the engine had less power... but most significant was the battery upgrade, from "D" packaging to prismatic cells.
- 4-12-2018** **Genius.** I asked: How do you break a typecast problem, especially one on the magnitude Toyota faced with Prius? They have other hybrids, but no way to draw attention to them. 52 MPG from the new Camry is amazing. Most shoppers have no clue it even exists though. Giving Prius a standout look is a stroke of genius. It prompts the customer to ask if anything ordinary looking is available. The salesperson response is "*Well, as a matter of fact...*" There's a next-gen RAV4 hybrid on the way too. This is the classic negative-promotion technique, an approach proven to be very effective when you step back to consider the overall goal. After all, Toyota is working toward the phaseout of regular hybrid in favor of the plug-in model. Abandoning that polarizing look mid-cycle and replacing it with something that resembles the desired target makes the transition easier. It's a sensible method, which also earns a reputation of being responsive to market feedback. Rather than waiting a full cycle, the automaker responds with a refresh along the way.

4-12-2018 **Nope.** The spin about sales cannibalizing keeps coming up, but no one can actually back the claim with anything of merit. In fact, most only make their statement by omitting detail then don't like. They establish a narrative with just anecdotal observation. Most people don't bother to do research of their own. So, the message is usually just accepted at face value and passed along to others. That spread of any type of message with facts to support it is unwelcome. I interject information, ask questions, and disagree. Sadly, most don't take on the challenge. They just repeat the same dribble elsewhere. But at least its not totally without resistance-free acceptance: Nope, since that would imply intentional sales loss. What they did was take risk, pushing appearance to an extreme with the attempt of attracting new customers. Market growth is essential. In the land of SUVs all sharing a similar appearance, it was a logical step to go in the other direction. Keep in mind the goal of 5,000 sales per month is still pretty much intact.

4-13-2018 **Hybrid Option.** Some people are in agreement: *"I have looked forward to the day (and we're slowly getting there) when a hybrid drivetrain is just another option -- 4, 6, diesel, hybrid, and other variants."* Seeing that shared sentiment, I joined in:

- Camry hybrid
- Avalon hybrid
- Highlander hybrid
- RAV4 hybrid

They are all available here from Toyota already.

- Corolla hybrid
- C-HR hybrid

They are available already elsewhere. The entire passenger product-line is getting the hybrid option... exactly as Toyota has been targeting for 2020.

4-13-2018 **Daily Blog.** Every day in and day out, it was the same old nonsense. That daily blog kept the routine going for an entire decade. A new topic would be published at 6:00 AM Eastern, then enthusiasts would come out to feed on their prey. They would pound their chests and dump on all other plug-in vehicles until the day came to a close, then it would all come to an end. The topic would be abandoned. New attacks would begin the next day on whatever was published then. That cycle repeated hundreds upon hundreds of times. Unless you were paying careful attention, striving to see the bigger picture, the cliff they were racing toward wasn't visible. GM delivered a vastly superior vehicle, period. Nothing from any other automaker ever made any difference. Those enthusiasts would just spin excuses. Many became hypocritical. You cannot avoid facing goals for that long without them finally catching up to you. Their inflexible nature ultimately led them astray too. GM delivered Bolt. That basically killed Volt in every respect. Watching the battles from day to day made that clear. It was an enemy from within. Time had been squandered. Ironically, they rested on their laurels... the very thing they accused Toyota and supporters of doing. Each topic was a celebration of the past. Having no future become evident to even the most stubborn, eventually. Today was that day. Friday the 13th ushered in new topics, almost 10 full weeks later. Only a hint of what might come had been revealed prior to that. This was the full introduction to what the restart of that dead blog would bring. There were 5 new topics all at once. The site has become an ordinary news outlet! That place for antagonists to breed has vanished. Killing the venue that encouraged hate actually happened. Ownership was taken back. They want integrity to return. Being overrun by fanboy attacks is now just an unfortunate memory of the past. They made it quite clear too, by reaching out and asking for topics & purpose to be agreed upon. No where in those statements was anything about Volt superiority. To make matters worse for the troublemakers, people like me would have specific goals to refer to... which makes undermining, impeding, and misleading far more difficult... if not impossible. Needless to say, that chapter has come to a close. I toughed it out, reading everything they posted. Participation on a hostile forum is how you get the most direct & comprehensive feedback. No such place exists anymore... for Volt, anyway. GM can still screw up their next effort. But there's far less potential for the antagonists to gain control as they did with the daily blog.

4-14-2018 **Car Sales.** The reason GM gets mentioned so much is GM keeps denying its own wants. I was asking "*Who is the market for Volt?*" long before rollout, back when the vehicle was still being designed. It simply made no sense that an automaker obsessed with SUVs would abandon their behemoth hybrid system in favor of a small car with a plug. That's why there was so much conflict with enthusiasts. They knew I had identified a key weakness. Volt would die simply from disinterest. No amount of engineering could bring about mainframe sales from management unwilling to promote. Cars were never a priority. Dropping purchase numbers overwhelmingly confirm that. Spin about Prius sales being a struggle requires the omission of the entire market shifting to larger vehicles. This is why Cruze is seeing such a decline. Trouble is, Cruze doesn't get the investment Corolla does. The new transmission Toyota will be delivering the end of this year will carry it for years to come. That CVT with a launch-gear is a move back to simplicity without sacrificing power or efficiency. GM hasn't taken any step like that. You'd hope something would be made available for those unable to take the step to plugging in, especially when a hybrid model won't be offered. Needless to say, the news making the rounds today highlight a consequence of such inaction: "*GM cuts hundreds of jobs as car sales continue to slide.*"

- 4-15-2018** **Topics Vanished.** Curious to see what became of the daily blast, I checked up on that forum blog site. To my surprise, 2 of the 5 new topics had vanished. They were removed entirely. What I had in cache on my computer was proof of their previous existence. The one was titled: "*A question for our readers.*" And the other: "*Next Chevy Bolt EV Reportedly Not Coming Until 2025.*" It doesn't take much imagination to recognize how the one soliciting feedback resulted in a lot of controversy. That's what the group of enablers thrived on. More conflicting posts attract more posting activity. Don't ever allow any proof of shortcoming get attention. Fight. Fight. Fight. The other confirmed my concern of "*too little, too slowly*" was far more of a problem than anyone ever wanted to acknowledge. I suspect the stir that topic brought about angered the enthusiasts. The last thing they ever wanted was a moderator taking my side. So, all we have now are the titles of the topics. The link saved in my browser's history no longer works and there's no evidence of them ever having been available.
- 4-15-2018** **Logic & Reason.** I enjoyed the irony of this statement: "*Why Toyota even decided to go with this look for the fourth-gen model is beyond logic and reason, but here we are.*" It came from a source unwilling to see beyond the tree they are looking at. It's the classic "*can't see the forest*" problem. We are surrounded by a sea of blah. There are plain looking SUVs everywhere. There's nothing to make them stand out or even appear special. There's a crowd with your vehicles somewhere in it. This nothingness is the very reason people seek out different. They get tired of what's been identified as normal, which is really just a trend. The market cycles, eventually. Whatever the hot new thing is that begins to outsell all the rest, later to become a trendsetter, started as an outcast. That logic & reason doesn't make sense in the moment, but looking back afterward it certainly does. Remember how the SUV started? For that matter, remember the birth of the minivan. People claimed they wouldn't be caught dead in one. Then years, they purchased one anyway.
- 4-16-2018** **Wild Guess.** This came from that Prius PHV owner who continues to make vague claims and draw uninformed conclusions: "*For those who use their phev as a phev, 15% loss is no big deal. for those of us using it mostly in ev, you get used to the initial range, and are disappointed when you can't reach the places you used to without the engine.*" Oh well. All you can do is provide information so posts in the future are better: That's just a wild guess, based on assumptions from early-adopter purchases. In reality, we have no idea what the situation will be +7 years from now. Think about how many more charging-stations will be available. If you can easily plug in to top off, what's the problem with some normal age-related degradation? After all, capacity fluctuates more than that each Winter anyway. Think about how compelling the new choices will be +7 years from now too. We've seen other families use the older Prius as a hand-me-down, using that as a great excuse to purchase a next-gen offering. Why would this be any different? Think about how inexpensive the option to upgrade the existing battery-pack could be. We are already seeing Nissan & BMW experiment with used packs. The capacity remaining is quite sufficient for other needs. After all, a trade-in program would be a new source of revenue for legacy automakers.

- 4-17-2018 Cold & Unplugged.** My Prime was parked outside for a day and a half without being plugged in. It snowed and the temperature was still below freezing. We jumped in for a drive. Just a quarter-mile from there was a very long, steep hill we needed to get onto and quickly get up to 45 mph... which is great for regenerating electricity from on the return trip. This was the other direction though, we everything still quite cold. I was quite curious if that extreme condition, yet ordinary situation, would necessitate the engine starting. The full 68 kW draw would likely not be possible, but the rapid acceleration to 55 mph a half-mile from my house never triggered the engine either. The promise of all-electric has been confirmed again and again. Prime delivers EV whenever called upon when the temperature is above 14°F. Sure enough, this aggressive climb did just find too. My Prime made the accent using only electricity, without any concern for more speed or power. We are over a year into the proving that this design will be able to reach a very wide audience. When the other variants become available, this choices will draw new attention. Market growth is quite realistic.
- 4-17-2018 Subaru Evoltis.** That's the automaker name recently registered. We assume it's for their first plug-in hybrid offering, the one planned to use components from Prius Prime. Configuration of engine, motor, and battery are completely unknown still. Speculation isn't held back though. There is clearly interest in this first offering beyond Toyota's intial choice. It's hard to know what will be delivered. There's a lot of opportunity. It will help shape the market for whatever follows from Toyota. Ideally, I'd like to see the Prius V replacement be the next. Equipped with a more powerful engine, motor, and battery could make the rumored CUV a complimentary alternative. It won't deliver MPG as high, but the larger body & components are what some have been yearning for. We'll see. I suspect details will remain sketchy for a few months still. Holding off on vitals until the approach of Fall wouldn't be a surprise. Much will happen with plug-in vehicles between now and then.
- 4-18-2018 Buick Enspire & Velite.** Both will be coming to China within the next year or so. Enspire is expected to deliver 550 horsepower and do 0-60 mph in 4 seconds. Talking about gross overkill. It's more of the GM nonsense we've been dealing with for years. Rather than offer a product for the masses, they focus on high-end choices. Do you really need 370 miles capacity? That would be nice, but imagine price for so much range. Velite (the plug-in hybrid model) seems as though that could be a potential mass-market choice. Details are quite vague though. Velite (the EV model) will supposedly deliver 434-mile capacity (700 km based China estimations). Nothing has been said about choices for the United States. It does make you wonder what to expect. We've been led astray so many times by GM over the years, there's no reason to plan anything... especially considering GM's history of slow and lack of commitment.

4-18-2018 **New Misconceptions.** The battery-pack in Prime is small enough that a high-speed charger (Level-2 type, those that connect to a 240-volt socket) isn't required. It's a nice-to-have feature you can upgrade to later. Being an entirely new product makes it good fodder for misconceptions. Sure enough: "*The wall mounted ones, you take nothing with you. It's more or less permanently connected to the wall.*" That was posted on a thread asking the difference between 240-volt chargers and a EVSE... which in itself is a misconception. That's the same device, just referred to in a different manner. EVSE stands for Electric Vehicle Supply Equipment, which is rather vague. Making the assumption that only means the slow-speed (Level-1) type is understandable. Ironically, that is actually the opposite way it is used among the early-adopter posts. Anywho, there is obvious confusion. I jumped in to help: Looks like the Home-Charging guide will need an additional photo, since that appears to be a new misconception in the making. My wall-mounted charger takes 2 seconds to remove. All you have to do is unplug & lift. That's it. The unit hangs from a bracket. You can even purchase extra ones for convenient mounting at each location you transport it to. You can even purchase a bag for transport.

4-18-2018 **Reflection.** This quote posted today came from an antagonist whom I fought for quite some time about misleading statements, exactly like what he's complaining about now: "*The EV miles are not free miles, so the 'Inflated' gas mpg numbers are not good for anything, except misplaced 'bragging rights'.*" Is this a case of reflection, where he continues to do what he accuses others of, or a situation of reform? I'm hoping to get an answer. Finding out someone who pushed misconceptions in the past can be taught to step back and look at things objectively would be great. Hopefully my effort to find out will be revealing:

Yet, that's what we have to deal with. Volt owners set that precedence, despite the obvious attempt to mislead. We fought the "*not free*" for years... and still do...

31 kWh/100mi for *Clarity*

31 kWh/100mi for *Volt*

25 kWh/100mi for *Prime*

How often do you see those efficiency numbers posted? Eliminating gas usage entirely reveals not all electric travel is the same. Some use more than others to drive the same distance. Posting inflated values will conceal that fact.

For Clarity, that value isn't so bad, when you consider how much larger it is than Prime. But when you look at Volt, it's a guzzler of electricity compared to Prime. Requiring an addition 6 kWh to go 100 miles is a big deal. Those EV miles are not free miles.

- 4-18-2018** **Lexus Plans.** They are uncertain, but we do know there will be electrification pressure coming from legacy sources like BMW. There's an obvious aware of Tesla too. Early-Adopters got hung up on the past: "So... about those "nobody has 4 hours to sit around and charge" ads?" With so much time having passed since then, I was curious about that too: What about them? Since then, investment in extremely fast DC charging has taken hold. Wasn't that the point of drawing attention to the need to wait? What harm came from having taken that chance with advertising? We certainly haven't observed any with respect to the addition of a plug for Prius. Keep in mind that short-sightedness of both marketing & audience. Times change and negative publicity can be a powerful motivator.
- 4-18-2018** **Short-Sightedness.** This was the response I got to posing that question about about Lexus: "*point me to a thread/post where John has said something negative about Toyota/Lexus....would be a sight to behold...like a unicorn or the Yeti*" It was a great opportunity to highlight the effort to dodge the bullet. Rather than actually make an effort to answer the question, it was trying to shoot the messenger. Could it be possible that I actually have researched enough to know what I'm talking about? How would a something negative reinforce that anyway? For that matter, why was my message considered positive? Just because I pointed out another perspective does not mean I took a stance. Of course, not doing anything makes routine observers enablers, making them supporters because they don't speak up. In other words, some like to spin so much, you lose track of intent. I go out of my way to remind everyone. That restating of purpose usually becomes annoying, like a broken record, but it keeps us focused on what's really important. Like today: Point me to a thread where long-term plans are discussed without short-term noise drowning out the message. Notice how many are actually discussing the market beyond tax-credit dependency? That short-sightedness a very real problem few are willing to address.
- 4-18-2018** **Overlapping Threads.** The short-sightedness came up on another thread, that one about things not being free: "*It is not a big deal. It's \$0.72 per 100 miles.*" I caught him in the act, attempting to downplay. Refusing to consider the bigger picture is another form of short-sightedness. Counts are just as important as timelines. I let him know it too: Just because something is affordable is no reason to waste it. Switching from guzzling gas to guzzling electricity is not a comprehensive solution. Emissions are still very much a problem when that consumption is considered on the large scale. 17,000,000 new vehicles are purchased in the United States alone each year. Worldwide the count is somewhere around 60,000,000. We don't have enough solar, wind, and hydro power to supply that much clean electricity, nor do we have the infrastructure to support it. This is a perfect example of the short-sightedness problem I just pointed out on another thread.

4-19-2018 **Delusional.** He posted this, as an obvious lashing out: "*pretty sad that Toyota will be very last to the party*" Insulting Toyota was the only option he had left at that point. So, he did. My reply got that one-word response: "*Delusional*". Recognizing that pattern from that past was quite reassuring. Now, the die-hard Tesla supporters are beginning to attack. It's that same old "*vastly superior*" attitude again. That means using the same approach to dealing with it would be wise: Know your audience. They aren't interested in an early-adopter party or even being first. Selling something in high-volume that's both profitable & sustainable is a huge challenge. The path for Toyota is very different from that of Tesla. Each could achieve the same criteria just fine, but premature celebrations aren't a good idea. There's a lot of resistance to come. Changing the status quo is far more difficult than appealing to early adopters.

4-19-2018 **Uninformed.** Obviously angered by my response, kept the information flowing. This was becoming a "*not the same*" effort, yet another lesson history has taught about how to deal with irrational defensive posts. Seeing only their own narrow perspective, you do everything you can to widen the view. Force them (or at least lurkers) to recognize that there is more at play than just the facts they choose to present. It's a form of cherry-picking that comes from not being aware of everything involved. I posted:

That's my response to your claim, which is far better than what I've dealt with in the past... denial. I asked the fanboys "*Who is the market for Volt?*" countless times over the years. Being well informed, I was well aware they were just leaving in the moment seeing sales only from an early-adopter perspective. The problem of subsidies going away and audience changing was outright dismissed too.

Those fanboys absolutely refused to acknowledge the flat sales (consistently between 1,600 and 1,700 monthly) would become an incredible challenge to grow when faced with innovator's dilemma. Sure enough, that's exactly what happened. GM targeted that same group for the gen-2 upgrade. The result has been a drop in sales instead of the much needed growth. Oops!

Toyota is running a business that depends upon reliable profit. That means delivering a product that's simple to sell to the masses, those mainstream consumers who have very different purchase priorities than the fanboys. They want a nice balance for a good price. That's why Prius has been such a great on-going offering.

The introduction of a plug brings about the necessity to carefully evaluate what their ordinary showroom shoppers will find a draw when doing comparisons at the dealer. That's a drastically different approach from what Tesla is doing... a non-legacy automaker with a limited product choice and basically no showroom.

4-19-2018 **Understanding Business.** The major of people I communicate with online don't have much business background. In fact, I would say a large number don't have any at all. They make claims that don't fall into any type of logical approach for sustainability. They focus almost exclusively on engineering merit. That certainly is an aspect of business success, but it is most definitely not what you bet the farm on. GM learned that lesson the hard way with Volt. Their enthusiasts insisted for years the fastest & farther approach was all that would be necessary. They were wrong, very wrong. That takeaway from all those arguments was learning just how deep some of that stubbornness runs. Whether they base their belief on assumptions or simply narrow their focus to a specific ability, it doesn't matter. They are unwilling to accept another perspective. So, having to deal with stuff like this elsewhere years later is very much the anticipated outcome: "*You are really hard to communicate with...*" It was yet another example of forced context, where they cannot follow what you are saying because you are not saying what they expect. That become frustrated that you stand firm with a stance they don't understand. Having researched the issue so extensively, I know they aren't grasping the concept of other view-points and other needs. This is why fundamentals, like the tradeoff of efficiency for the sake of being cleaner, still eludes some. Anywho, my attempt to close up this line of arguing was: How many economic, accounting, and advertising classes have you taken? That lack of a strong business background makes communication extremely difficult, if not impossible. I often find engineers beating their heads up against the wall trying to get their message across but failing to understand when management expects an entirely different means of expressing purpose & process. The reverse is true as well. For a rude awakening about related issues, I suggest a course in Six-Sigma. This is why I kept repeating "*Know your audience*" over and over again.

4-19-2018 **Lots Of Potential.** It's both exciting & intrigued to witness the stir that upcoming plug-in hybrid from Subaru is causing. The most obvious is the realization that there is already an AWD model of Prius available. All-Wheel-Drive in Japan isn't what you'd expect for that market. But then again, they don't favor SUV use the way we do here. In fact, that's why RAV4 hybrid is so popular here. Knowing Subaru will be using some tech from Toyota means there's anticipation of some type of announcement for a RAV4 plug-in offering on the way. I suspect it will follow, allowing the competition to get a foothold first. That's what Toyota did with Ford. Giving them a year lead with Escape hybrid prior to rolling out Highlander hybrid was a very effective way to build market. Some type of shared mission needs to be expressed. Growth is far more difficult without a sense of partnership or even competition. Going at it alone is limiting. I started up today's discussion on Evoltis with: This offering will be a nice demonstration of the platform flexibility. People like to portray Prius tech as slow, but that requires the omission of how it is used in other vehicles. For example, the new Camry hybrid offers more power, yet still delivers 52 MPG. We all know battery-packs can be upgraded along the way too. In fact, mid-cycle improvements are becoming an expectation. That means Subaru will have a choice among a variety of configurations. We won't know what engine, motor, battery combination they'll choose for Evoltis. But the effort to demonstrate flexibility will be achieved. There's lots of potential.

4-19-2018 **Toyota Downplay.** We see it all the time. There is always a few narratives at play. Each requires you to disregard something history from the past to make it work. Omitting facts is a common technique for misleading. So, that's a dead giveaway of intent... especially when coming from a source known to do it, like he did today: "*The batteries would not have come as far as they have without Tesla, Nissan, and GM bringing cars to market.*" The massive investment Toyota made to develop & advance the hybrid batteries is clear evidence of that not being the case. We also now the market cannot move forward with deeper penetration until more players are involved. This is why Toyota leased their technology to other automakers. It's a risk reduction for everyone involved. Nissan used tech from Toyota. Toyota used tech from Tesla. We saw the cross-licensing with Ford, as well as the rollout timing cooperation. Now, we see Subaru is joining in to do the same thing. So, the effort to portray Toyota as a recipient rather than a participant doesn't match what those with good memories (or an extensive blog) can recall. References to the past usually fall on deaf ears though. Antagonists just dismiss facts they don't like. That means taking a more general approach to counter claims: What does "far" actually mean? Toyota has been pushing the development of affordable air-cooled battery technology all along. You can't just pretend the chemistry, packaging, and production efforts they pioneered & pursued. Sounds like the "*more range*" argument verses the effort to reach affordable markets.

4-19-2018 **Meaningless Labels.** In terms of getting people out of traditional vehicles, Toyota is the undisputed leader. So naturally, there are some who work hard to change what leadership means. It's easy to slip into that rabbit-hole too. That's why stating goals is vital. Notice today's attempt: *"Yes, it lost its position as industry leader in a market segment."* This is where pride gets in the way. Some get so hung up on labels, they forget about purpose. When you create an indifference to what's trying to be accomplished, progress becomes increasingly more difficult. This is where the problem of diminishing returns come into play. The perspective of leadership being a measure of EV range is the most common example. Does the higher price for more actually result in more sales? At what point does the difference become a moot point, or worse, a deterrent? Needless to say, I have much at stake in this topic. If the effort to replace traditional vehicles is impeded by labels, I'm going to draw attention to the problem:

That claim of *"leader"* is meaningless without a qualifier. There are many categories of measure. To which are you referring?

This is business 101 stuff. You need to know what will be delivered. EV Range has absolutely no relation to Customer Satisfaction; yet, both are priorities. Then there's the monetary measures, like those related to Sales Volume, Gross Profit, and Dividend Payments. Each automaker will place different weights on the importance of those. There's also the difficult to evaluate categories, like Environmental Impact. Take all that, then consider the profoundly different mission statements...

"To accelerate the advent of sustainable transport by bringing compelling mass market electric cars to market as soon as possible."

"To attract and attain customers with high-valued products and services and the most satisfying ownership experience in America."

Think about how that influences approach and decisions. In other words, what type of leadership are you referring to?

4-20-2018 **RAV4 PHV.** Another Prime model of hybrid from Toyota should be obvious. Why wouldn't that step to diversify be taken? After all, it should be easier to fit a larger battery-pack into a larger vehicle, especially one that rides up higher. Prius already demonstrated how simple the augmentation was too. Of course, that addition of a one-way clutch to take advantage of more electricity for added power is such an easy step, many like to spin it as a hack after the fact. Accepting the possibility that Toyota planned for such an upgrade, rather than being forced to completely redesign, is too much... despite all the evidence supporting a system that considered future upgrades many years ago. Whatever the perspective, it doesn't matter anymore. There's nothing to argue at this point. The following translated phrase was shared today from a Japanese article published early this year: *"Meanwhile, we will start production of RAV 4 based PHV at Takaoka Plant (Toyota City, Aichi prefecture) even in the spring of 20."* My response to that was as simple as the design: There is no reason not to expect the progress of hybrid upgrades to continue. RAV4 is a sensible choice in the product-line to get a larger battery and plug.

4-21-2018 **600 Miles.** It was a bizarre road-trip. We would just barely miss the approaching winter storm... which ended up dumping 14.6 inches of snow at home. It was coming down so fast 40 miles into the 200-mile drive that traffic slowed to 40 mph at times on the highway, despite the constant flow keeping lanes clear. At the halfway point, we stopped for a late lunch. That location was just beyond the nasty part of the storm. It was just normal snow at that point. About a 30 minutes from there is point at which things got interesting. A semi truck & trailer had very recently been pushed off the road. There was a small strip of exposed highway where the snow had blown across and turned to ice. The Prime got pushed into the next lane as I slowly drove by the people standing outside their vehicles looking at the wreckage in the ditch. It was a surreal experience. Too bad I hadn't been filming at the time. Oh well. The rest of the time up north was quite uneventful. Without a place to plug in, I ended up using Charge-Mode a number of times. That worked extremely well for those times I needed to drive somewhere and wanted to avoid engine warm-up... a penalty well worth avoiding. Overall, you save gas by judiciously choosing when to use the engine and when not to. In this case, it worked especially well, since we still had several inches of snow to deal with prior to the drive back... which was much warmer! I averaged 65 MPG on the way back, despite it being almost all highway (some at 65 and some at 70 mph). Unfortunately, I forgot to look at the results for the trip as a whole when I got home. It's easy to forget when going weeks between refilling the tank, even on an escape like this. I filled up the end of last month, once while on the trip, and won't again until sometime next month.

4-22-2018 **Earth Day.** There were many plug-in vehicle events to choose from, especially when you have Prius Prime... since there are so few in Minnesota still. Inventory has been basically non-existent. That means sharing the presentation area with quite a few of the other plug-in choices. There were 5 Teslas at first. More kept coming. I'm not sure how many were there total, but they overwhelmed the Bolts & Volts in attendance. I parked at the end, where a lot of the foot traffic came. The bright blue really stands out among the sea of black & gray. It was a great opportunity to compare notes on how to entice traditional vehicle owners to take a closer look at plug-in choices. Selling the idea of a plug-in hybrid is quite a bit different from an electric-only. Both have terminology & measures the typical consumer has absolutely no understanding of. Even the basics, like consumption rate, are beyond most everyone's experience. They simply have no idea what their current vehicle gets for MPG. Without even that, there's no possible way to discuss anything else, like gallons-per-month. Influences like temperature are totally unknown. Not ever thinking about topics like that make the setting of expectations pretty much impossible. That's why seller guzzlers is so much easier. Automakers don't bother. They just appeal to emotion instead. Try that in a parking lot when you've got 10 to 20 seconds of attention. This is why I had those "*Info Sheets*" way back in the beginning. It was a for-dummies type handout, featuring a few photos along with carefully thought out wording... just enough to entice the person to want more information. Whether they ask there or follow-up on their own later, you need to make the best of those few precious seconds. Today's research on how to do that went well.

- 4-23-2018** **New Propaganda.** Seeing the extreme trouble plug-in vehicles are experiencing with audience, it makes sense that more focus is being directed toward autonomous features. Problem is, people have no clue what that really means. They are completely unaware that different levels of automated control exist. We are hearing "*driverless*" mentioned more and more without any technical detail. It's unfortunate that this avoidable mix up is taking place. It didn't need to happen. But the challenges involved with rollout of new technology will be a problem regardless of approach. Much of it stems from how vehicles were promoted in the past. Automakers appeal to emotion, rather than educating about need. Want is a much stronger marketing tool. The catch is, seeing a vehicle slide sideways, climb up a mountain side, or towing a massive trailer is something most owners won't ever do. With autonomous features, that isn't the case. They will be exploiting whatever that technology has to offer. The extreme will be normal, since we're talking about safety... not bragging rights. There's a profound difference... hence the problem. That's really messing up expectations for plug-in vehicles. It's an unfortunate situation that could have been avoided. Now we have to deal with some of the misconceptions resulting from lack of understanding. Bummer. Oh well. For now, I'm just going to keep my posts on the topic brief: Sounds like some people have no idea what "*driverless*" actually requires. Many of the safety features provide the base technology. It's like the tech sharing between electric and fuel-cell, where many assume they are mutually exclusive. They are not.
- 4-24-2018** **Autonomous.** Someone took the time to spell out Toyota's approach to autonomous driving by pointing out details of how they are focusing on safety first. When you augment what people are already doing as part of the driving experience, it's a lot more difficult to notice. You don't do anything differently; yet, the outcome is greatly improved... should an accident situation arise and the system activates avoidance technology. Having that already in place positions an automaker well for future enhancements, like not having to hold the steering-wheel while cruising on the highway. A few accidents recently where technology & driver shortcomings resulted in a lot of unwanted attention are likely just the first of many. It will take several generations for the technology to become robust enough to meet the expectations of the masses. In the meantime, note this list of features Toyota has already delivered and continues to refine: *Cameras, Radar, Sonar, Navigation, DRCC, LKA.*
- 4-24-2018** **Planning Ahead.** I really liked reading this in that now quite long discussion thread about autonomous driving: "*My guess is that Toyota's doing things behind the scenes, but doesn't feel the need to spell out their 5-year plan to develop autonomous vehicles at this point.*" I was happy to jump in to provide some perspective on the matter: No guessing necessary. Toyota is just repeating their own success model. Prius delivered 100 km/h (62.1 mph) propulsion using only electricity way back in late 2003, an obvious upgrade over the previous generation. Unfortunately, battery-tech was far too primitive still for them to take advantage of the design. So, they kept refining it in the meantime. Several upgrades later, we got Prime. The cost & capacity started to become realistic enough to begin to capitalize upon that opportunity. So what if the current design "*only*" delivers 25 miles of range. The system is loaded with EV optimizations already. Who else in the industry has delivered such an efficient heat-pump? That 25 kWh/100mi efficiency rating is quite impressive too.

4-25-2018 **The Time Has Come.** We always wondered if Detroit would ever just give up and abandon cars all together. Rather than conceal their desire to only sell Pickups & SUVs by providing token offering of cars, they just outright said we're not going to even bother. Today is was headlines like this causing quite a stir online: "*Ford to stop selling every car in North America but the Mustang and Focus*" It's actually even worse than that first appears. The vehicle called "*Focus*" won't really be a car anymore. It will become a CUV, kind of what Toyota did with C-HR using the Prius platform... only Ford won't offer the car version anymore. Their entire product-line will be guzzlers... since Mustang obviously isn't an efficient car. True, those larger vehicles do make plug-augmentation quite a bit easier, but the cost & efficiency in return isn't anywhere near as good as what a car can deliver. Ford doesn't care anymore though. Neither does GM. Why waste so much money on something no one in their employ is interested in? After all, we can just drill our way out of this environmental disaster that is just hippie propaganda. It's all a hoax. There's no shortage of oil and no damage could ever be caused by pipelines. Climate change is just political spin too, right? Wow! It's amazing to think things could have become so bad. This explains why Toyota continues to invest in production facilities here in the United States. When people say "*Buy American*", you'll scratch your head wondering what the point of that actually means. Is it to purchase an extremely efficient Japanese hybrid car built in Kentucky, Tennessee, or Alabama? Or is it to purchase a Japanese hybrid SUV built in Texas? Needless to say, there is much change taking place. The time has come where lines are blurred to such a degree, much of the old propaganda is losing effectiveness to the point of becoming a moot point.

4-25-2018 **Corolla Prime.** It was announced today, for the market in China next year. Of course, there it will be known as Corolla PHV. That's a devastating blow for the antagonists attacking Toyota with their "*too little, too slowly*" spin. The endorsement they provided for Volt was based upon its ability to be adopted quickly by other vehicles, spread throughout the fleet much faster than what we saw with the tech for Prius. No only has GM been slower, it now looks like it may not happen for several years to come. The expectation now is that GM will abandon Volt entirely in favor of a plug-in hybrid SUV instead. Watching Toyota pass by at so much faster of a rollout pace is the ultimate humiliation... for those who value pride so highly. Think about what GM will need to do to make that eventual offering affordable. Range certainly won't be 53 miles for so much heavier of a vehicle. They don't like that at all... so posts avoid discussion of it. I'm happy to point out the reality of the situation: Affordable as a priority is still beyond the grasp of some here, who instead continue to focus on factors that haven't drawn mainstream attention. Sales have clearly confirmed lack of interest. \$27,100 base MSRP for Prius Prime is overwhelming proof that Toyota has developed a plug-in hybrid system to compete directly with traditional vehicles... quite unlike those who endorse trade-offs requiring subsidy dependence. Seeing that tech offered in the body of a Corolla completely eliminates rhetoric of involving aesthetic appeal, as well as show a commitment to ending the reign of guzzlers. Just imagine the rest of the passenger fleet offering a PHEV model... Camry, RAV4, and C-HR are already available in hybrid models. Adding a plug is the next logical step. Let's not overlook just how much of an improvement to emissions & efficiency a smaller battery-pack can provide, especially when it can easily be recharged overnight using nothing but a 120-volt outlet. It's all about finding a way to get ordinary consumers to purchase, who have very different purchase priorities than early-adopters.

4-26-2018 **Incorrect.** There's a sense of panic growing. You can tell when statements like this emerge: "...these cars based on Prius template, the motors are puny and engines come on frequently during routine driving, which really negates the whole EV experience." They make incredible vague comments, hoping to they will be accepted without opposition. More and more experiences are being shared online about how nice the electric-only driving Prime provides really is. Suburb driving is EV in every respect. You can step down hard on the pedal and get a surprising amount of power, more than you'd get from a gas engine when trying to avoid high RPMs. That's why so many people with powerful guzzlers don't actually accelerate hard. They don't like the revving. I see it on a regular basis, as I whiz by in smooth silence. All you have to do is take a test-drive with a fully charged battery-pack. This is why antagonists hoping to undermine focus so heavily on highway operation. They don't want you to consider what the EV experience is on suburb roads. My EV driving on the 70 mph highway is great, since my daily commute is within range. Acceleration from the ramps is never a problem either. But arguing that with just words is a challenge. This is why I've been filming a wide variety of driving situations. Today, I shared this in response to the attempt to mislead & misrepresent: No, that is quite incorrect. Prius Prime has a one-way clutch which combines both electric-motors for increased power to deliver a full EV driving experience up to 84 mph. Notice that at no time during this recent commute I filmed did the engine start, despite driving on the 70 mph highway with the heater running... [Early Spring, Winter Returned](#) Again, that assumption is not how the system actually works. Watch the gauges. It can pull up to 68 kW from the battery-pack. That's more than enough power for everyday driving entirely in EV.

4-26-2018 **Audience.** It comes up again and again. Today, it was yet another attempt from that Volt enthusiast turned antagonist. He is now without a venue to spew his propaganda. So, he keeps attempting to stir trouble elsewhere. I am so glad that daily blog finally died. Who would have ever imagine a resource for so much hate would emerge... and then be so difficult to bring to an end. Yet, it happened. Fortunately, I documented its entire lifecycle in extreme detail. Those who participated there made a fundamental mistake of not understanding who the customers were. If you don't have thorough knowledge of purpose, you're doomed to fail. They did. I keep reminding those involved why: Know your audience. Current EV owners are not representative of ordinary consumers. They are early-adopters, which have very different priorities from mainstream buyers. Assuming they are the same is a mistake known as "*innovator's dilemma*". This is when audience changes as a new product attempts to grow sales, but the aspects of appeal are different from that of the original audience. The results is a struggle to draw new interest. In this case, the assumption is being made that EV range is of the highest importance for purchase criteria. A great recent example of this mistake is with Volt. GM assumed increasing battery capacity would result in significant sales growth; instead, it made no difference. Mainstream buyers place a much greater emphasis on purchase price. This is why Corolla PHEV holds a much greater potential for high-volume sales. It will be affordably priced, able to compete directly with its traditional counterpart even without a tax-credit.

- 4-26-2018** **Compliance.** This was an interesting comment to make today: "*Speaking of compliance, Volt Gen 2 got 2 credits since it had AER over 50 miles, but this year it gets about 1 credit.*" That tiny morsel of data is a gold nugget with respect to intent. Most people have absolutely no clue about CARB credits. They have no idea that automakers will produce a limited number of green vehicles for the sake of collecting the pollution exemptions they provide. As a whole, you can offset dirty vehicles with cleaner ones. It's overall impact to the environment that's considered, not just individual vehicles. In the states that follow this practice, you'll commonly find a greater selection of plug-in vehicles. In other states, selection can often be limited or non-existent. This is why the potential for Prius Prime is so much higher. That inventory is expected nationwide, simply because it that plug-in model is such an easy step above Prius... making it easier to sell, even when there is no CARB credit incentive available in that state. Volt is far more difficult. It has nothing to leverage. It is a small hatchback at a place where almost all the other vehicles are either Pickups or SUVs. Now that we know there's less of an incentive for the automaker to produce them, inventory is very likely to be reduced. Why bother selling something so expensive, offering so little (if any) profit, when it only returns half the green credits now?
- 4-27-2018** **Silly Argument.** The only tactic remaining to deal with the problems enthusiasts now face is downplay. They have nothing else to work with now that real-world data is plentiful and readily available. That's why I worked so hard to deliver so many driving videos, especially during the extremes of Winter. It's very difficult to mislead about design when evidence contradicting undermining claims is just a click away. You can debunk quite a bit by referring to real-world detail like that. So, the troublemakers turn to efforts to de-emphasize. This is what I got as a result of referring to actual sales: "*Why you cling to silly arguments is beyond me...*" When you provide counts, they don't have any type of rebuttal. Numbers are especially helpful to explain the bigger picture. They immediately draw attention to any attempt mislead through omission. In fact, selective fact sharing is really becoming a focus now that the phaseout of some tax-credits is about to be triggered. Less than 6 months is left if any type of meaning production is delivered. If not, little progress will be made simply due to inability. Either way, we see that 2018 is turning out to be a very pivotal year. I put the situation in context of plug-in sales as a whole, forcing a look on a larger scope: 329,196 sales of Corolla in the United States last year alone. Focusing solely in initial purchases is intention cherry-picking, a narrative I refuse to support. We all must consider the bigger picture. Think about how quickly the 200,000 tax-credits will be used up. That's a total per automaker. The small quantity remaining won't even remotely cover a single vehicle's product-cycle (generation). It's a business with the expectation of sustainable high-volume profitable sales. Calling that a "*silly argument*" is evidence of not taking the situation seriously.

4-27-2018 **Limited.** Spin about automaker intent often emerges when there's a popular discussion topic and the participants are poorly informed. They'll just guess based on anecdotal evidence readily available, rather than take the time to actually research the topic. Antagonists exploit this inherent online forum weakness by providing their own narrative. Unfortunately, both types of commentary cause harm. They undermine true motives by misrepresenting them. That happens frequently when it comes to Toyota. Problems typically emerge from people not having a world view of production. They base progress solely on their own local observations instead. So, on a regular basis I share "big picture" data. Today, it was in response to a claim of limited availability for Prius Prime: 51,000 were produced last year, introducing several new & upgraded technologies. Distributing that to Japan, Europe, and US/Canada all within a single year was quite an accomplishment, especially with a design targeting such a low MSRP. The cutoffs with model-year complicated matters. You don't want to ship outgoing inventory to brand new markets. 2018 is already bringing about change. Here in the middle of the US (specifically Minnesota), we are finally getting to see them offered.

4-27-2018 **Repeating Questions.** That new forum is really proving to be a struggle for my old foe. Nothing works to stir arguments. It's a new venue with a new audience and a new interface. That means none of the old tricks are working well. I know this because he has reverted to the same technique I see elsewhere in the same situation. The antagonist just repeats the same questions over and over and over again. If they cannot redirect focus, that at least keeps you from making any progress... or so they think. In this case, it was: "*Who's goal? Who defines niche?*" The catch is, you have to take their trolling bait. If you don't bite, they just simply get left behind. No one appears to care either. He doesn't have any enablers here. That old daily blog was loaded with support who wanted to see me fail. That isn't the case at this new location, where a far more diverse group of people participate. It's quite a difference from what a Volt fanboy site offers. So, I don't have to even show any interest. I just post something relevant to the topic at hand and move on. Today, in response to his questions, I simply kept to my one-sentence approach with: GM and Ford are dropping cars because their sales are too low for them to sustain a profitable level.

4-27-2018 **Undermining Efforts.** That daily blog for Volt is quite dead now. There is one troublemaker who followed me that is very frustrated by his inability to stir insult for Toyota & Prius. There is another who was very anti-forum who is now reluctantly trying to transition from what that blog had offered to thread posting. You can tell he's frustrated too, since after an entire decade of it being available he has posted only 113 messages there. That level of activity took less than a week on the blog. Anywho, the reason for the blog's death is now quite obvious. It did nothing to discourage inappropriate behavior. Retaining a message posting approach from so long ago allowed their terrible conduct to thrive. They exploited it while other venues worked to prevent that with minor interface upgrades. That only works for so long, before even the small improvements elsewhere really add up... drawing participants to it... who abandon the old as a result. That's why the daily blog kept losing so many regular posters until there was no one left except the most corrupt. A popular plug-in support site I now frequent is one that just happened to get a major upgrade recently. Some of the long-time users there have expressed immense gratitude for it too. My favorite new upgrade there is the voting. Rather than that terrible blog which allowed spoofing (you could vote multiple times by simply connecting from another IP address) and concealing activity with total, it shows the plus & minus votes separately. You can't ever hide a post by voting it down to a count of -10 negative either. That fundamentally undermines the antagonist's ability to undermine. Software improves to preserve integrity. The fact that the other site never upgraded speaks volumes to its intent. It makes the efforts of fanboy activity much more of a challenge now. Of course, with Volt being overwhelmed by better choices, they really don't stand a chance at surviving anyway.

4-28-2018 **Predictive Efficient Drive.** This doesn't get talked about much. It simply works so well, you don't even think about it. The automation is so seamless, it's like when the engine shuts off while in HV mode. That feature is so easy to overlook, comments like this come about: *"...I will say that the Prius and Prius Prime have similarly inconsequential regeneration levels when letting go of the accelerator."* You forget about things that you don't have to interact with. You ever think about gears in an automatic transmission? How is this any different? In a sense, it's just downshifting. But rather than the energy being wasted, as a traditional vehicle does, that opportunity is taken advantage of to send some of it back to the battery... even though you never actually stepped on the brake. It's smaller improvements like that, the refinements others don't offer, which sets Toyota a cut above. They deliver a system that seeks out those otherwise missed chances to squeeze out even higher efficiency. I responded to that comment with: Predictive Efficient Drive hasn't been mentioned. Rather than needing to decelerate yourself, Prime does it for you. The system logs the most frequent 1,000 locations you routinely decelerate for, then automatically provides initial braking using regeneration when approaching them. In other words, the *"inconsequential"* statement above is false for models with that feature.

- 4-29-2018** **Advertised MPG.** It's difficult to know how to respond to a question like this: "*Why am I not getting advertised mpg?*" That couldn't be any more vague? What advertisement is the owner referring to? What is a television commercial, something from a dealer in print, or a comment from a salesperson? To what value are they referring? For that matter, how much is the MPG off by anyway? Then you have to wonder how much they actually researched their purchase. Perhaps all the information actually came from a review instead. Needless to say, void of any detail makes providing an answer nearly impossible. To make matters worse, the owner may simply be disenfranchised for some other reason and they are looking for a venue to vent. It's quite a mystery when a post pops up with a complaint of that nature. Heck, they may actually be getting outstanding MPG but just not interpreting it correctly. For example, not noticing the overall average and focusing solely on the low while accelerating will give a false impression. Anywho, this is how I chose to respond: Start by reading what the advertised information actually tells you. There's far more than just what the big values. Expectations are a range that will fluctuate based on driving conditions. As others point out there are quite a number of influencing factors to be aware of. You'll witness MPG go up & down as you become more observant. That data shown while you drive can really teach a lot about efficiency.
- 4-30-2018** **Vehicle Color.** On a very regular basis, I get unprompted compliments about the color of my Prime. Heck, I even got one up north (in truck country) from a pickup owner who was quite impressed to discover the vehicle that caught his eye was a Prius. He went out of his way to tell me how nice it was to see the look having improved much with the latest version. Finding out from me that it was also a plug-in really stirred interest. That smart approach to drawing attention seems so basic. You compliment style with color. Oddly, most automaker offerings lately don't. The look on roads now is blah. There are a ton of black, white, gray and silver vehicles now. What happened? How did we end up in such a drab phase? Why have the choices turned so plain? Is it the reality that focus on SUV offerings has rendered visual appeal a low priority? After all, if you park a bunch of white SUVs next to each other, they all look remarkably similar. It's quite bizarre how change like this can come about.
- 5-01-2018** **CAFE Standards.** The talk of regulation is heating up again. The horribly short-sighted and uncaring administration we are dealing with now is busy at work trying to undo progress. The latest is the draft of an EPA memo proposing a freeze if economy improvement requirements. Remember how the CAFE standards were set to incrementally raise the MPG overall for fleet measure? The current was expected to increase soon. Now, they are hoping to hold it there until 2026. What incentive is there to even try anymore? Oil dependency and the quality of our air certainly hasn't been a motivator. We obviously don't see interest in facing climate-change contributions either. It's really sad. They just plain don't care. We are witnessing a shift from being leaders to followers. How is one supposedly to deal with such complacency? I jumped into today's discussion on the topic with: From concern about "*too little, too slowly*" to it now just being "*if*". That's a terrible sign. Remember how both Ford and GM used to offer SUV hybrids, but then stopped? Why did they abandon their effort to improve efficiency & emissions in larger vehicles? In other words, what will be the incentive to restart that effort again? What will they end up delivering? All those questions bring us back to the original concern. Neither automaker strived to advance or spread their technology. We witnessed full product-cycles run their course without anything following to attract a large audience. CAFE standards were not taken seriously.

- 5-01-2018** **FUD.** Gotta like seeing this still: "*Has to be the on-going concern that the Prius Prime plug-in is just being bought for the HOV lanes where Z number of owners do not even bother plugging it in.*" Who does he expect to believe that garbage? With such a small battery-pack and blending being a fundamental for the first-generation plug-in Prius, that type of misleading was much easier. People didn't understand the technology and all they knew of was Volt. But now with the flood of choices and the obvious upgrade, it's much harder. Yet, they try to keep the greenwash going anyway. Efficiency is outstanding from the 25 to 30 miles of EV you get from the battery-pack in those HOV privilege states. So, I just call out for data to back the claim. There's a lot more Prime. That makes ignoring the request a problem. This is how I responded to today's FUD nonsense, in this case the "U"ncertainty attempt: FUD being spread by others about supposedly never plugging in shouldn't be re-posted here without supporting evidence. Now that the weather has warmed up here (Minnesota) I'm seeing 25 miles of EV on the highway and close to 30 in the burbs. A little warmer, I'll be back to low 30's. In other words, there's a very large gain to be had from a seemingly small battery-pack.
- 5-01-2018** **Horrible.** The attacks keep coming: "*I don't get the Prime sales. It's truly a horrible car...*" You know Toyota has a winner when the onslaught of undermining is an endless effort. They fear that any loss of momentum for a struggling vehicle... like Volt... will result in huge market loss. The catch is, Volt never had any mainstream market in the first place. It was nothing but conquest sales... which is quite odd, since the enthusiasts touted that fact routinely. What a bizarre world when a lost-cause embraces the very element causing them the most trouble. But then again, it makes sense that an enthusiast would focus on something that gives them a great deal of attention. That's why they absolutely hated when I requested goals to be stated. Drawing attention to purpose wrecks their empty celebrations. Anywho, quite annoyed by such desperate efforts to impeded progress (the penetration of plug-in hybrid sales into the mainstream market), I punched back with: Spoken like a true enthusiast, out of touch with mainstream consumers. Reality is, the bulk of automaker sales aren't exciting. Focus is on attributes like affordability & reliability along with a variety of creature comforts. That's what Prime delivers, as well as a full EV driving experience. So what if it doesn't perform like more expensive plug-in choices.

5-02-2018 **Pride.** When trolling gets really bad, that technique of pushing the antagonist away by posting nothing but a single concise sentence isn't enough. You step up your game by posting about them, instead of making direct contact. Talk about their activity, pointing out how the intent is to mislead, doesn't really have any effective response available. They are getting called out, exactly what the troublemaker tries to avoid. They do everything possible to draw attention to you personally, hoping that will distract from what they are up to. I've been dealing with that spin for far too long to let it contribute to a backlash; instead, I take advantage of the opportunity. Their sense of pride will often cause them so much frustration, they'll end up revealing something they didn't want me to know. Lately, I've been using those discoveries to create driving videos. Inspiration about what to specifically film results from those confrontations. In this case, the troll was attempting to undermine a thread featuring a recent review of Avalon hybrid. I fought back with: You know Toyota is really on to something when a Volt enthusiast works so hard to misrepresent the technology. In this case, we see yet another hybrid with potential for plug augmentation. Prius already has it. Corolla hybrid will be getting it next year. C-HR hybrid is expected to follow. With the success of Honda's Clarity, we can easily see Camry hybrid. Then of course, there's RAV4 hybrid. It doesn't take too much imagination for one to wonder about Avalon hybrid. Again, to augment the hybrid system, it's basically just a matter of adding that one-way clutch for more electric-only power, along with the larger battery-pack and a plug.

5-03-2018 **Distraction.** Successful undermining requires the participation of an unsuspecting reader. They get sucked into the discussion through intrigue, wanting to find out more: "*Why do you care which system has more power?*" Asking that was exactly what the antagonist hoped for. He stirred interest with his off-topic comment. Think about this situation. He was attempting to disparage Toyota's success with Avalon hybrid by posting about a perceived weakness of the design when augmented with a plug. Supposedly, offering more power from the gas-engine rather than the electric-motor disqualifies the technology from any real consideration going forward. It's an exploit of a meaningless point. It's like arguing about battery-pack size. What difference does it actually make if you aren't using the entire capacity anyway? If you do, how often comes into play. Watch for requests of detail related to actual operation being deflected. To effectively undermine, comments much remain vague... at best. The preference is to change the topic entirely. All it takes is a few red-flags to reveal true intent. I pointed that out this way in response to that particular "*Why?*" question today: It's a distraction technique used to draw attention away from the goals achieved. Cost, efficiency, and emissions are very important, but result forgotten when arguing semantics.

5-03-2018 **31.9 Miles.** You know Spring has finally arrived when EV range estimates after a full recharge exceed 30 miles. This afternoon, following the charge at work, the value on the dashboard revealed a very pleasing estimate of 31.9 miles. I seem to be getting that full amount for suburb driving too. When cruising on the highway at 65 and 70 mph, the resulting EV distance drops close to 25 miles... which is what the EPA rating states as their measure for their variety of testing conditions. YMMV is important to remember. (Your Mileage May Vary). More can easily be achieved if you place less demand on the system. The same is the case for pushing the system more; results will be less. It's a matter of being aware what the values are designed to inform you of. They are not expectations, as so many assume by looking at nothing but the large numbers on the window-sticker. It's amazing how many people don't bother to actually read the fine-print. And that's just the problem with estimates. Consider how few ever bother to do any research themselves. Marketing revolves around the reality that most consumers have absolutely no idea what actually happens when they step on the "go" pedal. That's why we see such heightened aware from Prius drivers. Having that wealth of real-world data presented to you with such simplicity each and every time you drive, along with a history to look back upon later, is quite empowering. You begin to understand the inner workings of the system without even trying. Patterns are recognized after a while. That repetition of results is key to opening a new world of understanding. It starts with the most basic elements. In this case, an estimate of EV distance available.

5-03-2018 **Facts.** It is ironic that rebuts to claims of "*facts*" are evaded with fierce efforts to prevent detail from being posted. That behavior was quite obvious today. It really got stirred up by this: "*Gas is still stronger than electric motors in all generations of Prius... facts remain that when power demand is high or highest performance required, gas engine will be the main power provider.*" That's an exploit of a fact which really doesn't have any impact to the outcome. Influence of design can often be misunderstood when comments are vague enough to sound convincing. In this case, the antagonist is hoping no one will ever research the claim. Online misleading is effective due to the readers not questioning what they read. They just accept what's claimed as truth with integrity. That naive & gullible nature is a common problem. I combat that exploit on a regular basis. In this case, I did some research using the collection of detailed video filmed over the past year with my Prime. That provides a wealth of information to fight back with. This time, I uncovered this valuable tidbit of real-world data and posted: Facts are a means of deception. They can be used to mislead by implying importance to trivial or extreme circumstances. Detail reveals the true story. In this case, you're make a huge deal out of less than a 7 horsepower difference. 73 kW output is max when the gas engine is used during hard acceleration and 68 kW for the electric. Neither will last more than a few seconds and max is rarely ever called for. Much ado about nothing.

- 5-04-2018** **Undermining Combat.** You know you've made progress when attempts to exploit new characteristics of operation as an undermining topic are abandoned. When that happens, it can be subtle. Watch for it. That type of weakness helps to confirm new participants have ill intent, rather than just being poorly informed. This was a clue I picked up on when that happened today: "*It cannot complete the EPA test cycles under electric power only...*" That switch to a focus on EPA testing was important, since it really didn't relate to the discussion of design. Even so, you still want to make sure you effort to confirm activity isn't perceived as an attack. That combat should be avoided until you know with strong confidence posts are with the hope to undermine. Stay observant. You'll notice patterns after a while. I probed the discussion to find out this way: You are clearly mixed up information about generations. That was the case for the previous (2012-2015) but most definitely is not for the current (2017-). It was the hard-acceleration segment of the EPA measure that had triggered the engine to start in the original model. Toyota has since enhanced the design to allow you to accelerate all the way to 84 mph with the pedal to the floor entirely using only electricity.
- 5-05-2018** **Threatened.** Ranting from that "*facts*" guy continued. His territory was being invaded. Looking back, I remember his harsh lashing out from me posting real-world data about my Prime. He accused me of working for the petroleum industry. I was bringing about a change to the status quo he had enjoyed for years. I know this, since I checked. With over 30,000 posts isolated to just one particular posting service, it was obvious. I could tell his ill intent simply by the nature of the immediate comments. Past comments are all blocked by using a special feature which allows you to hide activity. That in itself is a red flag. But then when you use searching tools to look for what isn't readily available, you find a lot of blatant greenwashing. That fact that he recently changed his id to include "*volt*" explains his position. It goes without saying how I got called a "*GM hater*" by speaking praise of new choices... like Leaf gen-2, Clarity, and of course Prime. Attempts to shut me up by making it personal and diverting the topic don't work either. He begins his misleading unprompted, posting negative comments right away. Then when someone posting something to threaten his control... like real-world data to contradict his claims... it's an all out attack. The same old desperate tactics don't work as well though... when you utilize more effect means of conveying information, like my very detailed 4K videos. It's quite pathetic how someone would fight change like that; however, it is also quite an endorsement for Prius Prime. That particular topic really stirs the anger.

5-05-2018 **Competition.** No one should be asking about competition anymore. The need to replace traditional vehicles with cleaner and more efficient choices is obvious. Of course, you'd never know that from the backward administration we are having to deal with. But when it comes to online comments, there is a time to make the message very clear:

Excuse the shouting. In some cases, it is valuable to make sure an essential understanding is conveyed with importance.

THE COMPETITION IS OTHER VEHICLES ON THE DEALER'S SHOWROOM FLOOR, NOT OFFERINGS FROM OTHER AUTOMAKERS.

There is always competition. It is a presence that should go without saying and the who is obvious. That misunderstanding of purpose & audience was fundamental mistake enthusiasts of Volt made.

It was absolutely vital that GM shifted from conquest sales to drawing interest from their own loyal customers well in advance of the tax-credits expiring. That subsidy was provided with the intent of changing mainstream purchase preference; instead, we saw it squandered for the sake of feeding pride. This has become a modern example of unintended consequences, when an effort to promote change results in a massive waste of opportunity.

Consider what shoppers see when they go to a GM dealer to shop for a vehicle to replace their aged GM vehicle with. Nothing became of the "EREV" marketing. Volt remained a small & expensive niche vehicle. Bolt emerged as expensive choice, undesirable without tax-credit incentives. The commitment to endorse guzzling Pickups & SUVs is obvious.

Consider what shoppers see when they go to a Toyota dealer. There is a variety of affordable hybrid choices with the first plug-in hybrid priced with a choice of affordability and some enticing package options. The commitment to shift away from traditional vehicles is obvious.

Understand why the shouting was necessary?

5-05-2018 **Kerfuffle.** Time has come to pile on, tackling the beast that didn't actually advance us forward: "*And on the topic of the volt...*" The thread had veered off on a tangent and participants were excited to indulge on the opportunity. Sure, we did see Volt help prove out an aspect of plug-in technology. But the point of changing mainstream priorities failed miserably. Only early adopters were interested and only because there was such a generous tax-credit. Without that \$7,500 incentive, it just plain wasn't worth it. That's why Toyota only released a mid-cycle update and only to a limited market. GM didn't care. Pride was more important... hence focus on conquest. That's becoming very difficult to deny now... hence the pile, which I was happy to join: Correct and we look forward to someday GM offering something that won't actually be high-end. The kerfuffle with Volt was simple discussion topics... just like this... weren't taken seriously because it was struggling with sales so much. Enthusiasts would distort anything related to the other plug-in choices to keep understanding of design a mystery. That way, the shortcomings of Volt wouldn't get in the way of propaganda. We saw the same thing play out with diesel. It's easy to see the problem now, long after evidence has been collected. But while there was lots at play, those efforts to deceive were quite effective. People didn't know enough then to connect the dots. Think about how little most people understand about plug-in vehicles still.

5-06-2018 **Entire Life-Cycle.** Within these blogs is the entire life-cycle of that daily blog for Volt. It started from a modest beginning, then almost immediately got out of control. The hope transformed to vaporware promises as if overnight. I'm sure it took the founder by surprise. He kept with it though. Major events, like the body-style change from concept to production-intent didn't shake the website to its core... though, it should have. The count of those who were interested in purchase weren't allowed to change their status, despite such a dramatic appearance alteration. That's when the major misrepresentation efforts really took hold. It's one thing to make unsubstantiated claims about design, it's quite another to use data confirmed invalid. Things got progressively worse from there. When rollout finally happened, several disasters had already taken place. The design wasn't at all when enthusiasts had hyped, cost was far more than expected, and efficiency was well below what anyone had anticipated. Sales were a struggle as a result. Attention turned to next-gen offerings instead. The rhetoric turned into propaganda. They spread misleading efforts everywhere. Greenwashing became such a norm, it was easy to lose sight of goals... for GM support, anyway. Ironically, that same information was used by Toyota to make the first full-cycle worldwide offering of their plug-in Prius a strong contender, while its use by GM ended up making their niche offering even more of a niche. Volt fell into the "Innovator's Dilemma" trap. Of all things, this is what the biggest troublemaker of them all kept claiming about Toyota. It was classic reflection, accusing the other of what you are guilty. Anywho, we know how that played out. Gen-2 of Volt did indeed target a very specialized market, rather than mainstream consumers... and the plug-in Prius seemed to have reached that intended wider audience. This point though is the finale. That biggest antagonist, an underminer willing to post anything to make Volt look better, has abandoned both Volt and GM. Rather than following supporters to embrace Bolt, he purchased a Tesla Model 3. The ultimate in hypocritical actions is exactly what he did. All that spin about how EREV would be the "*vastly superior*" option over everything else was abandoned. Nothing to see here, move along. Pretending none of that nonsense ever happened is what has brought the trouble he helped to create to an end. The life-cycle of such a terrible venue is complete.

5-07-2018 **Conquest Sales.** There was always an overall objective of changing the market. It was generically defined as a goal to get customers purchasing the new product. Specifically, that meant current owners of GM vehicles would replace that older vehicle with a new one from GM. Attracting shoppers from other automakers, known as "*conquest sales*", didn't accomplish anything in that respect... since the technology had already been proven. Gen-2 was supposed to reach that audience of loyal GM customers, an obvious shortcoming from the first-generation. It didn't. That meant major problems to come, since virtually all the gen-1 owners were abandoning GM. When their Volt lease expired... or in the most recent example, their Tesla order fulfilled... or their early-model (rollout began in late 2010) simply became too old... they moved on, rather than purchasing something again from GM. There was never any sense of loyalty, only a lot of "*shill*" behavior to favor their interest at the time. This is why stating goals and answering the "*Who?*" question was evaded on such a regular basis. Accountabilities to work when all you are seeing is conquest sales... especially when those buyers are clearly identified as just early-adopters taking advantage of tax-credit opportunities. It was doomed to failed.

5-08-2018 **Target Market.** It has become undeniable at this point that GM really messed up. After all those years of me asking "*Who is the market for Volt?*" that question is finally recognized as a very real problem. No one cares anymore. They've moved on. Sales have been terrible and so many other vehicles are getting attention, why bother? The approach of trying to sell a vehicle that's too small and too expensive didn't work, period. No amount of "*fun to drive*" could overcome that major obstacle of appealing to the masses. The target market has never been interested in speed & power. That's why there were always enthusiast offerings. The draw of large, bulky vehicles as been dominant for 2 decades now. Remember the mid 90's when SUV marketing began? Detroit automakers very specifically targeted their own loyal car buyers. They wanted them to purchase a SUV instead, since those were far more profitable. The deception used to entice was safety. They were promoted as being a safer choice... even though the data said the very opposite. People were gullible and quite easy to convince with gas prices so low. 20 years later, gas prices are low again. But rather than give buyers a choice, the Detroit automakers won't even bother to produce cars.

5-09-2018 **Understanding Interest.** Enthusiasts are learning the hard way that expressing interest has no reflection upon action. This isn't just about the failure of Volt to attract sales. It's about the reality that tax-credits and leases played far more of a role stirring interest than just about everyone cared to admit. I hear quite a bit still about range-anxiety. That is obvious from the most basic questions asked upon pretty much every encounter... "*How far can you drive?*" and "*How long does it take to charge?*" Answering that puts you in a bit of a conundrum too. In general, people aren't actually impressed by 200 miles. True, supporters understand that is plenty for daily driving. But the reality is people have become accustomed to having much more. Breaking them of an unnecessary requirement is extremely difficult in a market where want & need are often confusing terms. The answer to that second question makes the situation worse. Using 6.6 kW rate for charging (your standard 32-amp draw from a 240-volt home charger) for 8 hours would return 52.8 kWh of electricity. Keeping in mind that rate slows as the battery reaching full capacity and that there are losses in the conversion from AC to DC power, you can safely round the results to 50 kWh. Don't forget about electricity used for pre-conditioning either. Given an efficiency return from the vehicle itself a rate of 4 kWh/mile, you get a range expectation of 200 miles. See the complication? With efficiency increases and more time to charge, you really aren't going to squeeze out much more than another 50 miles from charging at home. So, whether you have a basic or a comprehensive understanding, there are barriers of concern... without even taking cost into account.

5-10-2018 **Reducing Cost.** That topic sure is getting attention now... since we are at the point of which you can say "*Oops!*" Far too many focused on range & power with hope that cost would drop fast enough to usher in mainstream acceptance on a rapid schedule. It was assumed effort to refine design wouldn't be necessary. They are finding out the hard way that original requirement of being affordable shouldn't have been neglected. It looks like that will be much more of an impediment to progress than just about everyone imagined. That's because most didn't know the audience. Cost concerns are foremost on people's minds. They fear battery replacement cost and have no real idea how much they actually spend on gas. It makes appealing to them even harder, beyond the terrible struggle to overcome misconceptions. In other words, we can realistically expect a few years of challenging sales. Being an obvious solution to future energy & environmental issues isn't a given. We'll see the price tags quite high on the really desirable plug-in choices. Fortunately, a few everyday alternatives will still be able to sneak into the driveways of ordinary consumers... with Prius Prime being one of the leaders... simply because Toyota has already addressed cost, placing an extremely high priority on making the price competitive.

5-11-2018 **No Labels.** We had an event yesterday host by the local electricity provider. Outside, there was a gathering of plug-in vehicles for people attending to look at. None of them on display were labeled. That made for very interesting conversations with those stopping by to check. Participants would intermingle with owners, asking questions when curiosity about something struck them. Most had no idea what was what or how any if it worked. This is exactly what I meant by missed opportunity. After all those years, Volt had remained an unknown. GM did a horrible job of promoting. In fact, Bolt was just outright dismissed in that display parked near a Model 3. People understand exactly what Tesla is. That put the new Leaf in an odd position. Since gen-2 looks so different and has a much lower price, it's not considered competition. It is simply looked upon as the plug-in offering from Nissan. The same holds true for Toyota. Prime is a nice looking vehicle (I got lots of compliments) with a clear understanding of origin. Toyota offers an affordable & reliable choice that now comes with a plug. Delivering a Prius with that upgrade is a no-brainer, the approach to electric augmentation is well recognized. So when you point out new choices, like the Outlander there in attendance, it is seen as Mitsubishi trying to deliver something similar. Unfortunately, we didn't have Honda in attendance. Seeing a Clarity would have been impressive. It's large & comfortable with an obvious investment in the future. Long story short, this stage of soon-to-end subsidies is making things very interesting. The past really only serves as a practice round for promotion, so not much as really be lost. Most people still have pretty much no clue what plug-in vehicles have to offer. I suspect labels will emerge though, once the tax-credits are totally phased out.

5-12-2018 **Adoption Speed.** Change can be quite perplexing sometimes. For example, millennials have come to look upon car-payments as an on-going expense, like the bill for their cell-phone. That makes the appeal to leasing stronger... since those payments are lower per month compared to a regular car-loan. So, the idea of paying off the vehicle simply isn't a priority. Knowing that, combined with the knowledge that their age-group has only been part of a market that pushed SUV appeal, makes it easier to see the shift. In other words, the higher profit from SUVs is influencing what automakers produce more than regulation or even doing the right thing. Of course, if GM and Ford had delivered hybrid models, that would have made the situation quite different... but they didn't. This is making the speed of plug-in adoption even slower. It is so obvious with Volt & Bolt that no one wants to discuss the problem anymore. That makes issues like home-charging complete non-starters. The topic is basically impossible to bring up when there is no SUV option to purchase. Models with plugs are tiny cars... which none of their own customers have any interest. Being so correct about the "*too little, too slowly*" concern is quite disturbing. GM didn't diversify. The technology in Volt was never spread to a SUV, which ironically is where it originated. Remember Two-Mode? It's sad that we are dealing with a crawl as slow as molasses. Looking back at the inspiration for Volt was the frustration about Toyota having so much success with Prius. After all these years, we see that the automaker repeated the same mistake again. Ugh. Transitioning away from traditional vehicles is taking forever. The reason why sure makes for interesting history though.

5-12-2018 **More Hate.** Posting started with this: "*So for part of the year Toyota might have one, wow almost impressed, (not).*" After a series of replies, confirmation this person was just a desperate GM defender was provided. He started lashing out without any rationale. I got a hint of that early on with the spin following my initial reply. That all-too-familiar effort to evade what was being discussed made it undeniable. When the thread is about cost-reduction and your affordability references are countered with off-topic replies, you know. It becomes quite obvious after a while. What I hadn't thought about coming from encounters like this is the absence of attention could be making them crazy. Think about Volt enthusiasts without a venue to practice their greenwash anymore. It was pride, the meritless bragging-rights, which kept the hope alive. But now with things falling apart due to poor sales and the rapidly approaching tax-credit phaseout trigger, the desperation is quite understandable. It's too bad focus wasn't focused on goals instead. What a waste. Anywho, I started my replies with: Shortsightedness is a common problem. Much of that originates from not being well informed. While busy with rolling out their first affordable plug-in hybrid this year, Toyota is working on delivery of their second next year... Corolla PHEV. At the same time, Toyota has delivered 3 hybrids all easily upgraded to offer plug augmentation... Camry, RAV4, C-HR. There is a larger model of Prius in the works too. It's all about reaching ordinary consumers, an objective that doesn't impress enthusiasts. That's why Nissan's focus on cost-reduction has so many of them speaking unfavorably about the 300 km (188 mile) range being considered enough. Changing the fleet is far more difficult than just rolling out a few expensive niche offerings. Notice how well Prius Prime appeals to mainstream consumers?

5-12-2018 **Ignored.** That problem of GM not getting attention anymore is getting worse. This trolling effort to drop bait for the opportunity to inject Volt into the discussion fell apart: "*The Prime has around 25 miles of AER if you drive it gently.*" I wasn't about to let that well known antagonist get away with his attempt to redirect focus either: The effort to undermine Toyota by misrepresenting Prime is becoming more telling as more of those driving gently report numbers close to 40. You know I have shared video showing it reaches 30 without any effort. Even the math confirms more than just 25 miles. EV-capacity is from 83% to 12% of the 8.8 kWh battery-pack. That gives you 6.25 kWh of usable electricity. So, even with just a standard consumption-rate of 4.7 miles/kWh, you effortlessly exceed 25 miles by 4. My own personal daily drives currently deliver efficiency over 5 miles/kWh, which easily puts me above the 30-mile range. It doesn't matter anyway. For the plug-in presentation we had at the community-center last week, all I needed to tell people the odometer showed 268 miles since filling up and the tank still indicated full. No amount of EV-range misrepresentation can outweigh results like that.

- 5-12-2018 *The Bigger Picture.*** To my surprise, the next stir attempt and belittling of Prius Prime came from someone in Europe: *"Now it's just a washed up ICE-converted PHEV with too little range and a little too late."* That presented yet another opportunity to post more information about the bigger picture... as well as hint at how GM is being dismissed as a serious player, by not even mentioning them: From a mainstream perspective here in the United States, there is literally nothing to support such a claim. Tax-Credit dependency is the most obvious reason why. Another reason is how tiny sales actually are still even with them. Infrastructure is only in its infancy too. Prius Prime is first of the truly affordable plug-in hybrid choices, with many more on the way. Next year, Toyota will rollout the plug-in hybrid Corolla for the market in China. We will likely get something to follow shortly after that... either a mid-cycle update for Prius itself or one of the other hybrids introducing a plug. Think about what our SUV-obsessed market here would do for a RAV4 hybrid with a PHEV option. As for the market in Europe, your own obsession with Tesla doesn't really reflect the efforts of automakers there. We'll see a variety of types of offerings from VW and BMW. Renault will likely continue to follow parent-company Nissan in the pursuit of affordability too... just like Toyota intends with its first mainstream EV. Mitsubishi has been selling well there and has made a good initial splash here. Don't forget about Hyundai/Kia or Honda either. In other words, it is far too premature to draw any conclusions yet. Things are only just getting started.
- 5-12-2018 *Distorted History.*** There's a strong desire to parallel the progress of Tesla to that of what Toyota did with Prius. That doesn't make sense if you have knowledge of what actually happened. Most people don't though. So, their own narrative typically goes unchallenged. This time, I stepped up to fill in the information they were missing: Looking back at Prius history long afterward often returns a very distorted interpretation of what actually occurred. Most common of errors is to assume the first model-year sold in the United States was a full year. In reality, sales began the last week of August 2000. So, all reports of demand are incorrect due to misrepresentation of time. Confusing matters more was the fact that Prius could only be obtained 2 ways back then. Either you placed an order online and waited 6 to 9 months for delivery or you got really lucky and were able to purchase a demo-model. Keep in mind that inventory on dealer's lots did not become available until May 2002. So, all reports of demand are incorrect due to misrepresentation of supply. Complicating the situation even beyond that mess is the fact that Toyota only allocated specific quotas for each year of sales. That meant demand could never be accurately gauged during that entire generation. In other words, if you weren't blogging about those events as they played out (like I did), you may not have an accurate understanding of what really happened. There is much detail people are not aware of.

- 5-13-2018** **Mi/kWh.** It is quite refreshing to have an informed & constructive discussion. Today, that came about from this comment: *"The past several daily mi/kWh readout have been between 5.0 and 5.2"* Most owners don't have an idea what that means. In fact, I'm willing to bet they haven't even noticed that value yet on their collection of data readout screens. In the past, this was a source of hatred from some Volt enthusiasts. Remember how they would treat electricity as if it was free & unlimited? Simply reducing gas consumption is not enough. Wasting electricity is not acceptable either. This value depicts the reality of that situation, revealing a story of some designs being better than others. And of course, it confirms Toyota delivered a more efficient electrical system than GM. Prime uses less electricity than Volt to travel the same distance. They hated when I would point that out... since it cancelled out all arguments when considering the reality that Prime could later get an upgrade to deliver a range increase... less battery needed to travel the same distance. I kept that knowledge to myself this time, keeping the response simple: I have taken a lot of flack over the years from some when pointing out how not all EV is equal. There are a few plug-in vehicles that guzzle electricity in comparison. This is proof of that... and confirmation of how efficient of a system Toyota delivered.
- 5-14-2018** **Future Audience.** I have wanted to blog about this topic for quite some time. But with such an evolving market, its becoming a non-issue. The crazy efforts by Volt enthusiasts to undermine Prius are now just a part of history few will actually believe. Those that were part of it will downplay & deny. It's how history repeats. Troublemakers disappear and evidences of their misgivings vanish. They were wrong and don't want anyone to find out. Just like all the attacks we had to endure from diesel supporters. What happened to all the lies they spread? For that matter, what happened to their victims? Think of the collateral damage too. Anywho, that look backward is very important when you look forward. You don't want this next audience to fall into the same trap as in the past.; however, this future will be quite different in terms of technology. There is nothing to prove anymore with respect to speed or power or even cost. There is an opportunity to spread FUD about reliability though. Antagonists will do everything they possibly can to exploit that too... everything. Don't let your guard down. Remember that real-world data is the most difficult challenge they face. Enough of it will drown out their rhetoric. That's what we want this future audience to focus on. We tell them about the simplicity of plugging in to recharge. It's so easy, the habit becomes second nature. It's like shutting the garage door after coming home. You just do it without thought. That is how basic the benefit of recharging will become. You'll just do it and reap the benefits without thought. Convey that message. Don't feed the trolls.

- 5-15-2018** **Fancy Label.** Despite so much fallout with Volt, there are a handful still trying to push the superiority status: *"Apart from i3 Rex and Volt, all the PHEVs on the market are much closer to a regular hybrid, indeed any regular ICE, than to a typical BEV in this respect. If PHEV was restricted to only be the range-extended kind..."* Accepting the fact that there is now a variety of plug-in hybrids to serve a variety of audiences is too much. They want to hold onto the early-adopter phase, where those owners were a very specific buyer willing to overlook shortcomings of mainstream appeal. That's why there is so much resentment toward Prime. Toyota delivered a model of Prius able to overcome those barriers. It's really unfortunate these few individuals screamed the mantra of niche so loudly that GM followed their misguided advice. Ironically, they argued intensely about not having an influence over GM's decisions. They were wrong, very wrong. Big oops! My reply to the greenwash effort kept focus on real-world results, diverting this attempt to make labels more important: 328 miles on this tank so far and it still reads full. Those results from my Prime are not closer to hybrid, period. The marketing of *"range-extended"* clearly doesn't equate to much when looking at real-world data. Remember the goal is to deliver vehicles which significantly reduce emissions & consumption. To actually achieve that, they much be able to compete directly with traditional vehicles... not just be an offering with a fancy label.
- 5-16-2018** **Label Rhetoric.** Exactly as anticipated, this well known Volt enthusiast lashed out. With so few remaining, that was easy to predict. They have been misplaced. Death of their daily blog disbanded that shared voice they took advantage of to push rhetoric. The most glaring of their efforts was *"EREV"* marketing. It was a label used to isolate Volt as a standout among the plug-in hybrid offerings to come. Only problem was, each reveal of a new offerings caused their definition to change. They would get called out routinely on their contradictory posts... which I was happy to point out. Their own history had come back to haunt them. Choosing to focus on labels, rather than actual results, has a way of harming those who use them to deceive. Anywho, once again, I called it out: Your rant serves no purpose. The 20 years of hybrid history overwhelming confirm that labels make no difference. People will simply coin a new one to replace the old. A simple look at how clueless consumers are about specifications should make that point obvious. Real-World data is the solution. Focus on that is the only meaningful step forward. Otherwise, it's really just marketing spin.
- 5-17-2018** **Video: Full Commute, No Recharge.** 31.1 miles of EV (electric-only driving) for this commute to & from work on a beautiful Spring day. That speaks for itself. It wasn't the best efficiency I have seen. That comes with Summer driving, when another 2.5 miles of EV can be observed from the same drive. The difference is temperature; a little warmer is the ideal for efficiency. Nonetheless, you can clearly see how easy that was to achieve, despite the impact of speed & traffic. It clearly shows the official *"25 mile"* rated capacity is understated, even for the standard testing criteria. Watch the cluster of aftermarket gauge information on the right. That shows detail you don't see from the dashboard instruments. Knowing what actual values are from the battery-pack provides insight to how the system actually operates. You get a better understanding of why this design is so dynamic. Lastly, note the results at the end of the drive. See how running the engine with the best load for maximum efficiency results in some EV range being generated... [Full Commute, No Recharge \(31 miles of EV\)](#)

5-17-2018 **Unexpected Share.** The interface for Facebook can be clumsy at times. There is a lot there and its easy to overlook or to simply forget about. That happened today with the share of that newest video. I was on a group dedicated to Prius Prime, but didn't realize a post while viewing that content wouldn't default to the group. It goes to public instead. That explains why the post was there for a moment of confirmation, then vanished. Where did it go? A little late, I got a like from a friend not in that group. Huh? Oh well. It's good to target a wider audience from time to time and the content of this video was a nice wide-audience topic... though future-oriented from their perspective. Turns out, I stirred interest of a developer for the phone-app. So, my link got shared with an even more people I wouldn't normally reach out to. That was an unexpected outcome. Here's what I actually posted in addition to a link to the video itself: How often are you asked the question: "*How far can it go?*" Having a commute on video to share is nice. This is what I experienced on my commute... 37 miles total. What's most interesting is when the engine shuts back off following the warm-up cycle. MPG stays above the 199.9 readout maximum (for the 2017 model) and a mile of EV is generated, despite the HV driving. btw, that display on the right is an app on my phone connected to the Prime OBD-II port via Bluetooth.

5-18-2018 **Refreshed Attacks.** Another one of the misplaced Volt enthusiasts returned to posting rhetoric on the big Prius forum. I wondered if he would behave this time. Years back, it was blatant misleading. He would post false information about how the plug-in Prius operated, spreading those lies where ever he could. His posts on the member-only forum for Volt were especially deceptive. Feeding greenwash is something I don't tolerate. So, I have been keeping a close eye. Today, he started up again: "*A similar PHEV could have done this 'commute' without...*" But now being in the role of playing offense, I took advantage of the table having turned by calling out his attempt to spin... an obvious attack in his own subtle way , which I have become all too familiar with:

I am well aware of your history with Volt and your perspective for Prius... with the hope you wouldn't stir that pointless pot again. That similar PHEV is so far beyond affordability & profitably, my question to you is: How does that make any difference to ordinary consumers?

The point of that video I just filmed & shared was to answer that question. It clearly shows there is no need for more range & power. Sure, more is nice to have, but is by no means required to significantly reduce emissions & consumption.

GM simply isn't interested in selling an expensive small hatchback, period. That's why I asked the "*Who is the market for Volt?*" question hundreds of times over the past decade. It never made any sense. There was no target audience within the base of loyal GM customers. They clearly desire Pickups & SUVs instead. That's why Volt sales were limited to just conquest buyers taking advantage of early-adopter discounts.

200 MPG for an ordinary commute is what will a major draw for Prius Prime. It's hybrid that offers so much EV driving, use of the engine is a complete non-issue. Efficiency is outstanding regardless of how you drive. Emissions are too, since that plug-supplied electricity is used as much as possible. All that from an affordable package that will appeal to dealers is a winning design that will draw interest from the masses. It is clearly a mainstream vehicle from automaker to ordinary consumer.

5-18-2018 **Early-Adopter Spin.** Not all posts that I deal with come from antagonists. Some are just poorly informed. Sadly, that doesn't happen much anymore. I wonder why. Hmm? Finding out there is less confusion about how plug-in hybrids work would be great. That's the impression I have got so far from our plug-in owner's group presentations. Time will time. In the meantime, I still have to deal with crap like this: *"Most hybrids do give range anxiety, at least plug-in hybrids. Imagine the horror when the range ends and... *gasp* ...the ICE kicks in. I'm not kidding, it's the main annoyance of the PHEV owners I've met, not enough electric range."* As expected, another Volt enthusiast was sounding off with again. The narrow-minded perspective is what got that group into trouble. A few obviously still haven't learned that *"know your audience"* lesson yet. That self-inflicted problem cost them dearly. Ugh. Oh well, all you can do is point out the problem: That is the message early-adopters have sent, a problem they created. For ordinary plug-in hybrid owners, they experience remarkable efficiency and simply don't get worked up when the engine starts. In my Prime, the tank reads almost totally full, despite 400 miles since the last fill-up.

5-18-2018 **Spinning Problems.** We get this on a regular basis. Antagonists will invent a problem for their solution. This is how you recruit enthusiasts. It sounds like a great idea. The reality that there really wasn't a problem in the first place doesn't matter. Spin is why certain issues never die. Since they don't exist in the first place, there's nothing to actually fix. Recognition of this at play is to watch for who the solution is directed too. If the target hasn't been complaining about that, it's likely a want, not a need. If there is no requirement, there is no problem. Annoyed by having to deal with this so often, I posted:

It isn't really a problem... if you understand audience.

GM made the fundamental mistake of asking gen-1 Volt owners how to make gen-2 better. That flawed approach doomed them to delivering an even better niche, rather than a vehicle for mainstream consumers. They repeated a mistake others have made, called *"Innovator's Dilemma"*. Toyota was smart enough to steer away from that, well aware of what pitfalls there are when focusing in on the wrong target market. That's why gen-1 plug-in Prius rollout was halted. Limited to 15 states and without a successor, the gen-2 design wouldn't suffer consequences of misguided expectations.

In other words, Toyota is basically starting from scratch with Prius Prime, since most people really don't have any clue how Prius works anyway. I know this from the countless encounters I have had with ordinary people walking by the charger at our local grocery store. They see me holding the cord and asked questions. A past without the being able to recharge from the wall is meaningless to someone who never owned a hybrid. Having that ability to plug in seems perfectly nature from their perspective.

I simply tell them it takes 5.5 hours to recharge with a common household outlet and 2 hours with a 240-volt connection. From that, you get about 30 miles of real-world EV driving. There's no confusion. They get it... especially when I mention the base price of \$27k.

5-19-2018 **Customers.** Still annoyed, the feeling amplified when I got this in return: " '*profitability*' ? *What consumer EVER cares about that?*" Yes, it came from some troublemaker pushing Volt. Like rhetoric of the past, he has no concern whatsoever for anyone except early adopters. No one else is important from his perspective. To be so self-centered you don't notice the rest of the world around you. Ugh. It's the "*buy American*" spin. That really means money must only go to Detroit. The fact that supposed "*foreign*" competition employs tens of thousands of Americans to build, deliver, sell, and service the vehicles all here in the United States doesn't matter. Again, ugh, especially when you realize some of the Detroit production actually takes place in Mexico & Korea. Anywho, I treated it as an attack from the naive rather than someone intentionally trying to undermine & mislead: Such a fundamental error... Not knowing audience is a huge mistake quite common to posts like this... Ugh. DEALERS ARE THE CUSTOMERS, NOT THOSE WHO PURCHASE THE VEHICLE !!! Understand why? You should. If dealers aren't interested, there's nothing for the consumer to actually purchase. That was a major reason why Volt struggled so much. Dealers simply weren't interested. Why offer a small, expensive, difficult-to-explain hatchback that provides a razor-thin return when you can just offer highly-profitable, easy-to-sell SUVs instead? It's amazing how so many people claiming to understand the market don't recognize the importance of how vehicles are sold. What incentive is there for a salesperson to bother when the dealer they work for shows no interest?

5-20-2018 **Forcing Simplicity.** It never works. They keep trying though: "*If we had only ever had PHEVs, there would likely be less confusion. Has a gas engine, and also has a battery you can charge. Very simple.*" Some people cannot comprehend or deal with a complex world. That's why we see them attempt to force generalizations. They want a simple perspective, nothing requiring anything more than a first impression. Extensive study to correctly grasp an abstract concept doesn't ever happen. They need everything dumbed down... which doesn't work in the real world. Things are never really that basic. I punched back at that quoted hope with: History has overwhelmingly proven that false. Even when there were just 2 hybrids available, the differences were so profound, they could not be considered in the same category. The designs were fundamentally different. One has a single tiny electric-motor directly linked (RPM locked) to the engine. The other had a small electric-motor and a large electric-motor, each with independent control to connect them to the engine. Yet, both were given the same "*hybrid*" label. We already see that problem emerging again for plug-in hybrids. Design varies dramatically, yet some people want to represent them as having a shared design with only battery & motor size as the difference. That's how greenwash is spread. Omitting important features, like the type of heater or charging speed, contributes heavily to misconceptions and disappointment. In other words, it is far from a simple matter.

5-20-2018

Jumping Ship. I found this intriguing, since it came from a posted topic about Tesla interest: "*Toyota is way behind in recognizing the potential and significance of battery-electric vehicles, following their strange fascination with FCEVs.*" Are people posting that because they are so poorly informed or are they just dismissing what they don't like to hear? I pressed to out how by posting:

Spreading of misunderstood intent needs to stop. We are the ones who can help with that.

Fuel-Cell use will be significant in the future. That's how power-suppliers will compensate for high-demand, using stored hydrogen to supplement peak need rather than continuing to depend upon the dirty sources. Just talk to someone in the industry, that switch-over is something they are very much looking forward too. There's also the commercial use of fuel-cells. Think about how incredibly practical that is for buses, construction, delivery trucks, and portable power. Most people don't.

Most people only see the personal transport rollouts... and totally overlook the reality that those taking the leap are the ones who will promote use for fleets. Think of how important it is to have rapid refill for a parking lot full of vehicles all needing to be deployed at the same time.

As for Toyota not recognizing, that hasn't ever been true. The first model-year of the first-generation actually had a plug. We saw the 100 km/h design rolled out in 2003 for Prius. Back then and as of recent, the barrier to reaching the masses is cost & capacity. There should be no doubt that the perceived legacy leader from Detroit who supposedly gave a full endorsement for plug-in vehicles will be in a world of hurt soon when tax-credit phaseout begins, making their struggle for sales even more difficult. Cost is still very much an issue.

Haven't you noticed how hard Toyota has pushed with lithium battery technology? They made all but 1 model of Prius us it. That step in the direction of high-volume supply & demand effort should be obvious. Less obvious is how hard Toyota has pushed to not require liquid cooling. That raises cost & complex issues, ones Tesla much also address by does not have legacy constraints to also deal with.

In other words, labeling Toyota as "*behind*" serves no purpose when the bigger picture is taken into consideration.

5-20-2018 **Kicking & Screaming.** It's time to stop acknowledging this narrative: "*The legacy automakers are being dragged along, kicking and screaming.*" A good reason to just pretend that wasn't ever posted is that it's so vague. What does that actually mean in regard to choices that are made. Actions we see are that of slow change. Ask yourself why. The reasons are far from clear, as they are portrayed to be. I'll post some of the complexities. But realistically, most of it will just fall on deaf ears:

Generalizations are not helpful... perhaps some clarity about that specific resistance you feel still persists.

Toyota is converting its entire fleet to offer hybrid models. Camry hybrid is an outstanding example of a compelling alternative to traditional propulsion. Think of how valuable Corolla PHEV will be to that effort. We know there will be an EV model of C-HR. We also know there are plans for a PHEV model of RAV-4. We may see a mid-cycle upgrade of Prius Prime too. So, it's safe to say Toyota is working toward mass-market change.

What about GM with their 2 conflicting approaches, neither one which is of any interest to their customers who overwhelmingly prefer SUV choices? They are being dragged, kicking, or screaming. It's just what they turned in as homework wasn't what was assigned. Remember how the goal of electrification was to get automakers to switch over to vehicles with plugs? If all that automaker does is offer niche vehicles for conquest sales, that goal is being missed entirely.

Sadly, there will always be a level of push back, but you can see very real change coming when ordinary people are drawn to a choice without any special incentive. Watch what happens when tax-credit phaseouts are triggered.

5-21-2018 **The Game.** A classic antagonist move: "...why would Toyota want to get in that game?" They ask a question about the point you had already made. Doing anything possible to avoid drawing attention to a conclusion having successfully been reached in very important, since they don't want the status quo to change. I kept my response brief: While tax-credits are still at play, it is very much a game for legacy automakers. Avoiding that mess will likely prove a very wise move... especially knowing how long a product-cycle can be.

5-21-2018 **The Count.** They also do everything they can to prevent you from looking ahead: "*Meanwhile, Toyota has yet to even bring a BEV to market.*" It requires quite a bit of willful ignorance to work though, as I pointed out: Turning a blind-eye to the lithium battery use in Prius is a very real problem. Why aren't you acknowledging the choice to use lots of small packs to reach lots more people? Think about how important it is to reach the market now with some type of electrification. When solid-state does become realistic, they will have a large market of potential already established. Look at how terrible for job GM did rushing to market. Nothing but conquest costly mistake.

5-21-2018 **The Premium.** They also tell you what to do & think: "*We can't let our disappointment cloud our judgement.*" I wasn't about to listen to any of that dribble by making sure the answer to "*Who?*" was clear:

Know your audience.

How many hundreds of time have I said that? The repetition comes from some still not recognizing the fundamental difference between who they are and mainstream consumers. Ordinary showroom shoppers see the world very differently. Toyota understands this... hence the success for decades with Corolla and Camry.

Electrification is a paradigm-shift so profound, it's easy to frighten people away. Think about how difficult it has been to get people to embrace smart-phones. Many who finally switched to one use only basic features. That's a cheap & easy upgrade compared to the purchase of a vehicle. It makes the idea of really taking advantage of what that tech has to offer a painful reality to accept... since, most will not.

The key is finally ways to compel that fickle audience. Tesla isn't even bothering to target them. They offer an outstanding product for those aware & willing to pay that premium. Toyota is going after a much different group of buyers. So, even just the idea of "*jumping ship*" is rather absurd. The groups are far too different.

Know your audience.

5-21-2018 **The Point.** Every now & then, someone posts a sensible message: "*But some of us still want a hybrid for the convenience of traditional fuel and distance to travel. Tesla has only 1% market share at this time. That's one week of sales for GM or Toyota.*" Perspective like that is what causes a lot of anger. It makes sense. What kind of precedent is set when being logical online makes sense. People are often driven to participation on forums due to a need to emotionally express something. Responding to a feeling usually isn't constructive. In fact, some people just want to vent and couldn't care less what others have to say. So, who knows where this will go: The point of all this here was to shake out that very point. Well said. People need perspective. Yes, it is easy to claim & confirm marketing issues, but that requires cherry picking. There's simply no way to look at the big picture and not see the very limited scope of market penetration so far. There are major barriers to address still that have nothing to do with the engineering focus here. Distractions only make that worse. Plug in your car at a very busy public location while smiling at people walking by. Say "*hello*" with an inviting tone. The feedback you'll get from those individuals is priceless. They couldn't care less about TCO or FCV. In fact, they don't have any clue what those mean. It comes down to basics. How do I equip my garage with the ability to high-speed recharge? How much will that cost? How much benefit will that provide? What about just sticking with an ordinary 120-volt household outlet? All you here can argue until the cows come home. It won't matter to the 99%. Convenience. Distance. Price. Things like that are what compel people to take a closer look.

5-22-2018 **Branding.** There are attempts to move on to other topics: *"The Prius brand is so strongly linked to hybrid that I think Toyota would do best by marketing any future BEV as... something other than a Prius."* That was part of a discussion addressing the future, trying to set realistic expectations for product offerings. It continued on with: *"If you want to really normalize electric cars in society, you need to stop highlighting the distinctions and just refer to them as *cars*."* You know how much I despise generalizations. Dumbing things down to be so vague they don't serve any clear purpose anymore contributes to trouble. Remember how the lack of information "hybrid" conveyed that the term ended up leading to disenchantment? All those years ago, we'd encounter those who had purchased a Honda hybrid expected it to behave like a Toyota. They figured out it didn't and were let down as a result. That's why people like me pushed the ASSIST hybrid and FULL hybrid terms. That drew attention to the fact that there were distinctions. For similar reasons, that's why I kept fighting Volt enthusiasts. They decided upon EREV as a term to use to draw attention that it worked different from other plug-in hybrids, but they kept changing the definition. In other words, it was a marketing ploy to deceive rather than being used to convey information. This is why we always much return to basics. What is the technology attempting to accomplish? For Toyota, there was always an effort to lead to a better future. That meant Prius was just the leader, not the solution itself. Other hybrids were to follow... which did indeed happen. The same will for plug-in hybrids too. So, focus on branding really doesn't achieve that specific goal. A naming link would achieve the association of leadership though, which I gladly pointed out: Ironically, that's the benefit of Prius being associated with hybrid. It's neither a traditional vehicle, nor something bleeding edge. It's well established... just a normal car at this point. Keep in mind how important the reputation of Prius for value & reliability has become. It's a proven launch vehicle for next-step tech.

5-23-2018 **Work Parking.** Many of my videos feature the ramp I park at for work. After all, that's where I drive to on a very regular basis. The catch is, that was scheduled to be changed. This Fall, the plan was to replace that nearly 50-year-old structure with a modern one... complete with a section devoted to charging-stations. Unfortunately, it experienced some trouble... despite all the work over the years to reinforce with new rebar and add more support to guarantee integrity. A crack developed and chunk of ceiling broke loose. As a precautionary measure, they closed the ramp for inspection until further notice. That may mean I'll simply end up finding an alternative location to park for quite a while. So much for offering consistent data measure over time. Oh well. Variety is good too. Eventually, the new ramp will open. But you know how budgeting and contracts go. That's a very slow & complicated process. It could take quite some time before returning is realistic. We'll see. Perhaps certain sections will be opened for limited use. Maybe I'll get lucky with the location of the chargers. Whatever the case, there is another ramp nearby that may have room for use to plug in. Not being able to park as close to work is a bummer. I sure was lucky with that old setup.

- 5-23-2018** **New Zealand.** I stumbled across 2018 first-quarter sales results for New Zealand. That's quite a unique market. Limited in resources and isolated to an extreme, what is their approach when it comes to transportation? Turns out, Prius Prime is doing well there. Of the 12,100 plug-in hybrid sales, Toyota's was the top-seller. Sadly though, the exact quantity wasn't actually mentioned. There were counts for hybrids though. C-HR hybrid was the leader in that category with an amazing 52,301 sold. Whoa! Prius came in second with 46,652 sold. Following that was Suzuki Spacia, a hybrid I haven't ever heard of. Fourth place was capture by Prius c (known as Aqua everywhere but here) with 39,252 purchases. In fifth was the Vitz (aka Yaris) hybrid with sales of 37,080. Those are impressive numbers... especially for a population of 4.6 million. It makes sense that hybrids would be popular there.
- 5-24-2018** **Tribalism.** It's easy to get off-track and flustered when people put up barricades, unwilling to listen to other points-of-view. This expressed that sentiment: *"I have avoided further comment on this thread because it is symptomatic and symbolic of what is happening in the US society today, TRIBALISM. it comes down to "what I believe is right and what you believe is wrong", whether we are talking about politics, religion, environment, cars, etc. for example."* Sharing that view, it was easy (and vindicating) to post: I ran into that many years ago, as well as recently on this thread. It's a one-size-fits-all belief. The close-mindedness is really unfortunate. They want change to fit into their template only. Nothing else matters. In fact, no matter what you say, they only hear "Toyota" or "range" or "profit", since the idea of multiple solutions or approaches is impossible in their mind. That wall is extremely difficult to overcome. Real-World data has proven to draw attention through all those shouting their perspective. You'll encounter pushback & dismissal, even when they are proven wrong. You'll encounter a lot of distraction too, extra noise that confuses focus. It's very easy to lose track of goals. Keep your message clear. Knowing purpose is helpful to everyone. Most often, conflict comes from limited score... time & audience.
- 5-25-2018** **Marketing.** The same thread that's been going on for days has taken a turn for the better: *"Ironically, Toyota is really not "marketing" Primes either, at least in Southern California, that I know. They're relying on word-of-mouth to sell the car; there are no ads!"* That's getting back on track, figuring what works and what really matters. I jumped back in with: Word-Of-Mouth has been how all of the Prius were originally sold. Toyota wants the limited initial supply to go to the well-informed... which means knowing someone who already owns one. It's you and I that begin the process, sharing what we experience firsthand. That information reaches those who seek it, the savvy online participants, who ask questions in return. Think about how long it takes just to gather enough real-world data to set realistic expectations. Greenwash & Disenchantment are problems avoided by targeting specific audiences first. The wider market will naturally follow, once there is a path laid down by us. In fact, we're the ones who provided detail about how Toyota should formulate the general audience advertisements.

5-25-2018 **Whining.** Sometimes, that seems the best recourse: *"It feels like most of these manufacturers just push their money grubbing SUVs and trucks, as long as the masses will suck 'em up. I'm waiting for those nice, big fat gasoline price increases to bring back religion to the marketplace! Then let the whining begin."* The better thing to do is share insight into the situation and reflection upon the past. Knowing history and getting an idea what to expect is help... though, whining provides a good feeling. Guess what I did:

It's a sad reality watching the cycle repeat. That desperation for profit leads automakers down that easy path, one that's self-destructive. They don't care though. It is very much a live-in-the-now situation. Leaving their successors to clean up the mess is a normal part of the game they play.

We saw that happen before the recession. Unfortunately, we have even seen it happen with plug-ins. Remember how literally everyone involved with the Volt development program *"moved on"* prior to rollout? That makes no sense whatsoever. You don't work on a project for years, then walkaway just before people begin to use what you developed. It was an *"abandon ship"* no one seems to actually notice.

We're going through that again. These big guzzlers don't have anyone to be held accountable when things go bad... which they inevitably will. The price of gas is going up and mainstream consumers are witnessing hints of plug-in success. From our perspective (the well informed), we are witnessing quite a fight taking place to retain the status quo.

The only fortunate thing out of the @#%\$!& guzzler mess is those unnecessarily large commuter vehicles can accommodate a battery-pack easier than a car. That wasteful space in a SUV can actually be used for some good. True, those vehicles will be expensive & inefficient compared to the likes of Prius Prime, but buyers of SUVs aren't known for placing a high priority on cost-of-ownership anyway.

5-25-2018 **Repetition.** You know when an antagonist says it, times are changing: "*Sounds like a history repeat.*" Yes, it's ironic that seeing the repeat represents change. But at least being in a cycle means the next step is a predictable... which opens up the opportunity to influence. Eventually, a pattern will break if you know exactly how & when to push. That's what I've been hoping for. Think about the gap being created each time. Between the successes & failures, it widens. At some point, drawing enough attention to that will cause the resistance to weaken... which is why I keep bringing up goals? Think about technology advancements. When does it start to appear silly to fight change? For example, when did you stop using a landline at home? Why did you make that decision? How long did it take for that change to come about? Did you upgrade your cell-phone several times before realizing that phone still connected with a cord wasn't serving any practical purpose anymore? You get the point... eventually:

The repetition isn't as obvious sometimes though. I was attacked relentlessly on GM forums when pointing out the pattern Volt was following. It was the same disaster as Two-Mode playing out again. GM was focusing heavily on size & power again. Only this time, the measure of "size" was range rather than physical dimension. GM sacrificed affordability then and was repeating it for gen-1 Volt. Then then did it yet again with gen-2 Volt. Now, we are witnessing that same obsession with Bolt.

Ironically, that "size" issue will be the center of attention yet again. GM will finally have to deliver a plug-in their own loyal customers will actually be interested in purchasing... a SUV. Imagine trying to squeeze 53 miles of capacity into an Equinox. It's just plain not realistic (weight, efficiency, cost, etc). This is why we don't see any advertising of gen-2 Volt. Each time the cycle repeats, they move back the goal-posts.

We'll see a more modest design... all those who absolutely insisted more was needed and that Toyota's approach wasn't enough would have vanished. It is a reset... which they will likely make the same mistakes, yet again.

5-26-2018 **Goals.** There are some who like to brag. When Model 3 comparison info clearly bias toward Tesla, was posted on the big Prius forum, a few of us pounced. What was he expecting with such obvious trolling? I pointed out his use of bait, asking for him to state goals. Of course, he didn't. Instead, he just bounced the question back to me with: "*State your goals then.*" That act of deflection is a clear sign of his true intent. He was just looking for an easy fight to win. Sadly, that's the behavior of a bully. Some people never outgrow inappropriate acts. Anywho, I punched back with:

I already have... countless times now. They haven't changed in the past 18 years either... to significantly reduce emissions & consumption in a reliable & cost-effective manner. That means I call of those who misrepresent the needs of mainstream buyers. There's nothing wrong with supporting something you believe in, but if it's different from what ordinary consumers will care about, expect attention to be drawn to that fact. In this case, Tesla is a great car that simply isn't something you'll be able to most everyone we know to seriously consider for purchase.

How many people where you work would even be remotely interested in any type of plug-in vehicle now, in 2018? Most choices are just plain not realistic. When tax-credit phaseout begins, that situation is going to become even more of a grim outlook. That's a fact, nothing which can be debated. True, it will change over the course of the next few years, but that's not what you just tried to present... hence the request for goals.

Think about how few of your friends could just jump into the deep end without any hesitation. Installing a 7.7 kW charger connected to a dedicated 40-amp line in their garage is too much for most... and that's just a minimum for plug-in vehicles with 200-mile ranges. How many households have more than just 1 vehicle? Upgrades at home to accommodate recharging take time & money.

Prius Prime is extremely realistic for serious consideration in 2018. Toyota's well proven tech is now offered in an affordable package. You don't need anything more than a normal 120-volt outlet to greatly benefit from it either. This is the first plug-in hybrid to be realistic competition directly against traditional vehicles without any subsidy.

I watched both generations of Volt fail miserably, based on the sales goals we were told to expect. They were to "*leapfrog Prius*" with its "*vastly superior*" technology. That most definitely did not happen. Being able to change the status quo is remarkably difficult. Impressive engineering from GM or Tesla or even Toyota isn't enough. Careful consideration of need is required. Appealing to want just plain does not work outside of the enthusiast audience. Mainstream consumers have very different priorities.

What are your goals?

5-26-2018 **Ignore Rhetoric.** As a senior leader of effort to promote, there's no reason to put up with any of the rhetoric anymore. There's plenty of real-world data to work with now. So, I'm back to playing offense. When an antagonist jumps into the mix, I don't even bother to respond directly (unless there just happens to be an opportunity for useful feedback). My post focuses on promoting. For example, today there was an article on "*hot plug-in hybrids*" which naturally stirred up some vastly superior nonsense. I ignored it, choosing to post this as a new comment (rather than a reply) to draw attention back to what actually matters: 5.7 mi/kWh is what I saw on my most recent commute home from work in my Prime, with the A/C running. That's value most people... even some plug-in owners... don't recognize the significance of yet. Anyone can brag about EV range from a larger battery-pack, but it's how that electricity is actually used is what really matters. Admittedly, I don't see efficiency that high routinely. But for the month of May (so far) here in Minnesota, my average is currently at 458 MPG. So, even when the freakishly efficient gas engine starts, there isn't a major impact to overall results. As for what makes a "*hot plug-in hybrid*", all you have to do is answer the unsolicited questions people ask when you are using the free chargers at the local grocery store. The most common are "*How long does it take to recharge?*" and "*How many miles will it go on electricity?*" Upon providing the answers, slipping in a "*Sticker-Price starts at \$27,100.*" stirs further inquiry... rather than the instant dismissal you get with more expensive offerings. It's very clear ordinary consumers are looking for a balance, not an emphasis on range or power.

5-27-2018 **500,000 Dieselgate Vehicles.** The numbers are quite staggering, so far. 300,000 are already stored at 37 facilities around the United States. Another 50,000 being retrofit for resale. Ultimately, there will be 500,000 from the buyback, resulting in \$7.4 Billion paid back to former customers. 85 percent of the work must be complete by June 2019, or there will be additional payments required. A total of \$25 Billion will be spent to deal with the situation. The videos & photos stir emotion. There's a sea of parked cars shown in each flyover. What will become of them? It's an amazing mess. We were lied to. Diesel enthusiasts attacked hybrid supporters. How many do you think apologized for that?

5-27-2018 **Spinning Reality.** It's quite bizarre to read such inaccurate claims: *"Toyota likes to spend a lot of time perfecting something before releasing it to the public. It has served them well in the past. Unfortunately for them for them, the plug-in vehicle market is evolving too quickly."* They are just spinning their own reality rather than acknowledge, or even recognize, what actually happened. My guess is people posting greenwash like that are clueless, totally guessing about the history they had no part of. After all, it's easy to make fundamental mistakes about a past looking backward using only vague references you stumble across in recent posts. Annoyed, I fired off a contradiction to that dribble with actual facts: Toyota's electrification history is filled with incremental upgrades. That has been anything but unfortunate. Prius was rolled out in 1997, then got a major mid-cycle upgrade for the battery-pack in 2000 prior to arriving in the United States. In 2003, the gen-2 of Prius was rolled out. By 2006, the technology has been upgraded & spread for use in a sedan (Camry), an AWD minivan (Estima), and a SUV (Highlander). In 2009, we got the gen-3 Prius was rolled out. In 2012, the first-gen plug-in Prius was rolled out. In 2016, the gen-4 Prius was rolled out. In 2017, the second-gen plug-in Prius was rolled out. What part of that doesn't confirm the moving quickly? You do realize how easy it would be for Toyota to rollout a mid-cycle upgrade for the plug-in Prius? An upgrade to the battery-pack for a bump in range & power is quite realistic. After all, Toyota did exactly that for the gen-1 Prius.

5-27-2018 **Admit What?** News from Toyota that automotive-grade versions of solid-state batteries won't be realistic for at least a decade (roughly 2 product-cycles) is naturally stirring spin. No one takes into consideration that they could work just fine for next-gen offerings, but be so unrealistically expensive that they aren't used. Sound familiar? That's exactly why the plug-in Prius didn't come out sooner. Even with limited capacity, the pack wasn't affordable. Anywho, there's quite a bit of brainless attacks now. For example: *"With hybrids you increase the power train complexity and cost for minimal increased efficiency. This is why they have never caught on. Toyota can't admit it because they invented the tech and have a lot invested in it."* I was annoyed by how meritless that claim was. Worse though is the thought that this audience could be so poorly informed or so gullible as to accept the claim without question. Ugh. It could happen. There's so much tribalism now, some people simply don't bother to listen anymore. Remember how bad it got on the daily blog for Volt? They just stopped caring. Oh well. I can at least try to convey some sensibility to the discussions: Real-World data proves that false. 12 million have been sold, the emission & consumption reductions dramatic, and the cost is competitive. With my Prime, the current tank just barely reads below full, despite having driven over 700 miles already. I have been averaging over 100 MPG for lifetime efficiency. That's an incredible result from a hybrid with a MSRP starting at \$27,100. Toyota has already delivered a full EV driving experience. Whether or not the first non-hybrid plug-in offered here uses solid-state batteries doesn't matter. In about a year, the EV model of C-HR will make its debut in China. So what if it uses the most advanced lithium battery with electrolyte instead? There is nothing to admit.

- 5-27-2018** **Cleaning What?** Attempts to belittle Toyota's approach don't have much to work with anymore. So many automaker announcements are for offerings a few years from now that anything with respect to a need to wait reference is hypocritical. Yet, some try anyway: *"Always waiting for some next development while someone else is cleaning their collective clocks."* It's basically the new twist on *"behind"* claims. I'm not going to accept any of that nonsense: Who is cleaning what? We aren't even out of the early-adopter phase... clearly marked by the presence of subsidies, in our case generous tax-credits. Whether or not any legacy automaker can achieve sustained mainstream sales volume (at least 5,000 per month) to compete with the true competition remains to be seen. Traditional vehicles pose a monumental challenge to overcome still. Don't be fooled into complacency by initial sales to those willing to accept new technology that isn't able to take on the legacy offerings yet. Remember, appealing to ordinary consumers is much, much more difficult than our group here.
- 5-28-2018** **Too Expensive.** That's what it boils down to. Being cliché conveys the point well. Those GM enthusiasts still clinging on to hope, rather than being realistic about the situation are losing attention. Non-Enthusiasts simply aren't interested due to high sticker prices. So, the fact that tax-credit phaseouts will soon be triggered basically ends even the most optimistic. That's why most have vanished. I made that all too clear with: The cold, hard reality is you don't want to acknowledge the problem of cost. Saying Toyota should at least have as much range as Volt overwhelmingly confirms that fact. It's simply too expensive still. You would be just as disappointed if price has been raised to compensate for that increase. Keep in mind how high of a priority sticker-price has been for Prius. Toyota has stayed true to that, not giving into tax-credit dependency like GM. Looking at Volt sales, it's quite clear that the loss of the \$7,500 subsidy is going to make that bad situation even worse. Another thing to keep in mind about Toyota is the spin coming from antagonists. Remember how much rhetoric we had to deal with when gen-1 Prius PHV production ended. There were countless posts for months about how Toyota didn't believe in plug-in cars. The internet is filled with those who are short-sighted and those hoping to disenfranchise. Don't listen to their claims. We'll get an increase of range & power as costs justify. Toyota is not going to compromise affordability just for the sake of pleasing enthusiasts. Their focus is sustainable high-volume profitable sales to mainstream consumers.

5-28-2018 **Big Oil.** So much spin has emerged that the basic unstanding of "*peak oil*" has been lost. We hit that point a number of years ago. It's easy to recognize when you step back to look at the big picture. That was the moment when stability became uncertain. For different audiences, that realization happened at different times. It did happen though. For everyone, that is now in the past. There's no guarantee of anything anymore. Price, Supply, Demand... are all anyone's guess. The industry has no idea what to invest in now. Peak occurred already. How long the downfall will take is extremely uncertain. There's nothing to bank on at this point. We see success from vehicle electrification and the undeniable pushback against pollution sources. That future is cannot be argued. How we get there is subject of debate. But the nature of the course doesn't matter, since we all see a common destination... one that no longer includes Big Oil. I summed up the situation as of mid-2018 with: Oil isn't only used for personal transportation. Commercial use beyond just transport is an array of petroleum based products. There's also the reality of product turnover. Buying a new camera no big deal. The purchase of a new vehicle is an entirely different matter. It is far more expensive and you don't replace anywhere near as often. The problem of where to plug in won't be overcome quickly either. It will take a long time, but it will eventually happen.

5-29-2018 **VIDEO: Using the Electric A/C.** I especially enjoyed filming this trip. It's a really nice location I have been taking Prius photos at from the very beginning, all those years ago. The park has been improved upon over the years. There is now a charging-station and more trails. So, that's a very appealing destination. Anywho, you get to see my drive to & from there in this newest video:

A/C use requires electricity from the battery-pack. That need to stay cool will shorten EV driving distance available.

This example, where I go for a drive to the bluffs along the river (great bike trails there), shows how the impact hot conditions. Normally, I would just plug in while parked to recharge the Prime. But in this case, I immediately did the return trip to show total EV distance available in that heat while driving the scenic country road.

Watch the temperature on the dashboard display rise. You start cool from having begun with a car in the shade. But as you drive, even with the air blowing from the drive, that nasty heat eventually registers. The video states 92°F to be reflective of an average for the entire trip.

EV distance for that charge was just shy of 27 miles. Total distance driven was 33 miles. Overall MPG for the round-trip was 342 MPG.

Note that the gauge data in the lower-right is from an aftermarket application, captured with my phone using an OBD-II port reader.

Watch it here... [Prius Prime - Using the Electric A/C](#)

- 5-29-2018** **Doom & Gloom.** I find it quite amusing how some obvious Volt enthusiasts hoping to undermine Toyota don't really listen to what they are actually saying. They try to spin a story of doom & gloom, but don't recognize it applies to the very thing they are trying to provide an endorsement for. That's why they are enthusiasts, rather than supporters. Blind hope and claims without merit don't account for much. But that lack of recognition of the situation is why they shouldn't be taken serious. Though, I do humor some with questions from time to time: What automaker are you referring to? Looking at GM, we see no path to the future. It offers 2 low-volume, unprofitable plug-in vehicles that don't appeal to their own loyal customers. GM shoppers want nothing to do with a compact hatchback or wagon. They want SUV choices... of which, GM offers none with a battery-pack. Toyota, on the other hand, has a clear path laid out for electrification. There's a wide selection of hybrids now that will lead to plug-in hybrid and EV models. It's an obvious stage being set for their entire consumer market, a diverse offering from a wide variety of shoppers.
- 5-30-2018** **Big Wind.** I was listening to videos while commuting to work. Letting YouTube serve up recent news clips can be quite informative. Today, that was especially the case. When the advertisement between clips mentioned "*Big Wind*" it gave me a sick-to-the-stomach feeling. I had stumbled across propangda. The rhetoric was quite obvious too. They voice kept stressing how much money would be wasted on solar & wind investments because the needs of customers don't happen exclusively when the sun is shining and the wind is blowing. For you to be suckered into that belief, you cannot be informed that there is no means of storing that electricity. Knowing that banks of batteries or tanks of hydrogen can be used to hold that energy in reserve until it is needed later completely wrecks their argument. You also cannot be informed that the grid itself can help for distribution, since cloudy & calm days don't happen everywhere at the same time. Another thing you shouldn't be aware of is how quickly that field is growing, the number of employment opportunities solar & wind are creating. It was really sad to hear the desperation of Big Oil playing out. But then again, they would only use such deception when the cards are stacked against them. We know the end of petroleum use for personal transportation is approaching.
- 5-30-2018** **Brake!** That was sweet. I was reminded just how smart the accident-detection system is in Prime today. A vehicle up in the distance suddenly braked really hard. The sensors detected its abrupt stop and made me aware that it was no longer in motion. That's a really big deal. When a vehicle comes to a full stop, rather than just continuing with a slow roll, it can be indication of a problem. So, an alarm sounded and "BRAKE" appeared in red on the dashboard. Since I was following with a generous gap, there was plenty of distance for me to stop too. I had forgotten just how far ahead and how sensitive that detection is. Preventing accidents is very, very important. Yet, most people still only focus on crash-test ratings. It's really sad that avoidance isn't promoted much. Thankfully, we have been seeing mention of it from time to time with auto-braking advertisements. But it is still far from being an expectation. People think of it as a nice extra, rather than a must have.

- 5-31-2018 Fizzle.** Think about how many times I asked for enthusiasts to state goals. Think about how many times they changed the definition of EREV. It's easy to become frustrated or disenchanted afterward, when clear expectations were not actually set. For example: *"I think a lot of people are unfairly judging the Volt as if it's a type of car it was never meant to be."* That comment was made following a post of what will likely be the outcome of May sales. He never actually stated what it was meant to be. So naturally, the likelihood of sales continuing to struggle is a source of frustration. Demand should have been so strong at this point that GM would be struggling with supply. After all, that was the point of provided tax-credits. The money was meant to subsidize sales so production could be ramped up to a profitable & sustainable level prior to phaseout. GM fell well short of that, not even close. Having delivered a niche for enthusiasts, rather than a plug-in replacement for traditional vehicles spelled doom & gloom right from the start. And sure enough, all these years later, that's exactly the problem faced now. Ugh. I kept my response to that short: Volt was promoted as a vehicle for mainstream consumers, a choice that would *"leapfrog"* the green market leader. Technology that doesn't reach ordinary people unsubsidized in high-volume is a failure in that regard. GM's leadership fizzled. Their own loyal customers are still waiting for something to replace their current GM guzzler SUV with.
- 5-31-2018 Low Volume.** Don't you love how claims like this come out of no where: *"Model-3 will retain the sales crown as Prius-Plugin is only a low volume car."* The person saying that pretty much never provides any supportive data either. They just make the wild statement, then vanish. It's a blatant effort to undermine. Make a vague post as if it is fact, without bothering to supply anything of any merit as proof. It's just like our current president... keep interjecting the same lie into comments, repeating it so often people take it as true. Seeing that type of nonsense play out in the automotive industry is very frustrating. But to see the same behavior on that political scale is very disturbing. We'll see oil & coal get support to further environmental damage... to the world. It's hard to believe such activity on the basic online forum emerge on such an enormous scale, the same spin. The suggestion to combat that is to inform as many people as possible through real-world data. They'll try to debunk everything you say, but witnessing it firsthand conveys the message better. That's why I film so many drives. Each video is packed with detail. You can't deny that much evidence after awhile, especially when it is so easy to share with others for review & feedback. You can break first impressions that way, get beyond the problem of anecdotal observation. People don't research. They often just accept what they read as fact. So, that is where you start... especially in the case of availability. Make them curious enough to start watching roads more. They'll notice, eventually. In the meantime: Low volume car based on anecdotal observation would give that impression. In reality, the first year was a worldwide rollout, so availability was very limited. Despite that, there were still 51,000 delivered.

- 6-01-2018** **Volt Trouble.** The spin was intense right from the start today. Volt is in trouble. GM hasn't expressed any interest. Selling it has become pointless. Bolt was to be the replacement, but it too is struggling for attention. If you want a seriously nice EV, you buy a Tesla. There's no debate. For an affordable solution, it's well worth considering considering Nissan. Those are the EV choices. It's either Model 3 or Leaf. That's why Prime has emerged as the plug-in hybrid of choice. True, we see other options offered, but the market is so limited they have no following established yet. So, the spin to keep Volt relevant is well underway. I hit back with detail to debunk the effort: "*Volt Gains Ground*" doesn't reflect history. Monthly sales of 1,600 to 1,700 was the trend throughout a bulk of gen-1 offerings, with the exception of year-end rushes and the price-drops. That was considered poor no matter how it was looked upon too, which is why much higher expectations were set for gen-2 sales. For any plug-in to be realistically competitive with traditional vehicles (a true mark of replacement progress), unsubsidized monthly sales here must be at least 5,000. Below that, the status quo simply isn't getting changed. To sustain momentum into the world of electrification, significant growth is required.
- 6-01-2018** **Confirmation.** GM really screwed up by putting so much emphasis on range & power. More and more of the enthusiasts are pointing out the shortcomings as a result. Today's complaint emanates from the sales report being so bad. Even though GM switched to quarterly reporting (to obviously conceal their trouble), the process of estimating sales based on inventory is accurate enough to still reveal the trend. The use of "*gain*" really being a spin to hide the fact that "*recover*" is actually the proper term is telling. But more importantly is highlighting the reasons why sales have been such a struggle. To get certain features, you much choose the most expensive package for the GM plug-in vehicle... since range & power were deemed much more important. I knew when enthusiasts blew off everything but those traits, they would be in a world of hurt later. Ordinary shoppers want a balance of features... exactly what both Volt & Bolt lack. A complaint about that emerged in today's discussion. I was happy to point out why: Adaptive Cruise (aka: Dynamic Radar Cruise Control) is included standard on all the common Toyota cars... RAV4, C-HR, Corolla, Camry, Prius. GM's sacrifice if leaving off features like that hasn't proven a wise choice. It's more confirmation of having focused too heavily on enthusiast interests, rather than mainstream consumers.
- 6-01-2018** **Audience, again.** Debate about the 2 top-selling choices is inevitable, regardless of how meaningless the claims are. It is madness that anyone could even imply Tesla and Toyota are targeting a single group of consumers. They clearly are not. Yet, we have endless arguments sighting contrary points. Ugh. Oh well. At least it is well documented that someone had a solid understanding of who within the mindlessness: There's no reason to take banter on this thread seriously... since it makes no sense whatsoever comparing vehicles so dramatically different. They clearly don't target the same audience. Many here simply thrive on the participation, which is fine, but important not to overlook. It's that problem of normalization. Enthusiasts sharing information isn't an issue in any regard, as long as the context of what say, they are all aware that much of what's discussed won't apply to ordinary shoppers. Know your audience.

- 6-01-2018** **Audience, push.** I'm unwilling to allow the status quo to continue. Back to playing offense means I push, like when seeing this: "*The Ioniq for the most part reminded me of the Prius, weak acceleration*" Coming from a frequent antagonist (know your audience) who thrives on negative attention, I mixed it up by taking over the narrative. Not allowing the pattern of belittling to continue is all it takes. Step up, rather than be an enabler. So, I did: Sloppy or Careless reporting will get called out, as I am doing now to that. Off the line, I'm almost always the leader of the pack. The electric-motor has substantial torque with zero noise or feel penalty. So, being generous with the pedal is very realistic. We also know for a fact that the Toyota system delivers more electric-power than Hyundai's. Of course, how often do you actually need maximum EV power? I find it quite rare when merging onto the highway. So, that vague use of "weak" is misleading at best. You can always switch to HV mode for more power anyway. Remember, the audience for Prime is quite different from that of Tesla.
- 6-01-2018** **Defeat & Hope.** It's over. You can tell by looking at the sentiment of hope. That transformed from pushing wants to finally acknowledging need: "*I hope someone at GM is taking note of these trends and will consider a decent ad campaign for and larger follow-on to the Volt.*" This came from an nasty antagonist on that daily Volt blog, but posted on a general-audience EV blog. He absolutely hated my one-size-fits-all compliant. Hearing me push for diversity made him absolutely crazy. The lashing out at me for expressing "*too little, too slowly*" concern was deep, deep denial on his part what was necessary. Diversity is essential. It's a basic principal of good business. Yet, he fought me with every possible attack method. In his mind, that next step would dilute the EREV approach... which was so vague, it didn't actually represent anything anyway. But holding onto hope is all some people have. Admitting defeat is difficult when you don't have a solid plan for progressing forward. Volt was a gamble, a huge risk that failed to attract mainstream sales. Could advertising have helped? Yes, of course. But it was obvious GM wasn't interested... a stance still difficult for some to accept. GM's obsession with SUV sales should have made that crystal clear. After all, that is what I pointed out when suggesting the "*follow-on*" for the technology in Volt. Having someone like me be correct is difficult to embrace though... when you identify the competition as other plug-in vehicles, rather than traditional choices. It was a flawed approach from the start, hence the defeat... what I predicted a decade ago. That's how the "*Who?*" question came about.

- 6-02-2018** **Behind.** That rhetoric claiming Toyota is "*behind*" sure has fallen apart rather abruptly. GM made a series of announcements today. All had dates in the early part of the next decade... basically, following the same schedule Toyota had all along. Only problem is, Toyota's path to electrification is quite clear. Each hybrid will offer a plug at some point. That's simple. That's affordable. That's sensible. In other words, the automaker supposedly "*kicking & screaming*" about having to embrace the future obviously isn't. So, the antagonists have suddenly become quiet... especially since nothing GM announced mentioned the United States specifically. It all very much had a focus on the market in China instead. Volt & Bolt are being left to struggle alone. Meantime, we see Prius Prime advancing with an undeniable target of mainstream consumers. Nissan is sharing a similar course. Affordability with a nice balance of features is key. That makes the others... like Honda, Chrysler, and Mitsubishi... a bit uncertain. They are all much more expensive and each is rather specialized. There's lots of potential. Maybe we'll see more rounded options in the next few years. Hope from VW and Ford is realistic too. We see the industry changing... just not the way enthusiasts had claimed.
- 6-03-2018** **Waiting.** You never really get it. Progress is a moving target. There is always something better to wait for... at least, that's the situation with technology. We've seen it that way with personal computers for over 4 decades now. With vehicles though, there is a difference to that dynamic... being willing to pay for what you don't actually need. That type of waste isn't common with those daily personal electronic devices we carry... despite them being far less expensive than a vehicle. With that in mind, it makes you wonder how to respond to this: "*Do I really have to wait until I'm in a nursing home before they start offering an affordable truck?*" What exactly is he actually waiting for? It's somewhat of a contradiction wanting a guzzler to become more efficient, yet to still be within the guzzler category. Could something else achieve the same goals? As somewhat of a wake-up call, I formulated my by-the-way with: It won't ever happen. The reason for trucks being pushed so much is they are high-profit vehicles. Making them affordable would defeat that purpose. The only good to come out of the crazy obsession is that conversion to plug-in is easier than with a car. That wasted height & bulk can be used by battery.
- 6-03-2018** **Dying Industry.** We were presented with a plan today to force taxpayers to rescue the coal industry. The claim is investment by utility companies will strengthen our national security. How? That doesn't make any sense. Investing in a non-renewable source that causes harm to the environment is exactly what we should avoid. Wind & Solar can be widely distributed, located close to those who will consume the electricity. It can also be transport via wire without any resulting pollution. Coal is quite the opposite. What is the expected outcome anyway? This won't result in higher employment. Much of the coal industry has adopted large-scale automation. Machines are doing most of the work now. We know employment is growing in the renewable industry. Think about how many workers are needed to install all that new equipment. There's the upcoming energy-storage market too, where large battery facilities will hold electricity generated during times of wind & sun for use later when it is calm & dark. The same will come about for commercial hydrogen use too. Coal doesn't have a future. It is only a bridge to it. The plan today, which will ultimately raise energy costs (remember, coal competes directly with natural-gas), is harmful to ordinary consumers. They will end up paying the price.

- 6-04-2018** **Insufficient.** We are still having to deal with the "*bigger is better*" mentality. It's based upon lack of knowledge. Without real-world data, they just make assumptions. So, whenever the 25-mile capacity is mentioned, it's the same old rhetoric all over again. Their brainless assertions of "*insufficient*" make it easy to push them aside. I just keep posting more real-world data: 966 miles so far on this tank, which reads less than 1/8 used so far. That's what happens with a Prime when where you park at work and some destinations have chargers available. When you don't, results are still amazing. I wasn't able to plug in on Saturday. So, the 39.6 miles I did running around town were with just the overnight recharge. The result was 263.4 MPG. Yesterday, I got 67.9 MPG from my 31.5 mile drive today without any electricity at all. So, even when the engine runs, overall results are well over 200 MPG...which is quite sufficient.
- 6-04-2018** **Limited Scope.** It never ceases to amaze me how there can be so many plug-in supporters who see nothing but the plug-in market. They don't consider traditional vehicles competition. Their entire scope is limited to just vehicles with plugs... which has the unfortunate consequence of giving a distorted impression of what's actually happening with the industry. Ironically, it was GM enthusiasts who slammed Toyota for only delivering a "*compliance*" vehicle. For that to be true, they had to overlook the fact that Prius PHV was a mid-cycle rollout. Looking at Prius Prime, the first full-cycle rollout, that clearly isn't the case... which puts Volt in a hypocritical position, since it is one its second full-cycle and Toyota is already exceeding what GM was able to achieve. Watch for comments that don't take scope into account. Expect there to be many more with the upcoming tax-credit phaseouts about to be triggered. In the meantime, I'll keep posting comments like this one today: While tax-credits are still available, the game is rigged. Measure of true demand won't be accurate until subsidies are phased out and inventory is available locally for immediate purchase. Until then, you are just sampling enthusiast interest. Mainstream sales are far more difficult, but essential for sustainable profit.
- 6-05-2018** **Sad Reality.** There's not much to say when the situation is spelled out like this: "*People in America don't even attempt to disguise their corruption any more. They revel in it and defy anyone to do anything about it.*" That is what this nation filled with lots of short-sighted, self-centered people has become. I saw that transformation as the Two-Mode disaster unfolded... which is why it has been such a symbolic feature in these blogs. When it emerged as the biggest "*over promise, under deliver*" problem of modern time in the automotive business, the supporters developed an attitude... hence the emergence of enthusiasts. Not caring whether there was anything to actually support their claims of being "*vastly superior*" didn't matter. They had their talking points. The fact that their chosen technology was unrealistically expensive, making it unsustainable didn't matter. In fact, we are watching the final chapter of that playout now. None of them seem to show any concern about the lack of sales growth or the upcoming loss of the \$7,500 tax-credit. They just plain don't care. So, with an atmosphere like that, there isn't much of a barrier to keep corruption from filtering in. After all, we already saw that with the diesel scandal. It makes you wonder what other surprises could emerge if the usual checks & balances have faded away. We already know the expectations for solar have dropped dramatically due to the upcoming new tariffs. That will hurt EV support.

6-06-2018 **Market Understanding.** I summed it down to this simple perspective: "*Stage 1 = subsidized sales. Stage 2 = actual competition. Remember, the goal is to compete directly with traditional vehicles, replacing them with clean & efficient choices.*" It is truly amazing how few people online actually understand that. They think the plug-in market is isolated, emerging without any resistance from traditional vehicles. They are quite naive to think that those offerings will be embraced by resellers. Such a lack of business recognition is quite expensive of a mistake to make. But then again, GM has been doing that for years. All the "Who?" problems came from this same problem of not knowing audience. We learned that lesson long ago with Prius. Dealers weren't interested in carrying inventory which delivered a tiny profit that was a challenge to sell. That's why Prius required standout traits. It couldn't be just another vehicle back then. Now, we see amazing performance from the likes of Camry hybrid. Unfortunately, plug-in offerings aren't that well established. So, there's a conflict within dealerships... whether those online want to acknowledge the problem or not. Most think I'm nuts to show such concern for what seems to be a trivial point. They are wrong. Volt overwhelmingly proved it. Here's what they still need to learn: Plug-In vehicles are competing with traditional vehicles already. It is a fight to be carried as inventory and to be displayed on showroom floors. That perspective of the dealer is more important than that of consumers. Because if there's nothing offered to buy, the status quo will not change. In other words, the dealer is the true customer, they are determining who the competition is.

6-07-2018 **Damage Control.** The outcome of GM's attempts to deliver a mainstream efficiency choice have been one disaster after another. They equate to expensive conquests that never end up changing their status quo. That loyal base of GM customers continue to keep buying the same thing. So, it makes the announcement that GM just made about partnering with Honda appear quite different when you know the background. Volt enthusiasts really doing damage control, apologizing for GM stumbles by making it look that they are actually the ones helping: "*Honda is so behind on EV game, it's not even funny. Glad they decided to partner with somebody, anybody.*" The approach is to simply distract by posting something seemingly on topic. It's basically hiding in plain view, pretending everything is fine. After all, the damage is already done. Drawing attention to it only makes the situation worse in their mind. So, rather than learning from mistakes, they set themselves up to repeat them again. Ugh. Oh well, all you can do is point out what really happened: Honda has already delivered what we still wait for from GM. When Volt was rolled out, there's was an expectation for that technology to be spread to their core offerings... specifically, a model of SUV. It still hasn't happened. For that matter, there isn't even a full-size sedan comparable to Clarity announced yet. Why hasn't the technology from 2010 made its way to anything other than Volt in this market? The answer to that question is simple. GM doesn't know how to make what they offer affordable. Low cost wasn't part of the design approach, so now they are stuck with a difficult to sell technology. Some of us expressed concern about that right from the start. We saw the disaster Two-Mode had become and were witnessing the same mistakes being repeated with gen-1 Volt. Not only did that indeed end up being the problem, that very issue wasn't addressed for gen-2 Volt either. It's still not affordable. MSRP is too high to appeal to mainstream consumers. Knowing this makes it easier to understand how the need for a partnership came about. There's mutual benefit from sharing technology. Look at how well the carbon-fiber knowledge from BMW made its way into Toyota's plug-in Prius.

- 6-08-2018** **P0A80.** Helped a friend yesterday with his 2004 Prius. At 213K miles, the engine is still working great, but the pack is shot. It spent a lot of years used daily and without a garage, so it was a good lifetime. I was able reset codes to confirm it truly was just the battery having issues. This will be my first opportunity to witness a pack replacment. It is basically the same experience I had 20 years ago, when the transmission in my Taurus gave out. People do make that choice of major vehicle repair like that. In fact, this is what there were so many transmission shops. It happens. Strangely though, the outcome isn't so extreme. Putting a new transmission into a vehicle simply restores slipping gears. Putting in a new battery dials back the clock to a new status. It will be odd for a vehicle clearly showing age to be operating as if it was brand new again. You don't get as much stealth (the electric-only mode in the hybrid mode) as the pack ages. The engine runs more often simply due to the fact that capacity has faded over time. Remember, it bares the brunt of propulsion, protecting the engine from strain. With new cells, you get renewed life. The Prius will be back to favoring electricity more again. That certainly will be interesting.
- 6-09-2018** **TCO.** Total Cost of Ownership has been the approach many trying to endorse plug-in vehicles take. They feel a proper conveyance of overall savings will draw more sales. You prove to the person money is better spent by paying more upfront, since it takes far less with an electric motor & battery to operate. Reality of that approach not reaching this audience is becoming all too clear: *"I fully agree, but most people don't calculate that way. They respond mostly to upfront costs, and/or cheapest monthly lease cost."* This problem is why SUV acceptance has become so popular. People see monthly payments as managable and simply don't give it any more thought. It's an obvious mistake from the accounting perspective, but emotion... that feeling of just getting by... is all that some people want. They are not compelled to maximize. This is what our mainstream has become. True, other markets and those without disposable income, see the situation quite differently. But knowing this audience means taking a different approach. It's nice to see others beginning to recognize that problem. Imagine if that enlightenment would have happened long ago, when the "Who?" question was first asked. They couldn't figure out why their *"it's worth it"* logic was ineffective. Logic doesn't work for everyone. Know your audience. Anywho, I responded to that with: Bingo! That's a difficult reality for some to recognize. How do you appeal to people who don't place a high priority on saving money?

6-10-2018 **Compliance.** You gotta like this: "*I still want to see the COMPLIANCE automakers get their incentives taken away.*" The person who posted that believes "*compliance*" is the act of delivering something following the leaders. Whether or not the product to follow is superior doesn't matter. They couldn't care less if those later offerings learned from the mistakes the initial offerings made. They simply want the first to be rewarded and the later to be punished. Taking time to study the market and deliver a product capable of high-volume profitable sales means nothing to an enthusiast... hence the label. A supporter understands the difference. Using the subsidy wisely seems a waste to the enthusiast, who pushes a rush to market. Fix it later, rather than make it right from the start. Success of Prius has always involved patience. The mid-cycle rollout of Prius PHV to just limited areas was proof that Toyota was making an effort to ensure they truly knew their audience. In fact, it wouldn't surprise me at all to see a mid-cycle update with Prime as confirmation of being attentive to the market. Why should incentives be taken away for that? Annoyed, I posted: We watched GM do that with Volt, a vehicle clearly not targeted at its own loyal buyers. GM's heavy focus on the SUV market made it quite obvious a small hatchback delivered at niche volume without any real promotion (excluded from nearly all their product-line commercials) was not going anywhere. And sure enough, sales have fumbled 7.5 years... resulting only in conquest. The status quo of their own showroom shoppers didn't change. That certainly sounds like gaming the system for compliance.

6-11-2018 **Tariff Consequences.** We are witnessing the beginning of a nightmare. It starts with anger. This administration is hell-bent on superiority, regardless of cost. Feeling taken advantage of is an excuse for lashing out. The mindset of isolationism being necessary for national security means turning on allies, forcing them to take a side against you. It's a global market. That type of childish bullying is futile. You need trade partners... which requires balance through an effort to achieve mutual benefit. You don't just spite anyone who attempts to compete by improving their process, even if the means are not appropriate... because there are consequences of ill intent. This administration is so blinded by the letter of the law, they are clueless about what it means to deliver an act of kindness. Money isn't everything. You build trust through understanding & cooperation. We are going to watch industry struggle now. Tariffs have penalties. Complex products, like vehicles for personal transport, require a great number of parts & materials from around the world. Consumers will end up paying more as a result of tariffs, regardless of where the product is assembled. We are in a world of hurt already and this administration is striving to make that situation worse. It's hard to believe some people can be so poorly educated about how world economics actually work.

- 6-11-2018** **Blind-Spot Warning.** That flashing light on the side-mirror indicates a vehicle has been detected in that blind-spot for that side. It will continue flashing until your turn-signal is cancelled. Then, it just turns to a solid light to indicate the presence of something. That's all the more thought I had given to that feature until today. It was elegantly simple. What else could there be? I found out today. Rather than taking the advice of that warning, I pushed into the lane. It was tight pass, but that vehicle was going quite a bit slower. So, there wasn't any danger. The car only respond to detection criteria though. It's unaware of your intentions or the surrounding conditions. That means you continue to get a warning... but it gets bumped to the next level. The LKA (Lane Keep Assist) kicked in. I felt steering-wheel resistance grow. It was a subtle way of making sure I knew what I was doing. Feeling it push back like that was sweet. I hadn't thought about the feature being used for more than keeping you from straying out of your lane unintentionally.
- 6-12-2018** **Death of Diesel.** It's coming. We have seen niche offerings of diesel variants vanish. Cost is simply too high for so little in return. The first of the big names to end the offering of a popular gas vehicle is a sign of the next wave of change. That is what brings about paradigm shift. Kia announced their Soul in Europe would become EV only next year. That's really big news. Discontinuing a traditional choice is a really big deal. It would be like Toyota switching C-HR to only be a hybrid here. That is quite realistic, especially when you know that an EV model will be offered next year in China. This is why the effort to push Camry & RAV4 hybrids into the mainstream is so important. They deliver much cleaner emissions and higher efficiency than diesel, as well as pave the way for greater electrification. Remember, there are plans for Corolla PHEV next year. Sadly, we won't see it here. But knowing the another hybrid to plug-in hybrid variant is realistic for such a well-known vehicle is the final death blow to diesel. There is no reason to bother with it for non-commercial use. Of course, we are now seeing EV buses emerge into the market. The school district next to where I live has one already.
- 6-13-2018** **32 Amps.** Choosing how much capacity to setup our chargers for in the garage was quite a debate. The chargers themselves can deliver a rate of 10 kW. That translates to a steady flow of 40 Amps to the car, which means you need a dedicated 50-Amp circuit (since a 20% buffer is required for safety). Running a heavier gauge wire and using higher amp breakers would be no big deal. But even the fastest charging vehicle currently top out at 6.6 kW, which is twice that of the 3.3 kW we get from Prime. At best, the target for a high-speed at-home standard has been thought to be 7.7 kW. So, more is just overkill. After all, if you do the math, it reveals there isn't a need. 6.6 kW for 8 hours would give you roughly 50 kWh of electricity. (Keep in mind, charging slows as capacity reaches full.) At an efficiency level of 4.5 kW/mi, you'd get 225 miles of EV range. That's plenty for an overnight recharge. Turns out, Tesla agrees. That is what their latest at-home EVSE offers. Yes, their charger that comes standard with Model 3 and now Model S draws a sustained rate of 32 Amps. That means my choice to endorse the choice of a 40-Amp circuit is dead on with what a major industry player has endorsed. Sweet. I wanted a realistic recommendation for people setting up their garages to be able to accommodate the charging of 2 vehicles overnight and didn't want them to spend more than what would truly be necessary, even when planning ahead for a future vehicle.

- 6-14-2018 Battery-Pack Replacement.** Today was both interesting and a non-event. That good friend of mine with the Prius needing battery-pack replacement brought his car into a dealer for serious consideration of doing exactly that. It was a location clear across down, requiring a drive past several other dealers to get their. This particular Toyota location has been carrying Prime for a few months now and was the one that offered a lower quote for the same job. So, despite the possibility of the engine revving harder from the intermittent assistance from the pack, he drove out there. It wasn't a big deal. He got there just fine for the appointment. I eagerly await a report of what the mechanics find from their analysis. I bet they are too. It isn't everyday an opportunity to look at such an aged battery (the pack has 213,000 miles on it from 14 years of use).
- 6-15-2018 Playing Offense, differences.** It's really annoying when you point out similarities & differences and the person clearly doesn't actually read what you posted: *"Most people like to have the "differences" including that feature, pointed out when they are shopping for a car."* So, I tried again... since I'm playing offense now, taking the initiative rather than waiting to counter. That means hitting them with a follow-up with just enough info to stimulate discussion: You seemed to have missed the fact that the poster attempted to single out Volt as the only plug-in hybrid with that feature, making it appear to be a difference. When you drop the pedal to the floor in Prime, the engine remains off. The ICE does not start... hence no difference. Honda Clarity offers electric-only acceleration too, if you don't push the pedal past the click-point. Again, the ICE does not start. A plug-in hybrid that actually is different is Chrysler Pacifica. You don't have direct control of when the engine will run. When a kW draw threshold is exceeded, the ICE will indeed start. This also how the previous PHV model of Prius operated. Again, differences matters. Don't gloss over detail.
- 6-16-2018 Playing Offense, enemies.** There are times when you just have to pounce: *"I'm not your enemy, I'm giving you facts. Hybrids are transitional cars. The longer we drive them the slower the transition to green cars is."* That was the start of a reply that ended with: *"I'm saying the moment you put gas in a car it's not green."* It's that type of absolute close-mindedness that creates trouble. Life is not that simple. You cannot just take a situation to an extreme and disregard all else. Ugh. This is why the change from defense to offense is needed at times, like today: No, you are replacing a fact with an absolute. You can't outright dismiss the *"fossil fuels would be significantly reduced"* statement in your reply. I have driven over 1,500 miles on a little over a half tank of gas in my Prime since the last refill. That's roughly 300 MPG. Treating that as disappointing since *"You're putting a heat engine in a vehicle that supports fossil fuel."* is just plain wrong. You still have to plug in to achieve those results. That means the owner makes that behavior a routine part of their driving experience. That also means they upgrade their infrastructure at home to accommodate the need. Both are vital to promote electric-only vehicles. Getting that to happen now accelerates adoption. Think out how likely it will be that their next vehicle purchase will be an EV, especially if the plug-in hybrid becomes a great hand-me-down for a child. Think about how likely it will be for the owner of the first plug-in hybrid in the household to propose upgrading the garage with a level-2 charger so a second plug-in vehicle can be purchased. Think about how much of an enemy you will become if you don't think carefully about how you respond to this post. Plug-In hybrids provide a means of accelerating electrification. They are very green and promote plugging in.

- 6-16-2018** **Playing Offense, thanks.** That post about differences did indeed result in a positive outcome. I got a "*Thanks, I didn't know that.*" about the click-point feature. How do you spread knowledge of new behaviors? There are things completely unique to hybrids. Back when the Planetary-CVE was new, people used to frequently complain about the under-powered acceleration... until we pointed out to actually pay attention to the speedometer, not the feeling conveyed to your butt through the seat. That absence of gears shifting gave the impression of an engine struggling. Without noticing what a gauge was telling you about the true situation, it's easy to assume incorrectly. After all, you are also hearing the drone of a Atkinson-Miller pumping cycle... which sounds different from the common Otto. That mishearing solidifies your misunderstanding. What happens under the hood using new technology requires a bit of study. Some ask questions. Some get the information pushed on them by those like me hoping to prevent the spread of misconceptions. Thankfully, posts like that do get a thank you for the effort.
- 6-17-2018** **Playing Offense, goals.** Remember arguments of the past? Those efforts to win at any cost were amazing. It seems difficult to imagine anyone so desperate... until you encounter it again. Why do they fight so hard for a pointless victory? When there is nothing to gain, what compels a person to debate so relentlessly? I can think of countless incentives some have fought to hold the status quo, all with the goal of undermining Prius. But when it comes to EV support, there's an absolute. It's counter-productive to wait for purity. Yet, we hear arguments for it all the time. This is the outcome of Volt having failed to market "*range anxiety*" effectively. Acceptance of that loss is what we have to deal with now. I see it routinely, each time there is a new thread where plug-in hybrids get praise. I always direct the discussion to goals, rather than biting their troll bait. Toyota alone will sell 10,000,000 (yes, 10 million) vehicles this year. Think about all the automakers worldwide. How many new guzzlers are being put on the road and how long will they remain in service? Today, it was a blatant effort to pretend what happens in the meantime doesn't matter. I punched back with: Stating only LONG term goals is the problem. Stating an end-game with disregard for phases required to achieve, that is an avoidable communication issue. You need to state SHORT term goals too. Results of that will be arguing with a lot of people who agree with you, but see issues with steps being skipped... because you neglected to mention them. Notice how I had to push to get you to finally do that? In other words, don't force people to make assumptions. Provide detail next time.

- 6-17-2018** **Playing Offense, debate.** It became obvious all that person wanted to do was debate. He simply didn't care about the topic of discussion or even being constructive. He only posted to win an argument. Some are driven by that ego to compete. The reality that this was intended to be a constructive discussion didn't matter. He simply kept posting facts to favor his true agenda. It's easy to fall into the trap, both to bite the bait or to become the one trolling. A topic like EV advancement has a number of desirable engineering draws. Unfortunately, that means focus on the ideal, something worthy of striving for long-term... which means having to disregard when happens in the meantime. Ironically, that can often equate to losing the very future you desire... since sacrificing the short-term can have dire consequences. He didn't care though. Post after post was a provoke to debate. I ended it by responding with purpose & goal statements: Purpose = To significantly reduce emissions & consumption in a reliable & cost-effective manner. Goal = To achieve sustainable high-volume profitable sales prior to tax-credit subsidies expiring.
- 6-18-2018** **Reputation.** This is the stage which reputation is being established. That's why rhetoric from enthusiasts really doesn't make much (if any) of a difference. Know your audience. In the case of electrification, we want to see all vehicles embrace battery & motor technology. Heck, even fuel-cell vehicles will use both. That's why when there is a battery-related fire or some motor-power misrepresentation it's a potential source for undermining... since we know there is much to be lost by those who don't study the market carefully. Remember how poor of a job GM did with Volt? It started as an expensive technology, emerging from the Two-Mode disaster, then never recovered. What a waste. GM had a chance to establish a reputation for striving to deliver an affordable choice. Notice how Nissan took the opposite approach? Being able to overcome that price barrier for reaching mainstream consumers was vital... and was taken quite seriously. So what if range was shorter as a result? We all know EV capacity increases over time anyway. 21st Century consumers have come to expect performance increases from their affordable devices. But if the purchase is too expensive to begin with, it remains a niche. Notice how many people upgrade their phone every other generation or so? When a business depends upon repeat sales, that's what you need to focus on. Think about how many parents hand down their older vehicle to a child. That repetition is key. Notice how Toyota has captured the Prius market? Upgrades most definitely follow that success formula.

6-19-2018 **Regret.** We have been seeing a lot of that lately. Waiting... waiting... waiting. 10 years later, still waiting. I was relentless with my "*too little, too slowly*" concern. The enthusiasts of Volt harassed me as a result, claiming GM would deliver faster than Toyota. That didn't happen. Gen-2 was a horrible failure, a disaster so bad, Volt was basically abandoned. That's how we ended up with Bolt. It actually seemed a reasonable damage-control maneuver... just move on to a SUV for their premiere plug-in hybrid offering instead. After all, the power & range were overkill anyway. In a larger & heavier vehicle instead, it would be more of a sensible balance... though, quite expensive. But that is what GM shopper would be willing to pay for. They want SUV choices. They couldn't care less about cars. This is why a sense of regret is sinking in. I was right about Two-Mode all along. Calling out Volt as a poor business choice for high-volume sustainable & profitable sales way back when it was still be designed is too much to accept. They still hate me for pushing GM in the direction it needed to go... since that is what Toyota has been pursuing all along. Think about the positioning of Camry and RAV4 hybrids for plug-in augmentation. That's a natural fit. Corolla & CH-R potentially could skip the hybrid step entirely in this market, going straight to the plug-in hybrid models. There's a ton of potential... without even mentioning the rumored CUV model of Prius. We don't see that happening for GM though. A compelling plug-in hybrid SUV offering would cause serious harm to their guzzler sales, throwing them into supply & demand disarray... hence the regret. There was ample time to transition. That opportunity was wasted on conquest, instead of focusing on loyal customers. It's a monumental failure, which could have been avoided.

6-20-2018 **ICE'd by an EV.** That post, with a photo included, sure stirred discussion today. I was the first to jump into that: "*I have confronted several individuals who have done the same thing. Each one was unaware of the message they were sending and thanked me for the heads up.*" My comment got a surprising number of likes and quite a few replies. Think about what a passer-by would observe. They'll see a premium spot near the doors with a car not using the charger that spot was there for. It looks like a total disregard of purpose. Money was clearly spent to deliver the ability to charge while shopping, yet the plug-in owner didn't bother to plug in. That observation, whether accurate or not, is what the situation appears as. There's no excuse to justify the message being sent. Many people have a fragile opinion of EV potential. Risking a loss of interest, for whatever reason, isn't worth it. We must set an example by showing appreciation for the opportunity to plug in. Interesting thing is the owner eventually replied to our posts. Small world, eh? He had no clue that the predicament could be interpreted that way and apologized for the impression it made. Everyone needs to do their part to make this paradigm-shift to clean & efficient choices successful.

- 6-21-2018** **2019 Insight.** We are starting to get first reports from reviewers. Sales will begin by the end of the month. Price is expected to be similar to Prius. It's a larger car now, a sedan too. MPG is expected to be a little less, though it should offer more power. Safety options likely won't be as generous as with Prius. How consumers will accept it is anyone's guess. With the existence of Clarity PHV, this is a bit of a head-scratcher. For that matter, what can we expect from the hybrid market in general? How well is Hyundai Ionic doing? It's a rather odd situation for Honda to use the name "Insight" for a third time on a vehicle that is, yet again, quite different from its predecessor. Who knows. The preference of consumers can be quite difficult to predict at times. But at least from a business perspective, we can see a design clearly intended to target mainstream shoppers. That's really important.
- 6-22-2018** **Branding.** Here's something to ponder: *"I know I'm new here but the more I read, the more I think the prius brand is just a way to market cars to nerds."* That requires some perspective. Who are you? What do you represent? How are those around you fit in? Why makes you change? When should these questions even be asked? In other words, some are taking the time to step back to look at the bigger picture. The catch is, they have no idea what can be discovered. You have to watch for years before noticing patterns. I've been active with the automotive market since the late 70's. It was my father's passion. He taught me a lot. (I sure miss him.) Fortunately, his sensible approach lives on with me. I try to be as constructive as possible, seeking out what's realistic for the masses and recognizing what is only a niche. That's why I felt well qualified to insert this into that discussion: That's a bit of a odd statement, since basically everyone is a "nerd" based on the rate technology is accepted now. Camry hybrid is packed with tech too, as well as pushing a sporty look. How is it perceived? What about the 2019 appearance change expected for Prius? Keep in mind that early on, the biggest non-hybrid draw aspect was that it was the only midsize hatchback against look available in the US market.
- 6-23-2018** **New Phone.** I finally replaced my phone. Becoming 3 generations behind wasn't an expectation from me or those who know me. Other priorities come about. It served as a good example of how to relate to those unable to or just not interested in upgrading right away. It's an endless cycle. A better model is always on the way. When the appropriate time comes, you replace with newer. What's interesting about the process is knowledge that a great deal of effort was expended to deliver upgrades. So, there's little chance of disappointment overall. For myself, I have been pleasantly suprised by the multitude of improvements. Think of what it will be like for those who had or still have a Prius from years ago and purchase a plug-in model now. So much has been refined with so many aspects of the vehicle, that same sense of satisfaction is quite strong. It's a game of patience. Upgrades are well worth it. The situation is really just a matter of timing. When is appropriate? That's an important question to keep in mind when considering the replacement of any technology.

- 6-24-2018 Diesel Clatter.** That certainly was interesting to hear today. My old neighbor had a VW Jetta diesel for years, then replaced it with a "clean" model. I got used to hearing that obnoxious sound on a regular basis. Every single time there was a bizarre feeling of bewilderment. My Prius delivered better emissions & efficiency. Gas was less expensive per gallon than diesel too. It made no sense what she was driving. I blew it off though. She let it idle in the driveway for excessively long times during Winter, sometimes as long as an entire hour. She simply didn't care. Anywho, I heard that sound again today. We were at a park. It drove by. I had the same wonderment of why. Realistically, it doesn't matter. There is no future for non-commercial diesel. The passenger-car market is already dead. Competing with plug-in choices is very difficult already. Given a few more years, it will be impossible. No more clatter... just silent electric motors.
- 6-24-2018 Oh, that's the Plug-In!** We were parked next to a 2005 Prius. The owner just happened to be walking out to her car, from the park we were both at listening to a summer concert, when she said "Hi". As she was making a comment about the nice color from my wife's new Prius, she suddenly came to the realization it was the model with the plug. We both noticed the obvious rise of excitement. That was sweet to witness... an quite unexpected. We both have had quite a number of encounters with ordinary consumers. Plugging in at the grocery store makes that a very easy situation. The person initiating conversation is already aware of what it is though. This was the first from a fellow Prius owner who didn't realize that was a Prime, not just a gen-4. So, it was especially rewarding to experience that. Hopefully by this time next year, the situation will be quite different. Currently, the plug-in model of Prius is quite rare around here. There is good reason to expect that to change though.
- 6-25-2018 Dead.** Today's topic on what remains of that struggling daily blog was remarkable. There were 2 comments posted. That was it. I have been watching it die. The die-hard enthusiasts are having to deal with messages repeating what I posted long ago. They are echoing what had been predicted as a outcome. Volt was too expensive and targeted a market without growth potential. It was a disaster in the making. Now, it is dead. That's really unfortunate, since the technology itself had potential. GM engineers knew how to design & build what was needed. Problem was, management didn't want that. So, we ended up with a performance vehicle few wanted. Range & Power were overkill, too much for mainstream buyers to be willing to pay a premium for. Had that tech been modified to work in a SUV, where the motors would have to work harder and the battery drained faster, the result may have been a compelling compromise. But that kind of balance is not what enthusiasts thrive on. They crave excess, not affordability. That's how the death came about... an unwillingness to acknowledge need. Too much focus on want has consequences.

- 6-26-2018** **Pointless Bragging, part 1.** It continues... but now, I'm not drawing attention to comments of the poster, just punching back right where it hurts: Volt's dependency on the \$7,500 tax-credit was a terrible approach. GM sacrificed affordability for performance. That resulted in a niche very favorable to enthusiast boasting... and little else. Nothing became of the technology. For years, enthusiasts argued the "*too little, too slowly*" concern was just nonsense. Now over a decade after rollout, we still wait for GM to finally deliver a plug-in hybrid for its own loyal customers... Trax, Equinox, Traverse and the Blazer comeback all lack a green choice. Those vehicles targeted directly at GM shoppers are all guzzlers. Spin whatever you want about Toyota; it won't change that reality. In the meantime, we see Prius Prime without any dependency on tax-credit (MSRP starts at just \$27,100) averaging above 100 MPG. We also see Toyota preparing to deliver Corolla, C-HR, RAV4, and Camry hybrids with a plug-in option. In other words, that vastly superior claim for Volt falls on deaf ears. Mainstream buyers have different priorities, as do the dealers who serve them.
- 6-26-2018** **Outright Lies.** The acceptance of "fake news" as fact was troubling long before that term was coined. People would just say whatever they wanted repeatedly, until it was finally accepted as the truth. With group think, that problem was all too real. It's how enthusiasts are recruited... their hope clouds reason, which prevents them from verifying claims. Anywho, it continues with the spreading of lies about how Volt actually operates. I wonder how many gullible readers fall for such efforts to mislead... especially in this case, where the claim is used to belittle Prius. I fought back with: Volt is not a SERIES hybrid. It was intended to be, but that isn't what GM delivered for gen-1. The design for gen-2 took advantage of the engine for direct propulsion even more, which is how some of the improved HV efficiency was achieved. Label Volt as whatever you want, but you cannot under any circumstances put it in the same category was BMW i3 REX... a true SERIES hybrid, where the engine does nothing ever by generate electricity. Volt is far more similar to Prius Prime as you want to admit. Both can run exclusively with electricity, from a dead stop to beyond highway speed limits without ever starting the gas engine... even with the heater running. Lastly, that claim of SERIES being superior doesn't have any merit. Prius Prime delivers more efficient EV and more efficient HV operation. Using less electricity and less gas to travel the same distance is the goal. It simply makes no sense endorsing an approach that requires more fuel.

- 6-27-2018** **Chevy Blazer.** Surprise! GM is filling in their product-line of SUVs. Now, between Equinox & Traverse will be Blazer. It's being spun as a revival of the old model, but we all know it is to solidify the elimination of cars from their production. With Trax on the small end, they have all the size-categories covered. This is exactly why the *"too little, too slowly"* concern was expressed so often. I knew the answer to the *"Who is the market for Volt?"* question was not GM shoppers. It's the reason why Volt hasn't been advertised. Notice how it's as if gen-2 doesn't even exist? Heck, we barely ever hear anything about Bolt. Small cars are of no interest to GM. My push to get Voltec spread to other vehicles has been overwhelming vindicated as well intentioned. This is why even the most staunch of enthusiast, those who hated me with a passion, have vanished. They misunderstood the customers, the dealers, and the automaker. They now realize what I had posted was for their own good, pushing them to help prevent what they encouraged. Their own worse nightmare is now playing out... GM isn't a leading seller of plug-in vehicles and it looks like Toyota has a great deal of potential to fulfill that very role. Seeing lots of new Chevy Blazers on the road will be the ultimate let down. With a standard 3.6 liter V6 engine, you know it will be quite a guzzler. To make matters even more ugly, you don't need to look any further than sales for the first 5 months of this year. Equinox = 141,477. Traverse = 61,708. Trax = 37,173. Each of those Chevy SUVs outsell Volt by quite a large margin. This is why the hybrid system in RAV4 is so important. Adding a plug isn't a major undertaking. In fact, it will be a fairly simple process... for Toyota. There is no obvious upgrade for GM, since there are no hybrid SUVs still. Don't forget why these SUVs (or as GM calls them *"Crossover"* vehicles) are so important. They are what GM depends upon for business-sustaining profit. It's the very same dependency we saw before the bankruptcy. They are desperately trying to reshape the industry for their own survival... again.
- 6-28-2018** **Leadership.** It's nice to have a civilized conversation for a change. Today, it was with a very long time Prius owner... since way back in 2002. His wrap-up of a lengthy commentary about his new Prime was: *"But I think if Toyota wants the Prius to continue to be a leader then they need to go back and look at what made Prius great in the beginning, and it wasn't just high MPG."* The highest priority back then was emission reduction. That's why the idea of a plug wasn't embraced. Think about how dirty emissions were 20 years ago. That was well before natural-gas has really made any impression as a potential replacement for coal. It was actually cleaner to burn gas and scrub that exhaust through the sophisticated emission-system in Prius that it was to power an EV back then. That's what the SULEV rating was all about. Standout MPG was a secondary benefit. Neither was what won over buyers though. It was how practical that gen-2 model could be. A large hatchback with proven reliability and an obvious investment in the future made for a compelling draw. Toyota was sending a great message of hope. That's true leadership. I didn't point all that out this time though. I kept it short and relevant to that particular audience: I have the impression that is the plan for the new CUV model of Prius. This current Prime rubs some the wrong way, since they don't want it to be defined as something other than a *"family"* vehicle. Diversity is key to growth though and there is an undeniable shift away from what made the first hatchback Prius a draw.

6-29-2018 **Mid-Cycle Updates.** GM announced improvements coming for the 2019 Volt. This the usual upgrade approach known as "*mid-cycle updates*" which has become quite common for plug-in vehicles. That has become a normal expectation now. In fact, we have that to realistically look forward to for Prius Prime. In this case, GM is adding a feature everyone expected for gen-2 originally... faster charging. It was a somewhat pointless feature based on the way Volt has been marketed though. We've been told the 53-mile range was plenty... which would negate any benefit from recharging anytime other than when at home overnight. It's a goal contradiction no one wants to address. The other was changing the low-temperature threshold for the engine starting to a range most owners won't actually benefit from; for the rest, that feature won't provide as much of a gain as it implies. This is yet another "*devil is in the detail*" situations. A much better upgrade would have been cost-reduction to drop price significantly to deal with the loss of the \$7,500 tax-credit. Sales are struggling already. Achieving the necessary business growth is basically impossible with such a niche approach. Anywho, I posted: Better is dependent upon who the audience is. Ordinary consumers certainly haven't been asking for faster L2 charging. In fact, most mainstream shoppers have absolute no idea what that even means. Their primary request has been a reduced MSRP to make it a more compelling choice. As for the ability to run a power-hungry resistance-heater at temperatures below 15°F, that's nice but not feature many will actually be able to exploit. Even here in Minnesota, there simply are not that many days when that would deliver a huge payoff. Doesn't EV become available after the coolant reaches a certain temperature?

6-29-2018 **Who?** I've seen anger coming from that die-hard Volt enthusiast who sung praise for GM all those years, speaking loudly in favor of PHEV over EV, then abruptly jumped shipped to purchase a Tesla. That type of hypocritical behavior is typical of those who value pride above actually being constructive. So, I ignore him entirely. That kind of troll cannot thrive in a venue with such a diverse audience. He requires many enablers for that. This blogging sight doesn't have that, quite unlike the old Volt daily blog. There are less intense participants there too. They simply see power & range as superior and give no thought to what actually makes a difference. It's easy to deal with them with a few basic facts. I do that along with posing a question, with the hope of some type of sensible response to reply to: Volt is neither a leader with EV nor HV efficiency. Note the kW/mi and MPG ratings. Using less electricity and less gas is the goal, right? Also, GM's goal was to "*right size*" battery capacity. So, the option of faster recharging is a bit of a head-scratcher. Who would be interested in that option? Remember, GM's ultimate solution to "*range anxiety*" ended up being Bolt, which makes Volt without any specific audience now.

6-30-2018 **Pointless Bragging, part 2.** Someone else got snippy: "*Unless you need 5 seats, the Volt is a way better car than the Prius, and you know that. No amount of rationalizing will change that fact.*" It's the type of desperation I dealt with for years. They absolutely refused to accept defeat and move on. So, I keep fighting back with inconvenient truths: Being rational means recognizing facts that are moot... of little or no practical value, meaning, or relevance; purely academic. The goal of Volt was to "*out-Prius Prius*", which meant becoming a more popular clean & efficient seller. 10.5 years into Prius sales, the total count on roads around the world had already surpassed 1 million. (1,050,000 to be more precise.) Volt sales have been so much less that GM hasn't even the 200,000 limit for tax-credits in its own home market in that same amount of time, despite having so much more experience. Fact is, only enthusiasts saw "*way better*" as a reason to purchase. Mainstream buyers just plain were not interesting, quite unlike the history we've seen with Prius. GM did indeed deliver a nice product, but it simply did not match purchase priorities of their own showroom shoppers. Again, GM's focus is on Trax, Equinox, Traverse, and Blazer being top-sellers for ordinary consumers. Volt will remain a desirable niche.

6-30-2018 **Tariff Consequences.** The cost we will have to deal with as a result of having elected a narcissist to lead the country is going to be tremendous. He just plain does not understand the consequences of lashing out at those we are perceived to be taking advantage of us. True, there is an imbalance, but the tradeoff of stability is absolutely vital. You build upon that to achieve improvement. Good things can come from overcoming challenges. Simply doing things for spite can have terrible consequences... which are starting to see already as a result of the new tariffs: "*General Motors warned Friday that if President Trump pushed ahead with another wave of tariffs, the move could backfire, leading to "**less investment, fewer jobs, and lower wages**" for its employees.*" That's a horrible first line to read in an article published today on the topic. All the big news organizations had similar statements to share. Our president doesn't understand that who we trade with need to be treated as partners, especially with the automotive business. Vehicles are extremely complex products... sourced from a variety of locations worldwide, very large & expensive, and with long replacement cycles. It's not like other products. A massive amount of employment is required just to sustain. To be profitable in such an aggressively evolving market, you need cooperation. This is as if there's an effort to sabotage our own success. Why? What motives someone to be so reckless? These decisions will hurt so many... not to mention our environment.

6-30-2018 **Upcoming Fallout.** Yesterday's announcement about the mid-cycle updates for Volt was quite predictable. Monday will bring about the first counts since GM decided not to report sales monthly anymore. This quarter wasn't expected to be a good one, so the tactic to distract fits their behavior pattern. Not selling as much means the tax-credit will last longer. Not selling as much also means things aren't going well. It's the reason why enthusiasts are ramping up rhetoric again. I'm pushing back hard though, since there is no excuse to sugarcoat anything anymore. They know trouble is brewing and don't want to be trapped in their own hypocritical web. I endured years of their nonsense for this moment, when Volt is no longer a barrier to mainstream acceptance. GM really messed up the market... just like they did with diesel decades ago. Ugh. Oh well, not much to do about it at this point, other than document the heck out of the situation so lessons can be learned. Here's the way I put it: As logical & sensible of a configuration that may seem, the reality of sales struggle must finally be faced. That formula simply hasn't worked. Even with a \$7,500 tax-credit, GM wasn't able to entice many of their own loyal customers to purchase a Volt. A very large portion of sales were the conquest type, attracting outside interest without gaining any loyalty. Ironically, the biggest failure-point for Volt is what we heard mentioned heavily way back when it was still being developed... PRICE. The goal of "*nicely under \$30,000*" was talked about on a very regular basis. With a MSRP that low, it would stand a chance of competing directly against traditional vehicles by the time the tax-credit expired. \$33,220 is far too expensive, especially when you compare to the vehicle most often compared to... Prius Prime, which starts at \$27,100 and includes "*driver confidence package*" features you must spend \$4,350 more to get with Volt. In short, GM had a good idea but poorly implemented it. Faster charging won't change any of that.

6-30-2018 **Anti-L2.** This sentiment is emerging: "*The faster folks understand that L2 is for nothing other than overnight charging, the better off we'll all be.*" It's the latest form of being vastly superior. The belief is that the best 240-volt AC charging available is totally inadequate compared to the higher voltage DC charging. Pushing it as a mutually exclusive solution is the problem. Having a mix of AC & DC chargers is unacceptable as far as he's concerned. It doesn't make sense to invest in the more affordable choice, which would in turn mean more chargers could be made available. A few of the ones with a much higher cost are what he favors... as his history of posts clearly confirm. Well, in a way, this is progress. New issues are being brought up now, focusing on infrastructure rather than just the vehicles. I replied back to that with: Not going to happen. Think about how many parking spots there are at your local grocery store. A typical 20-minute stop easily provides enough range to get home. You can provide far more L2 than DC for the same cost. DC takes more real-estate to accommodate too. 19.2 kW is ample electricity rate for a restaurant or movie stop. So, the absolute of not offering L2 won't get much traction. You should focus on DC offerings at those coffeeshop/gas-stations combinations. That's a realistic bridge to the future.

- 7-01-2018** **Fast Refill.** This coming next was inevitable: "*The problem is that without the DCFC interface, that gas is the only way to fast refill a Volt.*" It's the problem that comes from dealing with someone trying to solve a problem exclusively from an engineering perspective. He's dead set against L2 use anywhere but for long-term parking. Simply stopping at a grocery store for a quick partial charge is unacceptable... despite the fact that it works so well for so many. I stop for a coffee or fresh food item, then leave shortly after. Those few minutes are more than enough to reach home with nothing but the electricity from the charger moments earlier. Needless to say, I'm getting tired of the close-minded responses: That's the fundamental mistake EV advocates are trying to get word about to other EV advocates for charging-station use. Spreading a belief that they are there exclusively for *REFILL* is counter to the effort so many have striven to deliver. They can be very, very effective used for just a quick partial replenish. Most of the time, you don't need full capacity anyway. Remember, the goal is to replace traditional vehicles... not to solidify an end-game. We are trying to establish charging-spots and built up patronage. L2 can always be upgraded later, especially once repeat usage becomes common. It's that initial investment we need to focus on now. Taking that first step is the most difficult. People will see charger availability and begin to feel comfortable with moving toward electrification. Fast refill is not necessary for that to happen.
- 7-01-2018** **Opportunity Recharging.** The fastest possible recharging isn't necessary. Most people only want a top-off so they can reach home using electricity. All those local shops... grocery, retail, hardware, coffee, snack, etc ...are brief stops with major payoffs from nothing but a L2 recharge. At venues where you will be spending more time, like a movie theater or sitdown restaurant or large mall, that still necessary. Seeing DC fast-chargers emerge along highway corridors makes sense but that isn't what the debate was about. He simply wanted to win a point. That's why his push for the off-topic content was so relentless. It's an obsession with "*best*" or "*most*" or "*superiority*" that wrecks constructive discussion. It is the reason I ask for goals... relentlessly. Finding out what motives that person is much more important than that facts at hand. It's easy to manipulate posts to change focus. You need to find out why they are doing it. In this case, it was the belief that charging as much as possible is the best outcome. I attempted to end the nonsense, seeing it was turning into rhetoric, by drawing attention to the fact that recharging during peak hours is not a good choice. That is often the most expensive and most dirty time to be demanding electricity. So, promoting a maximum then is counter-productive to a goal of being green... which is why "*opportunity*" should be understood as just what you need at the time you need it.

7-01-2018 **Fast Charging.** That long, drawn out, debate about DCFC had me quite curious. What was his goal? Eventually, I would find out... and after series of more posts, I did. He changed his story to now be about "*medium power*" for DCFC... which makes makes no sense, since the "*F*" in that acronym stands for "*Fast*". All along, he's been posting about how the kW rates are so much higher. Then, he abruptly changes it to mean just 24 kW. That's barely any higher than the 19.2 kW for a L2 running on a standard 240-volt connection at 80 amps. I jumped on him at the very beginning for even attempting to compare such different rates. Fast requires a 480-volt connection to actually be fast. He knows all too well I caught him on the cost barrier. That's a lot more expensive, especially if you require enough amps to truly be impressive. Complaints about 50 kW being minimal have lead to the unveiling of a handful of 150 kW chargers and the announcement of some future charging-stations delivering 300 kW. This is what he's been implying we should all favor instead, not to even consider slower technologies. What I get a kick out of is if that supposedly is "*medium*", what the heck is "*small*" for a DC charging rate? It seems bizarre to have an expensive charger output DC without any benefit of what a cheap AC charger can deliver. Needless to say, I caught him up in an effort to deceive. It has become clear he's simply an advocate of DC charging and didn't realize anyone who catch his bait & switch about speed. That was interesting though. I didn't even have to get into the cost of the electricity itself. When you require that much that quickly, the electricity providers place you into a more expensive pricing tier. Those higher fees are only affordable for commercial business making money from that usage. This is why free access to Tesla SuperChargers is so heavily desired. Without, it can be quite expensive to fast-charge. This is why L2 has been promoted so much. There will be fast-chargers too, but they will accompany L2. Not everyone is willing to invest so much for speed. The cost to a charging-station owner is especially prohibiting. Remember, L2 (level-2, the standard 240-volt plug) can still be quite a bit faster than L1 (level-1, the standard 120-volt plug).

7-02-2018 **Single Standard.** It came down to only wanting to support a single standard, but that idea being presented in a contradictory manner. He started with praise for the "*recharge the battery to 80% in an hour or less*", then carried on in great length about how vital speed was. Over and over, being fast was presented as key to success. The essential part of that was to not support L2 in an manner, that it was essential to only have DCFC. Then out of the blue, the focus shifted to medium. It was so hypocritical of a stance change, I was confused. What happened to the importance of being quick? Looking back at the posts, I see a long chain of "*limitation*" claims and the word "*wrong*" being used several times to describe L2 technology. Basically, it was just another encounter with an individual unwilling to accept anything more than a single solution. It's that one-size-fits-all mentality. Some people simply don't believe co-exist is a viable outcome.

7-02-2018 **Average Price.** This came from a 2011 Volt owner: "*Armchair quarterbacking at it's finest. You ever price the "average" car here in the US?*" I got the impression he jumped on the great pricing opportunity all those years ago and never really paid attention to the market. He clearly didn't like my reference to the "*driver confidence package*", choosing to go with the it's-worth-it argument. Ugh. There's far too much enabling nowadays, where people just go along with blind assumption. They just support what feels right, never bothering to actually do a little research or even ask a question. This basic approach to pricing provides a good example. It was void of any numerical information. Nothing whatsoever is a source for concern. Any type of detail... even just a generic category... can help narrow focus. That was so vague, it could have included everything. It makes no sense lumping together giant trucks and subcompact cars. Yet, that's apparently exactly the nonsense he attempted. I don't put up with that, especially when the first sentence in a reply is so snarky. I fired back with: Average is totally inappropriate. Proper pricing assessment is to compare vehicles with similar traits. The typical consumer will shop for "*compact car*" or a "*midsize suv*". They most definitely don't mix together everything available to come with an average. As for price, Volt is about to lose that generous \$7,500 tax-credit, which will make it compete directly against other vehicles in its same class. As for the effort to avoid addressing additional cost of safety features, that's online posting at its finest... just ignore what isn't liked.

7-02-2018 **Expiring Tax-Credits.** The fallout is about to begin. We expect news soon that Tesla crossed the 200,000 threshold, which will trigger tax-credit phaseout. That means things are about to get ugly. Focus is always on "*leadership*" in the form of which ever automaker delivered the most EV range. Supposedly, that is the only measure of worth. Being affordable or the most efficient is still being ignored. Enthusiasts are obsessed with battery-packs becoming larger and larger. That's really sad. Lack of balance is never a good thing. Success among mainstream consumers requires the satisfying of a wide variety of criteria. Their priorities don't focus on just the most of something. In fact, this has always been the secret to high-volume sales for Prius. It was never just impressive MPG alone. Yet, there are some that want to reward GM for focusing so heavily on range anyway. Virtually every day, I hear some enthusiast belittle PHEV offerings from other automakers for still not matching what Volt delivered all those years ago. Other factors are completely ignored. Again, that's really sad. So naturally, I have much to say about the upset related to expiring tax-credits. The purpose was to achieve high-volume sales prior to them expiring, which is why each automaker had their own time-table. GM clearly wasted that opportunity. Why should more be offered? Tesla, on the other hand, has actually achieved that. Kudos! That could be rewarded; however, the manner in which that occurs should be discussed. Progress means setting new goals. What should they be upon entering this phase, on focusing squarely on mainstream consumers rather than plug-in enthusiasts? I stated the situation this way: Sounds like some want to reward OFFENSE for winning the game. Don't overlook the importance of DEFENSE when it comes to what the team must do. Think about how much Nissan, Hyundai, and Toyota worked to deliver affordable choices that don't have any dependence on tax-credit help. Their efforts to deliver a sticker-price able to compete directly with other vehicles sharing the same showroom floor are vital. In other words, those who sought the low-hanging fruit shouldn't reap all the reward. It's a team effort. Spoils should be shared based on what we set for goals in this next stage. We are done appealing to enthusiasts. Are range & power really as important to draw mainstream consumer interest?

- 7-02-2018** **Unfair.** Discussions will likely go on throughout the remainder of the year, never really getting resolved. Think about how there is no sense of agreement among plug-in supporters about how charging-stations should be used. For that matter, there still isn't a shared approach agreed upon for how to deal with ICE'd parking spots. That lack of any clear message is how problems are created & sustained. Look at Volt for another example; enthusiasts disagreed about audience & purpose for years. So when it comes to an even more diverse potential audience, we're simply stuck. What to do in the form of subsidies to help promote growth is a complex issue with no easy suggestion. This is how I contributed to the discussion today: Unfair? What about those who wasted their credits, using them for conquest sales rather than attracting their own base? Remember, purpose of the tax-credit was to reduce each automaker's traditional production by getting loyal buyers to switch. Not using the subsidy for that purpose is good reason to prevent more from being wasted. Missing that opportunity was their choice. They had their chance, but squandered it.
- 7-02-2018** **Heavy Lifting.** New words, like "*punish*", continue to emerge. Other words, like "*ground breakers*", would be a welcome shift. That isn't realistic though. There isn't any sense of cohesion yet. I chose to focus on another today, hoping the drastic attitudes don't become the mantra: "*Heavy Lifting*" is cherry-picking. No large-scale rollout can succeed without significant investment in the work required to appeal to ordinary consumers... the unseen efforts... like what Toyota did to make hybrids such RAV4 and Camry a very easy transition to plug-in. Rewarding those who went after low-hanging fruit is helpful for next-stage market penetration.
- 7-02-2018** **Smart Incentives.** There is a growing effort to retain the status quo. Tax-Credit phaseout is becoming a terrible reality for some. That concern of "*too little, too slowly*" is too much for them to finally accept. So, they are choosing denial. Just extend the tax-credits. That's their solution, despite the obvious flaws. The biggest complaint was they favored the rich, rewarding them for endorsing vehicles far too expensive for any of us to ever purchase. Why provide such generous incentive for those who don't need it? Giving to the rich while doing nothing to help those who would gain great benefit makes no sense. Yet, that's what they want more of. Ugh. There has also been the problem of how overly simplistic the incentive actually was. There was nothing to promote actual merit, something to reward engineering achievement. It was nothing but showing favor for size... which we all know who exploited. Hope of a vehicle emerging for the masses prior to phaseout from GM clearly didn't happen. In fact, it is now rather difficult to argue Volt was designed to appeal to mainstream buyers. Anywho, I keep punching back at the effort. Today, it was on a long and very active new thread about the topic: What about having to meet a minimum efficiency level? Subsidizing vehicles that guzzle electricity certainly isn't a step in the right direction. Cramming more battery into a vehicle to meet an arbitrary distance doesn't promote efficiency. In fact, it wastes a variety of resources. We want smart incentives, not what seems good.

7-02-2018 **Ahead.** Antagonists are really working hard now to undermine the progress by Toyota. Virtually all of it is coming from EV supporters, those who believe "BEV" is the only solution. That means "*Battery Electric Vehicle*", which is a term used to disqualify plug-in hybrids and fuel-cell vehicles even though both can operate entirely with electricity. Don't only want purity and believe taking a single step with that as the ultimate solution is the only choice. That's quite unrealistic. The market is far too diverse and infrastructure far too limited to achieve that quickly. But since they don't believe in transition and refuse to acknowledge anything outside of BEV sales, it very difficult to get any type of constructive discussion. This is just like Volt of the past, they just plain don't care. Nonetheless, I continue to push back on their message that Toyota is supposedly dragging their feet: RAV4 and CAMRY hybrids are quite popular, not all at the "*old news*" narrative you attempt to portray. COROLLA is an extremely popular vehicle worldwide and will be making its debut as a plug-in hybrid next year. CH-R will be making its debut as an EV next year as well. That all represents wide-scale efforts to steer their own loyal customers toward electrification... putting them ahead of many other automakers.

7-03-2018 **Recognition.** Many, many, many years too late, at least what some of us had been saying is finally getting recognition as a next step: "*By all accounts the "voltec" drive system is very good. If they put it in a small crossover style body it would sell very well I think.*" The harassment I had to endure for saying the same thing... Ugh. The enthusiasts of Volt absolutely hated me for suggesting what GM do with the technology. It was amazing what they did to fight change. Any type of acknowledgement of that GM should do something else was, in their mind, an admission of defeat. So, it an endless stream of brutal posts trying to prove me wrong. That never worked though, since ultimately I knew my message would triumph. Diversity is absolutely necessary for growth anyway. But it was the reality of Volt being poorly configured to appeal to mainstream consumers that made them crazy. To succeed, they would have to compromise by giving up on an ideal. It feels good knowing all those confrontations were polite on my part. No matter how much they attempted to personally offend and hurt me, I remained true to my support of affordable solutions without ever lashing back at them on their terms. In other words, I was unwilling to stoop to their level, unwilling to give them the pleasure of providing a reason for them to call me out. I just kept repeating the same message of GM needing to spread their technology to other vehicles. Read through my older blogs for detail on that nasty past. Understanding how we got to this point is very helpful to know. We prevent future errors by learning from mistakes of the past... and they sure provided lots of educational opportunity.

- 7-05-2018** **Fake News.** We've been dealing with it for countless years, long before most people realized propaganda material would be disguised as news. It was so annoying to have to deal with that on a regular basis. Back then, there weren't comment sections associated with online articles. Instead, we'd have to try to fix the trouble stirred by the misconceptions being created. People would refer to those published articles as if that was a credible source never to be questioned. This is why I ended up pushing so hard with the videos. That real-world detail became a powerful tool. I remember so many posts stating the EV range of Prius PHV was only 6 miles, despite their being endless posts disputing the claims. It wasn't until people started seeing those drives easily exceed the supposed distance limitation that antagonists backed off... since they didn't want to get called out as intentionally spreading greenwash. I still remember filming a drive that delivered 13 miles and feeling so good. True, that was far from my record of 18 miles, but this was with the battery-pack now 4.5 years old. Sadly, some attacks using fake news are happening with Prius Prime too. Fortunately, I was lucky effort to capture a bunch of footage during my first year of ownership. So, there's lots of material to fight back with already.
- 7-06-2018** **Propulsion Power Reduced.** Today started with a stumble across a comment on the Volt forum about a "*PPR issue*" which caught my attention. Why hadn't I ever heard of that? Turns out, it's a problem antagonists have gone to great lengths to keep quiet. This is an aspect of Volt operation they clearly have been trying to hide, since knowledge of it helps confirm Volt is even more of a plug-in hybrid than any EREV propaganda would have you believe. Technically, it is this: "*At some point, the computer decides you're not allowed to pull any more out of the battery and reduces propulsion output to 55 KW in order to prevent any further drain from the battery.*" In other words, if the available capacity is too low, all power must come from the engine... which is a condition those nasty antagonists claimed would never happen. Demand for more will pretty much only happen when climbing a long, steep hill. But when you do searches for the issue, you will find a collection of owners who have encountered the situation. It's why GM introduced the hold feature and specifically labeled it as "*Mountain*" mode. If you don't use it, you may experience the issue too. Knowing some owners won't take that preventative action, which is what I wondered about, there is a system update available. I suspect this is applied whenever an owner reports the issue, as one had put it this way: "*As an aside, there is a software fix for the PPR issue, though you'll likely lose 10% usable battery.*" That would be a simple remedy when seeing the message on the screen and having the engine-light come on. It equates to 5.3 miles of range loss though, putting it dangerously close to Honda's rating. Being called out for hypocritical power claims and being matched by a clearly nicer PHV offering isn't the way enthusiasts hoped things would play out.

7-07-2018 **Distraction.** This gave me reason for pause: "*Trump is also a master of distraction, and he has a polished record of creating new political storms to disguise scandals and dramas that could damage him politically.*" Sound familiar? That's what contributed to a bunch of the blogging I did in the past. GM provided an endless source of the same nonsense. When something big approached and you knew the inevitable face-the-music moment arrived, there would be an announcement about something totally unrelated. That news would be spectacularly captivating. It would also be horribly vague... which contributed to a variety of understanding problems... exactly what you want when trying to distract. Enthusiasts gobble it up, taking it every word as a promise written in stone. It didn't matter how absurd or outrageous the claim was, they supported it as if delivery had already taken place. Their blind trust was appalling. Excuses were plentiful. Blame was obvious. It's rhetoric you cannot believe. How could so many people be so gullible? Distraction shouldn't be that effective. But when dealing with those who inattentive and lack constructive reasoning skills, you have an audience easy to manipulate. It's a scary part of "*know your audience*" that hurts to understand. He does. GM does too. They both have a past filled with examples of distraction. Sadly, we can expect more in the future too. Watch for it.

7-07-2018 **Inflicting Harm.** There are a few who do it intentionally. This was the case with our EPA administrator yesterday, hours before he resigned. He granted permission to proceed with business as usual for a diesel freight truck, which will equate to a major emission loophole. The argument (of course) was the financial hardship would outweigh the environmental benefit. I call that a load of crap. Allowing that particular vehicle to continue polluting as much as 55 times what emission-controls would restrict is absurd. One year's worth of its sales would release about 13 times as much NOx (the nasty smog type of emission) as all of the VW dieselgate cars combined. Remember that disaster? How can giving permission for more violations in the name of profit be acceptable?

7-08-2018 Punish Who? More and more people are making blanket statements like this without providing any reasoning: "*It punishes pioneer and rewards sluggish automakers.*" It's that complete absence of follow-up that gets me. Not stating a purpose of any kind makes the claim a worthless contribution to the discussion. Without anything to suggest what advancement should be rewarded, or even what inaction should be punished, why are they sounding off? Every time I ask, there's silence... which is a confirmation of not having actually thought the situation through. Anyone can make a generalization. Very few take the time to stand behind their decision though. That lack of commitment is a dead giveaway there's shortcomings not addressed. Needless to say, my perspective is quite different:

Economics state otherwise. In fact, we now have proof of that.

GM used their tax-credits for conquest, attracting sales from outside to sell a vehicle clearly not viable as a sustainable high-volume product that's profitable. Rather than using the money to subsidize a design to appeal to the masses, they wasted it. Why should more money be provided for the same thing?

Volt technology should have been adapted for use in a vehicle GM customers actually want. For many years, concern about the disinterest GM had to deliver a mainstream product fell on deaf ears. Gen-1 was clearly a niche. Gen-2 should have been an effort to rectify that; instead, it became even less of a vehicle appealing to their own loyal customers. How can rewarding that be justified?

Consider the number of Volt owners who abandoned GM when their lease expired. Consider how low the sales of Volt continue to be, even with that generous \$7,500 help. Consider how little Volt actually did to change the status quo. GM sells a massive number of guzzlers and has no actual path to electrification for them.

Meanwhile, we have Toyota being labeled as "*laggard*" even though their entire fleet has a clear electrification path. Prius has already been delivered as a plug-in hybrid. Next year, the Corolla hybrid will get a plug-in model too. That makes it very easy to see how Camry, RAV4, and C-HR hybrids could also offer a plug. So, why exactly is that an activity to punish?

Think about which will do more to replace traditional vehicles with something offering plug. With millions of sales each year, we should not allow more waste. It's the ability to bring about change the tax-credits should be used for.

Based reward on merit, not enthusiast praise. The homework assigned was to bring about real change prior to tax-credit expiration. In fact, that is the very reason why there is a phaseout stage that does not have a count limitation.

- 7-09-2018** **Pride or Hate.** After years of having to deal with belittle turned dishonesty, it sure feels good never having given in. Whether it was pride or hate, the antagonists simply wouldn't give up. When facts were not in their favor, they'd turn to personal attacks. I didn't respond with anything that could be used against me. They'd troll. I wouldn't bait. Each provoke made me carefully think & research to find a constructive reply. They hated me for that. I was supposed to provide them with material to call me out as someone just blindly loyal to Toyota; instead, I was a constant supply of debunking material. Never having waivered from purpose is what irritated them most, as today reaffirmed: *"Cherry-pick stats all you want, and keep moving the goalposts as well. Fact is, Toyota is in last place when it comes to plugins, no matter how you try to spin it."* Continued to repeat the same message of business success has been key. That goal never budged, not even a little. If the choice wasn't affordable and easy to accept, there's no way the masses will turn toward it. I'd often test myself by asking if that would interest Mom, who is quite representative of ordinary consumers. That's not what I post with respect to purpose though. It is often something just like this: Same goal as from the very beginning. Each automaker is expected to reach sustainable & profitable high-volume sales prior to tax-credit expiration. The approach Toyota took to deliver a robust battery-pack that's also low-cost makes their offering affordable even without subsidy money.
- 7-10-2018** **Waiting.** Every time there is something about Prius Prime published which points out a strength about the design, antagonists emerge. They started with the usual misrepresentations, move on to spreading lies, then turn to personal attacks. Their behavior is so predictable it would be agonizing... if it wasn't for the fact that their time is up. Expiration of tax-credits represents the end of this initial stage... early adoption. Without those subsidies, appealing to non-enthusiasts becomes far greater of a challenge. Toyota is positioned to deal with that loss. GM is not, the automaker many of the antagonists endorse. With Volt & Bolt squandering the last of those precious dollars, there is nothing to focus on. What comes next from GM? Not having a viable product for their own loyal customers yet, watching conquest sales use up what's remaining is more steps in the wrong directly... and they know it, all too well now. I have been one of the loud voices expressing concern about this very situation for years. Now, I only have to wait days. A few days after the initial post, I start filling the comment area with facts to dispute the wild claims. They have no idea how to deal with that, especially after their audience of enablers have moved on. The only readers at that point are typically those studying the market, people searching for constructive detail... which is what I try hard to supply.

- 7-11-2018** **Misrepresentation.** I don't want to include the provoke quote anymore, not at this stage. Spreading rhetoric is counter-productive. You want examples, there are lots in past blogs. Now, we shift attention entirely over to the response: Hoping that misrepresentation of what actually happened will be receptive to the new audience here? Prius PHV was rolled out 6 years ago, not 8, to only 15 states as a mid-cycle upgrade to gen-3 Prius. It was a test platform to measure the market prior to a large ramp-up & deploy. Toyota determined cost was too high to appeal to mainstream buyers, so they kept inventory limited... then later stopped production all together. Since Prime was already nearing final design, the approach made a lot of sense. Toyota could continue to collect valuable real-world data without influencing those untouched 35 states and the existing dealers could clear out existing inventory entirely. It would preserve the tax-credits for that next-generation Prius plug-in and allow every location to start fresh. The results clearly confirm that was a wise approach too. We see how well rollout sales have been and this video shows us how much Toyota learned from that low-volume beginning.
- 7-11-2018** **Rhetoric.** Here's more: Rhetoric related to the progress Toyota has made with plug-in support has been going on for years. They take a bottom-up approach, the complete opposite of GM, so misunderstanding is common from those unfamiliar with that business & economic perspective. In 2015, when Toyota ended production of Prius PHV, the antagonists immediately started to push a narrative of having given up. The spin was Toyota had called it quits and would focus exclusively on hydrogen fuel-cells. It was utter nonsense, proven blatant greenwash when the next-generation was revealed in 2016. It simply made no sense to proceed with gen-1 rollout knowing that gen-2 would deliver major improvements at a lower cost. Looking back, it is now easier to see the efforts to undermine. Design of this battery-pack makes it clear that Toyota placed pricing as a very high priority, doing everything they could to deliver robust operation without requiring heavy expense. Effective cooling without the need of a liquid is a complexity Toyota was able to avoid. Forced air is proving a good choice.

- 7-11-2018 Coolant Cost.** I made an interesting discovery today. It's an omission I should have picked up on years ago, especially since diesel supporters would do the same thing. They'd exclude routine maintenance mention. It's easy to do if that chore is something unique to the design. For diesel, it was the fluid used to cleanse emissions. A chemical called "*urea*" was required to be replenished on a regular basis. There was a tank in the trunk that would hold it. EPA regulations forced metering to ensure the system was not bypassed... which would save the owner money, but allow dirty emissions as a consequence. This complexity & expense is something supporters wanted to keep very quiet. The same thing is obviously true of my stumble across today. Turns out, that fluid used for cooling the battery-pack in Volt much routinely be replaced. 90,000 miles is the required regular interval; sooner is suggested for hot climates. It take 12 quarts of coolant. The price is roughly \$5 per quart. Then you must add labor and a disposal fee. I suspect there is a filter requiring replacement as well. This is a service you obviously can only have performed at a GM dealer, since it is totally unique to Volt... though, Bolt may employ a similar fluid & process too. The point is, owners never mention it. Think about where the drain-value and fill-port locations could be. I don't expect that to be easily accessible. In the post I made the discovery from, that person stated it is "*messy*" work. Knowing all that explains why we don't ever hear about it, even in posts stating total ownership costs. Omitting that information is an attempt to mislead... which needs to be called out.
- 7-12-2018 Path Forward.** Attacks continue. Ugh. Being so desperate, you'll say anything, is really sad. Yet, I'm still seeing it. But rather than go for that trolling bait, I keep on posting things to keep lurkers thinking. The stuff that keeps them silently following threads to learn more is a very effective means of supplying educational material. They simply desire to learn more... which I am grateful to provide: Once upon a time, some unknown person made some vague statement. Even if there was any substance to that in the past, how would it still be relevant? We clearly see the intent now for plug-in options across Toyota's fleet of hybrids. In fact, both Corolla and C-HR will make their debut with a plug next year. Following that is the expectation for RAV4. That makes thought about Camry joining later quite realistic. It's a path to electrification their customers (that means both consumers & dealers) can easily take. In other words, the twist of Prius not being important is in an odd way true if you look forward enough. We need to see the rest of the fleet join in. This is why GM has done such a horrible job with their supposed "*vastly superior*" technology. Two-Mode didn't diversify. Volt didn't diversify. Bolt is struggling. There is no path forward still, after all these years.
- 7-12-2018 Blind Hate.** As expected, the attacks continue. I don't give in. I push back: That narrative of loyalty doesn't work. I say positive things about Hyundai, BMW, Honda, Nissan and Tesla on a regular basis. All offer more range. Competition isn't other automakers anyway. The goal posted over and over and over again is to appeal to showroom shoppers, those loyal customers who couldn't care less what other automakers offer. They just want an affordable choice. This is why Corolla, C-HR, Camry, and RAV4 were all brought up in the discussion about Toyota. When there's a discussion about GM, the post mentions Trax, Equinox, Traverse, and the upcoming new Blazer. Each automaker must transition to something offering a plug. That means their entire fleet. Competition is from within the showroom floor.

- 7-12-2018** **2019 Thoughts.** The quiet provides reason to wonder... to speculate... to hope. I provided this to a chain of posts in that regard on the big Prius forum about Prime; It is reasonable to expect a mid-cycle update of some sort. Cost continues to be the primary influence. Toyota quite clearly stated delivering a robust, affordable pack was more important than the physical space it required for the first large-scale offering. We've seen Toyota working on a continuous-improvement approach. Upgrades will come when it makes sense. Keep in mind that Corolla PHV and C-HR EV are debuting next year. That rumored Prius CUV could make an appearance too. So, it's not like there's any rest for the engineers.
- 7-13-2018** **Understanding Rhetoric.** Dealing with the nonsense continued: Promises are interesting. They are usually vague and there's no accountability. Much is often implied, which in turn becomes promotion material from enthusiasts without anything to actually support the resulting beliefs. The *substance without action* problem is getting bigger too; an automaker will rollout a vehicle but not provide any plan for a next step. It really does come down to pricing. That's why there are some enthusiasts in a state of panic now. With tax-credit phaseout looming, sales that are currently challenging will become significantly more difficult. Achieving growth requires far more than just the low-hanging-fruit efforts we are seeing at the moment. Notice how those who claim "*winning*" go out of their way to call it the "*EV market*" rather than address the automotive market as a whole? That avoidance of mainstream consumers tells the real story.
- 7-13-2018** **Market Barrier.** The problem from the very beginning what GM set out to create a barrier and enthusiasts did everything in their power to reinforce it. Volt was flaunted as "*vastly superior*" with the absolute that nothing else would be acceptable. That fell apart on a regular basis, as other automakers matched or exceeded the criteria set forth. We see that happen in reaction to Ford, BMW, and Toyota. When Mitsubishi & Honda joined in, they simply accepted defeat rather than having to move the goal-posts yet again. After all, knowing Hyundai, VW, and Nissan were all on the same course, it made sense to abandon plug-in hybrid hope all together. That's how Bolt took precedence. Enthusiasts have all but given up at this point. It certainly wasn't that way in the past though. Everything was measured against Volt... which would have been just fine, if it was a viable product. Being only an expensive niche, it was doomed. Unfortunately, few cared. Mention of Volt would draw readers & comments. That's good business, even if the object of praise was a token effort funded by subsidies. Only those focused on economic well-being have interest in long-term outcome. It was a live-in-the-now problem. Thankfully, that is rapidly changing. Reality of tax-credit expiration is drawing a lot of attention to the uncompetitive MSRP. Fighting for sales from traditional vehicles takes far more than just empty congratulations.

7-14-2018 **Approach.** There is only one way to success as far as the antagonists are concerned. No other method of advancement will work. Progress must be obvious. Any type of unseen infrastructure or foundational improvement is pointless, viewed upon as waste. Ugh. Dealing with people who have no business background makes you wonder if it is worth it. Supposedly, there are lurkers who learn from quietly reading posts without ever participating. So, even just sharing wisdom with a few can be success. Progress isn't easy... as my continued efforts to deal with blatant trolling shows:

Toyota's approach is bottom-up, very effective for mainstream change. Not being top-down, equating to disappointment among enthusiasts, isn't a concern.

Toyota's advancement in that regard was to deliver the most efficient means of electrically heating the cabin available, a vapor-injected heat-pump. That means you don't consume as much electricity for keeping warm, allowing more for EV driving.

Toyota has also delivered a remarkably efficient EV drive rated at 25 kWh/100mi. That means not having to carry as much battery to travel the same distance as less efficient plug-in vehicles. That also means spending less time & money for recharging.

In this discussion topic, we learned how well thought out the battery-pack actually is. Arrangement of the stacks clearly delivers a robust approach with affordability in mind. Absence of the need for liquid cooling offers a clear weight, complexity, and maintenance advantage.

We all see how Toyota is preparing the hybrid fleet to receive those same upgrades. You obviously don't like that. And with the Volt blog now dead, we have to hear whining about it here. Do you really think this audience cares?

7-15-2018 **Obstruction.** There are some who never give up. Fortunately, they are few and far between. I've been attacked by countless many hoping engineering alone would be enough to overcome business challenges. Not understanding economics will give the impression that victory could happen. But in reality, that lack of balance makes it impossible. Only short-term gain can be achieved from delivering an incomplete solution. They never learn that lesson though. Belief that "worth" will overcome shortcomings is futile. That's why the obsession with range & power must come to an end... either by acknowledgement or by collapse. The effort to obstruct makes the latter more likely of an outcome. It never ceases to amaze me how much some people will fight to the bitter end, refusing to surrender. That sense of honor (selfish pride in this case) means I will need to back off. And I plan to, after confirmation on this new venue. Since Volt is just now one of many, instead of a spotlight vehicle, it may just fizzle on its own anyway. I jumped onto the GM website this morning... curious to find how Volt and Bolt were now being promoted. It was shocking to see how difficult it was to even find mention of them. Truck and SUV links are everywhere. The link to find an electric category wasn't obvious. There are subtle barriers everywhere, each adding to the obstruction effort. Remember ages ago when there were simple undermine posts? It's far more complex subterfuge now... with the goal of retaining the status quo. Ugh.

7-15-2018 **Desperate.** We are down to just the basic psychological defenses at this point. I just get replies of dismissal and reflection. It's quite remarkable to witness how clueless some people can be. He is basically just fighting himself now. I'm watching the spin, with each opportunity to respond a chance to provide more exposition. So, I do:

Spin of the "*too little, too slowly*" concern is an obvious attempt to prevent analysis of Toyota's timing to the tax-credit mistake GM made.

200,000 sales is the basis of measure for the first phase of rollout. Each automaker was given that limit for tax-credit availability. Upon reaching it, phaseout will be triggered. 1 quarter (3 months) of sales will continue at the 100% value. The following 2 quarters, it will be reduced to 50% but will not be restricted by a quantity limit. Following that, there will be 2 quarters also without limit but at 25%. Purpose of the tax-credit is to establish enough demand for the vehicle or technology to sustain high-volume profitable sales.

GM is expected to trigger phaseout at year-end. Demand is no where near the level it needs to be. Volt sales never drew GM customer interest; instead, they remained almost exclusively conquest purchases from elsewhere. Abrupt switch to Bolt didn't result in necessary demand either. That generous \$7,500 per vehicle would have ended up doing very little to actually change the status quo.

Toyota carefully observed the market and quickly recognized benefit of saving tax-credits later, when they had a strong base to build upon. This is why the RAV4 hybrid was rolled out in the meantime, which has become a top-seller in the US hybrid market. Camry hybrid was recently rolled out for that same reason. Both will be able to take advantage of the plug-in technology available in Prius Prime. Having both well established prior to triggering tax-credit phaseout positions Toyota well for taking advantage of that period which follows without limit.

In short, GM demonstrated how easily tax-credits could be wasted. They focused on enthusiasts praise, rather than being attentive to mainstream priorities. Upon phaseout, they still don't have a choice appealing to their own loyal showroom shoppers. Toyota won't be missing that opportunity.

7-15-2018 **True Competition.** Attempts to stir rhetoric elsewhere continue. Volt's struggle for survival is becoming obvious. That dependency on tax-credit money for the sake of maintaining poor sales is becoming overwhelmed by the need for growth. Knowing that all the subsidy did was keep it from vanishing entirely, the very idea of it somehow appealing to a wider audience with a high price-tag is laughable. Yet, that's the message being conveyed anyway. Hope comes from the belief that Prius Prime is the competition, not other GM vehicles. So, when the Toyota tax-credit also expires, it will struggle the same way. Problem is, that's not what the numbers show. Even with basically no inventory available in the Midwest still, sales for Prius Prime are better than Volt anyway. It's a distraction from dealing with the truth. I keep providing reminders of that: \$34,095 = MSRP base Volt. \$27,300 = MSRP base Prius Prime. It is very easy to see how the GM necessitates the \$7,500 to be feasible... and that's before pointing out the base Toyota comes with more safety features standard. But it doesn't matter. Those vehicles are not competing against each other anyway. Reality is, Volt must compete with other GM vehicles at the dealership. Traditional offerings are the problem, which is why the lower the MSRP the better. Toyota takes this situation seriously, striving to deliver a choice truly competitive with other vehicles sharing the same showroom floor.

7-16-2018 **Discovering Motive.** The ultimate goal of any seemingly pointless battle is to discover motive. You keep pushing. Eventually, something should shake out. Being attentive. That's what I did with this antagonist, to find out what truly was the source of his own push. Over the past few days, I wondered if anything other than some nice summaries would come about. Being forced to think through the immediate situation in context of the big picture is always useful... especially when the person stirring trouble is so vague. You get post after post with nothing but rhetoric. It's the same old nonsense too. He calls you on changing goals, but never actually states the before & after. That is intentional, to force incorrect assumptions. It's a common misconception tactic. You just confuse the audience by randomly stating things. No one bothers to verify dates or context. Online comments have become a haven for enabler support. They just go along with the narrative, never questioning. Anywho, I finally got what I was looking for. Way back, it was the simplicity of NPNS. That "No Plug, No Sale" mantra became quite popular, but was doomed to fail due to the lack of anything specific. What was having a plug supposed to achieve? No quantitative measure meant anything with a plug would be far superior to anything without. They learned that lesson the hard way... which got him to up the ante by focusing on range & power values. That failed too, when it became obvious that traits of Volt were being emulated by Prius Prime. Just copying them would have been acceptable. Delivering improvement was not... which got him to the problem I'm dealing with now... no engine. He's become an EV purist. That would be a problem if he was honest about it. The catch is, his history of being Anti-EV in favor of Volt is extensive. For years, EREV was far superior. Then abruptly, he took the hypocritical path and not only switched to EV... he also turned on GM itself. That loyalty shift is especially bitter... and he knows I could call him on that betrayal at any moment. Choosing to purchase a Tesla Model 3 rather than a GM Bolt isn't viewed favorably upon by his peers. Concealing that is his motive. Lashing out at Toyota is how he hopes to conceal what happened. I find that intriguing.

- 7-16-2018** **Why?** It's over... he knows it too. Even the attempts to derail discussion just plain don't work for him anymore: It's not random. You know precisely why. For years, I kept asking the same question over and over and over again: "*Who is the market for Volt?*" That reason is obvious now. GM neglected mainstream consumers, focusing exclusively on enthusiasts. Their goal was conquest sales... which the consequences of are quite obvious... no loyalty. Even the die-hard pushers have not only abandoned Volt, they have abandoned GM entirely. In fact, you did that too, choosing to purchase a Tesla Model 3 rather than Chevy Bolt EV. Toyota is working hard to appeal to their own customers, to retain loyalty established from their current owners. That's why those products never appealed to you and it never mattered. This is why I post over and over and over again: "*Know your audience.*"
- 7-17-2018** **Apologist.** Witnessing failure play out well beyond anything the best damage-control efforts can repair has been interesting. I get accused of being an apologist, supposedly a more insulting term than fanboy, but fails as the supply of constructive reply continues: There is no where near enough inventory to draw conclusions with yet. Within a 500-mile radius of Chicago, only 310 Prime are available. It is a global product with low priority in the Midwest of US. The entire first year of production was impaired by the new technology Toyota introduced with Prime. Carbon-Fiber for the hatch isn't what you'd expect from an affordable (\$27K base) vehicle. Yet, that's what got delivered. Toyota worked with BMW to get expertise on how to produce such a complicated piece of the vehicle with that strong, lightweight material... an obvious effort to improve efficiency. Dual-Wave glass is something you'll not find on any other high-volume intent vehicle. The distortion-free bend funnels air over the vehicle to improve aerodynamic drag. It's complex chemistry & manufacturing is more technology advancement... an obvious effort to improve efficiency.
- 7-18-2018** **Analogies.** They can be useful. In this case, it was a fresh attack on Lexus... since the attacks on Toyota haven't resulted in anything... and I was looking for a new way to present information: Don't any of you play poker? We know Toyota/Lexus is holding a good hand. Just because they don't have a "*plan*" doesn't mean they don't intend to play. Notice how others push, but it ends up just being a bluff? Look at the technology already deployed in Prius Prime. They have delivered an affordable system that returns incredible EV efficiency. Who cares if the range is currently short? Adding more cell-stacks is trivial compared to cost-reduction and operational improvements. High-Volt production of those components and refinement of related software & controllers is well underway. Have any of you actually looked at the hybrid system being delivered in the 2019 RAV4 hybrid? Think about the power potential with that configuration in something like a Prius CUV (the rumored replacement for the current Prius wagon). This group thrives on announcements from token & future efforts, yet they express deep disappointment & upset for industry advancements that aren't obvious. Shouldn't we expect more from those here? Why is there so much praise for range & speed at the expense of not giving substantive attention to design?

- 7-18-2018** **Pollution.** Every now and then, something other than EV purist perspective slips out of the group which has become disturbingly bias. In this case, it was a focus on actual impact to pollution, rather than the vague "*electricity is better under all circumstances*" rhetoric. I was happy to join in with: 2,300 miles from the most recent tank with my Prime. 85% of that was EV driving. Measure at the pump calculated to 250 MPG. It represents a remarkable reduction of air-pollution, despite having a gas engine. A key to this approach is the battery-pack is relatively small. That supports simplistic recharging, a huge benefit to those without high-amp connections to plug into. It also addresses current production constraints and lack of public chargers. Reaching large numbers of consumers as quickly as possible is very important, since vehicles will remain in service for a decade.
- 7-18-2018** **Audience.** Escaping from the mindless mantra of purity, I returned to the Prius forum for a bit and was happy to respond to: "*So enlighten me to see how I fit into this intended audience...what or to whom was the Prime made for?*" I really enjoy chatting with people who genuinely don't know and would sincerely like to find out. This is what I had to share about that: Simple, families grow up. Mom & Dad go from needing routine transport for children to using the back for occasional travel with adults. Having nicer seats with an armrest & cupholders makes far more sense than squeezing in a third person, for that new audience. You want a larger setting area, you buy a larger vehicle... hence all the other hybrids, some of which will offer a plug. Next year, it will be Corolla hybrid in some markets.
- 7-18-2018** **Babbling Idiot.** Watching one particular troublemaker completely lose it has been quite fascinating. I've witnessed others cornered after years of fighting, then abruptly finding themselves at a complete loss. But this particular one is on the edge of being delusional. He reminds me a lot of our president. He lies. He insults. He harms. With actions so blatantly uncaring, it will only be a matter of time before he finds himself quite alone. No one wants to associate with anyone so reckless. It's got to the point where he sounds like a babbling idiot. His entire reply to one post was just "*Bahahaha!*" The rest is nothing but cliché now. You wouldn't think a person would become so witless. But then again, maybe he always was. In the past, that would have been easier to conceal. There were plenty of distractions available. None remain. Hope has been crushed. Volt has died without passing the technology over to a viable high-volume vehicle. Years of promise without substance caught up to him, resulting in only one course of action... abandon ship. But rather than disappear like so many other troublemakers of the past, he became a hypocrite by supporting the very thing he had fought against for years. But rather than go from anti-EV to pro-EV but remain loyal to GM, they switched to Tesla. Endorsing the very thing they had mocked makes you really think about why they argued for all those years. What was the point? I thought I'd never find out, since they were silent afterward. Apparently, this one particular individual is going to proudly pretend none of that past ever happened and make an ass of himself in the process, going out of his way to draw attention. How bizarre. Of course, we do have a president doing the very same thing.

7-19-2018 **Spreading FUD, part 1.** How much time can pass before your information becomes FUD? There's a point to which repeated posts of the same thing will create conditions to stir Fear, Uncertainty, and Doubt. Even if the data was correct for that old market, there's no guarantee of relevance years later. I pointed that out after encountering this: "*the other 'myth' spread by FUD mongers*". It came from someone whom I respect, but most definitely don't agree with. He's been carrying a grudge for years about the topic of Lexus's stance toward EV support. Having that same issue posted as a concern after so much has changed deserves a reconsider. After those same circumstances still at play now? I asked that question this way: When do we draw the line and start calling the spread of outdated information FUD? Your grudge against Lexus is nearing that point. Remember how anti-EV the sentiment was from GM just a few years ago? A lot has changed since then. Don't become one of those sharing content out-of-context.

7-19-2018 **Spreading FUD, part 2.** He threw the topic of EV support from Lexus (and Toyota) right back at me with: "*I hate putting you in the odd position of having to defend them as they fall behind...*"

No defense necessary. We can all see that prices are still too high and production limits too real. That will change, but it is very much a primetime issue currently.

The problem is, you're falling for the rhetoric. Those hoping to undermine Toyota are doing everything they can to draw attention away from the component investment & refinement that's happening right now. Toyota is readying the fleet for plug augmentation, positioning everything they need prior to the onslaught of demand.

Haven't you noticed that the supposedly leader doesn't actually have a plan to electrification? We are witnessing GM flounder around aimlessly. Volt has been a disaster and Bolt is anything but the Tesla fighting it was promoted to be. GM customers don't want a compact hatchback or small wagon anyway. They want larger vehicles. Notice how Toyota is queuing them up? Camry, RAV4, Avalon, Highlander, C-HR, and that Prius CUV mule. Each of those hybrids could easily be Primed. For that matter, we will be watching that happen to Corolla hybrid next year.

I'm just doing what I can to refocus attention back on the need to adapt the either fleet... hence, primetime. Any automaker can rollout limited quantity.

7-20-2018 **Continued Attacks.** That daily blog for Volt has been mostly dead for over 6 months now. There are a few die-hards attempting to revive it... especially since trolling elsewhere hasn't been successful. There aren't enablers on other venues and the attacks on me don't work. I can't be provoked after so many years of dealing with the nonsense. Even on the diverse green website where commenters are clearly bias toward EV and look down upon efforts to reach mainstream consumers haven't shown any interest. GM blew it. Their tax-credits are about to trigger phaseout and the tech from Volt still hasn't been deployed to a vehicle GM shopper actually want. So, finding a receptive audience for more of the old spin, rhetoric, and belittling is proving futile. "*Here's hoping we get some new articles*" is the sentiment repeated over and over again on the blog, to no avail. After months of silence, I finally broke it with: What is there to publish about Volt on a regular basis now? The parent website has been a great resource for green articles. It simply makes no sense replicating that same content here.

7-20-2018 **EV Owner Rhetoric.** Some of them can be really bad, especially when it comes to EV purity. Arguments of range can get rather bad at times too. Worse is from certain Tesla owners, since some particular individuals add on an anti-legacy twist. That dislike for traditional dealers makes them underminers. They spread their own discontent to the rest of the market, setting a precedent of acceptable badmouthing, claiming an unwillingness to accept change. I'm unwilling to put up with that, as was the case today:

Sounds like someone is spreading FUD based on outdated rhetoric. It isn't as complex of a sales process as you portray.

Go to a Toyota dealer and watch the delivery bay. Notice how many RAV4 are hybrid models are driven out by new owners? Those frequent sales don't require anything special. The addition of a plug is a natural next step. Potential customers already instinctively understand the benefit of electricity from the wall. They already know it will green boost the driving experience. This is why Toyota emphasized hybrids not needing a plug in the past. They were setting the stage for this next step by making the difference stand out.

A simple test-drive is all it takes to sell that feature. You feel the electric power. They tell you recharging only takes a standard household outlet. You ask how much.

That claim of *"because they see them as difficult to explain and/or takes too long to explain"* doesn't even come into play.

7-21-2018 **New Photos.** There are so many I have yet to publish. The collection of unshared work continues to grow because I'm focusing on video & research instead. There's documenting of the changes taking place too. As the stage of early-adopter activity comes to a close, this very different new audience... mainstream consumers... has new questions. They are the market that really matters. They are the ones who will have more involved with learner & acceptance. So, I'm busy getting all that ready in the meantime. Eventually, photos will be made available. I'll have fun sorting through those memories. Some are trips from what is now awhile ago, back when Prius Prime was new to me.

7-21-2018 **Electric Draw.** The answer to that question of whether or not remote A/C will use the battery or the plug for power is not clear cut. People were hoping for an absolute, not a hybrid approach. I wanted to find out myself. It affects how recommendations of pre-conditioning are given. I gave it a try, watching activity on the graph of live data coming from my 240-volt charger. It showed 0.9 kWh of electricity taken directly from the wall when remote A/C began. Following that, the battery supplied power. Upon completion of the cooling cycle, power from the wall resumes. Another 0.25 kWh is drawn. Knowing the process started with the system already fully charged and knowing that the MAX setting will consume a lot of electricity, that seemed about right for consumption. The bulk came directly from the plug, but then a smaller part was from the battery. That's not as definitive as one would hope for knowledge of operation. Why does it do that? I wonder if there is secondary cooling of some sort, something related to the pack. Hmm? I guess more research is needed.

7-22-2018 **Critical Thinking.** It has been absent from much of the online posting. Most people comment about green vehicles without much thought. They focus on just the short-term or completely abandon logic by following emotion. That reality is beginning to emerge as an undeniable theme. In the past, it was easier to dismiss. Whomever made the observation would be labeled as a troublemaker, someone with an agenda counter to advancement of cleaner transport. The fact that a person could be providing constructive feedback was regarded as utter nonsense. Seeing the situation change is assuring. Unfortunately, there isn't much to take comfort in though. GM has fallout to address. Their enthusiasts & supporters have vanished. It's quite bizarre that Volt has pretty much become a footnote in history already, even before tax-credit phaseout is triggered. Bolt's struggle is the reason. Much needed high-volume sales were never achieved. Why bother with a high-cost risk when the vehicle type (wagon) is fundamentally unacceptable to their customers? GM shoppers want a SUV of some type... hence the wide variety of models being offered... none of which come with a battery-pack, unfortunately. That status of "*fallen leader*" is now forcing critical thinking. What went wrong? How could GM have missed such obvious opportunity? What should happen now? It's a mess other automakers must distance themselves from and supporters must somehow explain.

7-23-2018 **Beetle Hybrid.** People are singing praise for VW announcements. There's no substance yet. In fact, many of the upcoming new choices won't be rolled out until at least 2020. True, the announcements aren't quite as vague as what GM typically provided. They are mighty close though. You get nothing beyond basic information. Essential stuff, like an expectation for price or availability, is totally absent. Like the hybrid Jetta, it may not even get noticed as an offering. How much of a market is there for the Beetle now anyway? It's as if they learned nothing from GM. My guess is it's a move of desperation, more token efforts to repair reputation. Ugh. Why isn't there a mainstream vehicle being sighted for plug augmentation? Anyone else concerned that their aren't accountabilities for any of these news blurbs? Thankfully, we are getting some infrastructure updates as a direct consequence of the diesel deception. But what is there in terms of actually advancing the automaker itself forward?

7-24-2018 Hypocritical Posts. I found this amusing: "*We can learn from the past.*" It came from someone who lashed out at Toyota with assumptions, was proven that his rhetoric was indeed the spread of greenwash, then pretended none of it ever happened. Ugh. I responded to that with:

Who was among those that didn't believe the possibility of Toyota having ended early production of gen-1 Prius PHV because there was a much better gen-2 already being prepared for production? I remember certain Tesla owners backing the DOA claim based on rhetoric of Toyota abandoning the market. I also remember the reason why... low hanging fruit.

There is very real concern now growing about Tesla overcoming the critical transition from delivering a great vehicle to delivering a sustainable product that generates sufficient profit. It's a difficult challenge for a high-performance vehicle. They tend to stay in the niche category. Less exciting offerings are what business depends upon though.

The disaster playing out with GM right now overwhelmingly confirms that. Design focused on range & power. Favoring aspects of performance sacrificed balance, a critical requirement of mainstream sales. Those drawn the unique offering have already made their purchase. No one else is interested. Most everyone with a Volt were conquests, buyers from other automakers. Loyal GM customers were never drawn to it.

Toyota has carefully studied audience. They understand what their own shoppers will consider for purchase. Impressing the media, enthusiasts, or fanboys is of no concern. That rhetoric will persist regardless of what's delivered anyway. Think about what the other automakers will be up against... competition from every direction.

Watch what happens as the tax-credit phaseouts are triggered. What happened in the past won't matter. That new history in the making will shape the market. Designs with a production cost too high to compete with traditional vehicles directly will face serious decisions. No more will it even make sense to isolate the "*EV market*" from the rest of what we see on dealer lots.

It's about to get very real. Not every plug-in offering will survive. There will be some losses.

7-25-2018 **Trade War.** What a disaster... already! This is classic fallout from a "*gut reaction*" maneuver. It can't even be consider an "*unintended consequence*", since so many of us sounded off about the potential outcome long before any decision was actually made. The problem should have been obvious. Vehicles are global products. Their expense & complexity is why sighting them as a fundamental in economics is so effective. The wide variety of resources & expertise required to make them reliable & profitable is mind-boggling. You don't mess with such a fragile balance, especially when such monumental dependency for sustainability is in the balance. Yet, we now have this emerging: "*GM cuts 2018 outlook as Trump trade war drives up steel and aluminum costs...*" It was an inevitable outcome. Far too much of what we need comes from outside the United States. A policy of protectionism is doomed to fail. I can't imagine how costly such rash decisions will have. Seeing immediate fallout is very concerning. To make matters worse, there will be a short-term appearance of profitable gain in the meantime. Manufactures will hoard supply, placing orders for as much raw material as possible to bet the price hike coming from the tariffs. We are starting a trade war. No amount of relabeling can hide that situation. It is self-inflicted harm, despite how good the intentions are supposed to be.

7-25-2018 **Consequences.** They are difficult to see, especially when there is disagreement about goals... or none actually stated. The big picture can even be a problem to see as consequences play out. If you aren't paying close attention, how can you tell the difference between intended & unintended outcomes? Fortunately, some of that doesn't actually matter. Even if you aren't watching the market at all, you still must exist within it. Choices are limited to what is available. This is how I stated that reality today: It comes down to being able to stand the test of time. We are now witnessing some approaches that we not been able to... hence the low hanging fruit. Appealing to just a limited audience is a very real problem. Dependency on tax-credits made it even worse. Consequences of all that will be playing out soon. Watch what happens.

7-26-2018 **Feeding Hype.** Some people just plain do not get it: "*We are well on our way to introducing 20 new all-electric vehicle models globally by 2023.*" Those gullible Volt enthusiasts were the means of spreading greenwash for years. They would feed the hype by making assumptions and building excitement from announcements without any actual substance. It feels quite inappropriate to call some of them "*stupid*", but sometimes you have to say it like it is. Remember the "*basket of deplorables*" comment? As offensive as that may have been, it was accurate. Regret won't change that situation either. The lesson learned from such exchanges is to prevent future ones by taking a more concise stance sooner. Get in front of the issue by forcing a position of purpose. When you state goals, there's a clear effort to remove subjective factors. If you stick to criteria that can be measured, many problems can be avoided. What are you trying to accomplish? Asking things like that separate the emotion and contribution to constructive discussion. In this case, it's asking what "*model*" represents. We could see rebadging or repackaging, which would greatly reduce the diversity of what's actually delivered. Variety that's limited won't reach a wide audience. The quantity of what is produced is an even bigger deal. Problems from lack of inventory is an all too real barrier already. Only having a few available at each dealer doesn't change the status quo. Real change requires more than just token effort. I pushed back at post sighting the link with that quote by making my viewpoint clear: Typical GM announcement... so vague, there's nothing to be held accountable for. Notice the absence of detail? No commitment to volume or price is a red flag. This is how they fed hype in the past.

7-27-2018 **Voices of the Past.** I jumped on an effort to stir the pot. That old daily blog is dead. So, there's no surprise about boredom setting in. Those who fought want to fight again. Problem is, they lost before and have nothing new to fight with now. The attempt to move goal-posts back even further with hope of new conflict declare superiority about was nothing I would be willing to accept. That's worse than just giving up. It's intention rollback, pretending progress wasn't made. Having dealt with that type of deceit from Volt enthusiasts, it's the type of greenwash I have prepared well to prevent. So, I drew the line: Nothing about that is new. Remaining "*as it is*" was the position of concern. Finally offering the technology in a crossover 10 years after rollout is not what had been hoped for. Expectations were set for mainstream sales volume to have already been achieved by now, prior to tax-credit phaseout so the business could sustain a profitable level competing directly with traditional offerings. Notice the news for the Tahoe/Suburban/Yukon large SUVs? That statement of "*Hybrid variants of the vehicles are expected as early as 2022.*" is a rollback of expectations. 10 years ago, there was a Tahoe hybrid already on the road. It used GM's Two-Mode system, the predecessor to technology used in Volt. There was even a plug-in prototype being promoted back in 2009. Notice the reintroduction of Blazer? It fits nicely into the popular SUV line-up of Trax, Equinox, and Traverse... none of which offering any green option. All are still stuck using engines without battery-packs. In other words, the goal-posts have been moved back so successfully, people haven't noticed. All the hype turned out to be a bust. Those who were attacked for their critical thinking have been vindicated. Hopefully, this means constructive discussion going forward. Not taking into consideration the repetition of "*over promise, under deliver*" will invite it to happen yet again.

- 7-28-2018** **Making It Worse.** When a major oil-executive and refinery-owner speaks out with words against the current path being taken, the hope is enablers will finally notice the terrible course we are taking: *"They're doing whatever they can to close themselves off from the new, hold on to the past and prevent change."* Far too many not speaking is a major problem. It is that boil-a-frog problem. People just follow the rhetoric because it feels right. He went on to state: *"This is a natural tendency, but it's a destructive one because when people act in protectionist ways, they erect barriers, which makes everyone worse off."* In other words, they stay where it seems safe. It's self-destructive. You back yourself into a corner. Remember all the attacks I had to endure back when Volt sales first started to fall apart. It was like prey fighting for survival. They would lash out at anything I posted, knowing it was already too late. I had proven my point. They lost. We are at a point like that again, but with the approach as a whole for GM, not just the vehicle. The difference now is pressure from the oil industry. It is obvious "peak" has been reached. The indicator is the loss of stability. An unpredictable market makes risk significantly greater... hence the effort to prevent change. Even the poorly informed are starting to take notice of the barriers. They now need to speak out about them, rather than allowing them make things worse.
- 7-29-2018** **End of Life.** I asked the following: Range will reduce over time. But what about the next step in aging, when power also diminishes? It can be a sign of cells in the pack becoming imbalanced. The system will begin to rely heavily on the gas engine to compensate for the power loss. That brings about a major decision. GM designed their battery-pack for maximum longevity, adding cost & complexity for the purpose of never needing replacement. With the large T-shape and liquid-cooling, the process to swap in a new one will likely be quite expensive. Looking at the approach Toyota took, there's just a basic module in the hatch area. You disconnect wires and air-tube, then remove with an ordinary engine lift. That's a very simple process in comparison. This is where the audience question applies. Old Prius become great hand-me-down cars. A battery-pack replacement can bring about several more years of service. Keeping size small makes that a realistically affordable, a choice not shared by Volt. What do you do when the replacement point is reached? At some point, the vehicle will be traded in as a junker. With TCO (Total Cost of Ownership) quoted so often, how many miles should that actually include? In other words, what should be the expectation for end of life?
- 7-30-2018** **Design Assumptions.** It's quite a challenge to confront someone who obviously doesn't understand how Prime operates. They base assumptions entirely on observations of the past... without any clue that claims are way off, in some cases, quite wrong. Unfortunately, I encounter that a lot. Fortunately, Toyota is well aware of the situation. This is why rollout of Prime has been incremental. Each market segment reveals more about the consumer interest, which is especially important in this rapidly changing industry. You don't just dump something out there and hope for the best... which a certain automaker has done several times and failed several times as a result. Anywho, it starts with education. Find out what people know and don't know, then figure out a way to convey the missing & incorrect information. Sometimes, you need to be a little terse about it. I was rather annoyed by this individual who obviously didn't know what he was talking about: Clearly, you haven't actually driven a Prime. There's is very obvious difference for the electric power available compared to the regular Prius. The larger battery-pack combined with the one-way clutch provides a major performance advantage. You get the full EV driving experience.

- 7-31-2018** **Enthusiast Bewilderment.** Some genuinely cannot figure out what the problem is. Others simply don't want to acknowledge it. I tried to deal with the later with this: You know why. Just about everyone here does. No one wants to face that reality though. Production cost is far too expensive for plug-in offerings to compete directly with traditional vehicles still. Toyota is well aware of this problem and simply does not want to be part of the tax-credit dependency. Leadership is not about appealing to enthusiasts. It's the ability to change ordinary people. Delivering a product able to sway mainstream interest is very, very difficult... a topic rarely discussed on a venue like this. Next year, we'll see the debut of Corolla PHV and an EV model C-HR. That too is an effort to offer something mainstream, not really anything that may appeal to early-adopter shoppers. Toyota wants their entire fleet of vehicle to move forward with electrification, not to just deliver token vehicles. This is why the RAV4 hybrid will be included right from the start with the next-gen rollout. The endorsement of having a battery-pack is undeniable. That makes adding a plug a very easy next step.
- 7-31-2018** **Not Lagging.** Efforts to push the mindset of "*laggard*" aren't going away. They keep trying, despite the absence of substance. It's the new version of "*vastly superior*" rhetoric, that old chant which had the effectiveness of chest-pounding. It draws attention, but not much of anything becomes of it. That's basically just for show... which would explain why there were so many complaints about lack of advertisements. They truly believed a product would be better received if it was promoted more. The very idea of a better design winning favor wasn't important. So I pushed, especially due to the term "*Eco Warrior*" being used today in the original post: What is your criteria for Eco Warrior? 40 km (25 miles) capacity delivers amazing efficiency. So what if my last tank was only 85% EV driving. You are completely missing the point of a plug-in hybrid. If you want to avoid running the engine entirely. That delivered in an affordable manner is leadership, not lagging.
- 8-01-2018** **Dismissive.** I confronted an antagonist head-on today. The nonsense is going as fear of consequences from the upcoming tax-credit phaseout approach... or at least, I think that's what it is. Many of the antagonists are poorly informed, since they only read what they want to acknowledge. They have even stated that by recommending everyone to ignore & downvote. It is likely that same old blind hope of something magically changing. Perhaps not though. Toyota has been extra quiet this year, which adds to the wondering if a mid-cycle upgrade will be significant. Remember how quiet they were about the price of Prime? Despite it being so impressive upon reveal, we didn't hear squat prior to the official sharing. Oh well, that gives antagonists even more to try to deny. I simply pointed out the nature of the problem this time, since that's more effective than biting at their troll bait: Like the political scene... dismiss what doesn't fit the narrative. Too bad, it's time to face reality. You can only evade detail so long. With so many attacks on Nissan & Toyota claiming they are unworthy offerings, it's time to face the music. There are tradeoffs. We now have real-world data. You want discussion here. That means it must be constructive... not dismissive.

8-01-2018 **Failure.** It looks like the upset revolves around GM's failure, not what Toyota could potential deliver mid-cycle. That became easy to pick out from replies to my previous post. My effort to draw attention to audience appears to have been effective. I was always keeping focus on that "Who?" question. Never being able to overcome their own rhetoric is an ironic victory. Some many times, the Volt enthusiasts choose to repeat the greenwash of Prius being the most traded vehicle for Volt. It was true, at first, back when those killing lease deals were offered. Why not swap an old hybrid for a new plug-in without any long-term obligation and payments so low you are practically stealing it? The catch was, when those leases expired, most of the people abandoned GM. Many either took advantage of Ford's great deals or popped for the expensive choice of Tesla. And now that Tesla prices are becoming affordably competitive with GM, we see neither Volt nor Bolt stand a chance of conquest. The entire burden of sales depends upon loyal GM customers... who couldn't care less about the tiny plug-in vehicles GM offers. Here's my summary of that warned about sales disaster: GM's choice to deliver a "*superior*" product in the form of conquest sales failed miserably. Growth beyond enthusiasts was never achieved. Now, it faces the challenge of sales without tax-credit. So much opportunity wasted...

8-02-2018 **Without Context.** Spin emanating from selective perspective is a challenge to deal with. People with narrow view of the market draw incorrect conclusions. It makes sense that being unaware of other things taken place would send you down the path of assumption... unknowingly, which is why I try to correct oversights as directly as possible. In that regard, hopefully, this will be taken well: That view of Toyota is the impression you get by viewing the raw data without context. The real story is we are witnessing a market shift, combined with a styling disinterest. So, the status claim is not an accurate reflection of what's truly happening. Sales of the RAV4 hybrid remain very strong, despite the fact that the model has reached its life-cycle end. The next-gen will be rolled out for 2019, with the lead offering a hybrid model. Sales of Prime have been hampered by lack of inventory. You can't buy what isn't available. Distribution worldwide has created a supply shortage for central United States. Sales of Prius always lagged for this generation because the style was so polarizing. Either you liked it or you didn't. That extreme is why the mid-cycle refresh will change the look rather significantly.

8-02-2018 **Audience.** The denial is slowly turning into acceptance. None of the recent posts like this have been taken as a provoke. That's not how the information is perceived anymore. In other words, the enthusiasts have lost their audience of enablers. It's over for that greenwashing as a norm. What had been daily efforts to mislead is becoming a questionable portrayal of the past. After awhile, people won't believe what actually happened and will call it a false narrative. Problem is, I have proof to the contrary. These blogs document those experiences to an extreme level of detail. Now at that turning point, here's what I have to say: GM learned this lesson the hard way, delivering a compact hatchback to their customer base of SUV buyers. No surprise, those previous buyers of GM vehicle didn't care. They just plain were not interested. So, Volt was marketed to external shoppers instead. The result was a disastrous waste of tax-credits... since the outcome was not a change on their own showroom floor. Customers continued to shop for SUV offerings. Nissan may end up with the same struggle. This is why Toyota is setting the stage with RAV4 hybrid. Stepping it up to offer a plug won't take much when there is already a loyal base of hybrid owners. Same thing for Camry hybrid. This is also why we're hearing about the potential for bring the AWD model of Prius to the United States. To change the status quo, technologies must be adapted to what buyer preferences. Know your audience. This is why GM's failing to deliver a SUV using Volt technology after so many years is becoming such a big issue now. That loss of a \$7,500 subsidy makes the effort to finally do that even more difficult.

8-02-2018 **Oh Really?** How does one respond to such a statement: "*GM's resolve is suspect.*" That's such an absurd point. Suspect? Umm, isn't it obvious? GM just plain does not care. Neither Volt nor Bolt were targeted at GM's own customers. How is that not an issue of resolve? We still have no idea what purpose or intent GM really has. The fact that technology in Volt was never implemented in a SUV, despite the fact that its predecessor (Two-Mode) had already demonstrated plug-in hybrid ability, goes well beyond suspect. There is no doubt after almost 8 years since rollout. We saw how gen-2 of Volt never addressed the cramped seating in back or did enough to actually make it appealing without subsidy. Yet, they are the ones who belittle Toyota for delivering exactly that. There is now an affordable plug-in hybrid choice (Prius Prime) and larger hybrid platforms staged for the same (Camry & RAV4). We are expecting both Corolla & C-HR to get plugs next years, plans already in play. So, why is the "*laggard*" label supposedly appropriate for Toyota and GM gets off without any issue? This is the very reason I brought up the "*too little, too slowly*" concern all those years ago. I saw the hypocrisy and called it out. Getting attacked for presenting facts is not appropriate. Oh well. Now many others are expressing the same concern.

8-03-2018 **Non-Answer Replies.** Within minutes after my reply below, I got a response. It was 3 paragraphs of literally nothing. I guess some people feel if there are a lot of words, you don't need any actual substance. I tried. This is what started it: "*Being a loyal Toyota owner for years, I am disappointed that the Japanese are way behind in the PHEV and EV game, and I don't understand why.*" I had really hoped something constructive in return to this: Mainstream shoppers want affordability. Dealers don't want to carry inventory dependent upon tax-credits. Not recognizing that will prevent you from understanding why. Toyota's focus is low-cost, something dismissed as important when the measure of progress is only range & power. Their hybrid design supports a simple, yet very effective plug-in upgrade. Take a close look at the next-gen RAV4 hybrid rolling out for 2019, then tell us how "*behind*" could apply to that design.

8-03-2018 **Braindead Comparisons.** Every single time there's a plug-in hybrid review, some Volt antagonists stirs the pot. This time, it was an attack on Honda & Toyota with the same old brainless comparison. Each time, you get references to hydrogen as a distraction too. I ignore that bait as much as possible, choosing to address their trolling my way: As for being "*years behind GM in their engineering*", that's simply nonsense. Toyota has delivered a system that clearly more efficient and more affordable. There is no contest in terms of kWh/mile (electric) or MPG (gasoline) measure. There is no contest in terms of MSRP. There is no contest in terms of targeting audience. That criteria do you think puts GM further ahead?

8-04-2018 **Problem Comparisons.** My encounters with Volt enthusiasts provided lots of examples of arbitrary numbers. They'll argue something based on circumstances of a design, rather than taking the actual technology into consideration. It's a very common problem. Most people back off when confronted with real-world data to counter their stance. Those enthusiasts didn't, choosing instead to double-down. When that failed, they'd begin with dishonesty, then keep fighting until desperation grows enough to turn to personal attacks. It's an ugly cycle we witness far too often. Anywho, I tried to deal with a comment to that affect about Honda Clarity being vastly superior to the current Chevy Volt due to it offering a faster charging-rate:

Those numbers are off. That assumed time is inaccurate.

There is no possible way to walk from the car, get your item in the grocery store, wait at the register to pay, then walk back out to the car in just 3 minutes. A fast visit takes 10 minutes. More realistically, you'll have multiple items to get, which pushes it to 15-20 minutes.

I know this well, since I have been doing it for years. My fastest stop ever is just under 6 minutes, to get a coffee... no line and they already knew my order. Even that provides enough electricity to make it home from there using just the 3.3 kW rate. Typically, I get anywhere from 2.5 to 7 miles of charge from a quick stop at the grocery store.

Why should a vehicle with a much larger battery-pack get preference at a local charger? I could understand the situation being quite different along a highway corridor, but that isn't how you presented the supposed shortcoming of not being able to charge at the 6.6 kW rate.

Also, keep in mind that L2 is capable of delivering 19.2 kW from an 80-amp draw. So, that "BIG" difference sighted is actually quite arbitrary.

- 8-04-2018 Minnesota Assumptions.** This was interesting. Someone very new to the plug-in discussions made a comment about chargers not being available anywhere around Minnesota and surrounding states. I hoping this large provision of data will change his mind about that assumption: No charging in Minnesota? The 35 corridor from the Twin Cities to beyond Duluth already has basic infrastructure nailed. You'll find both L2 and SuperChargers. The stretch from Wisconsin to North Dakota along 94 is getting a more elaborate treatment now, using some of the VW settlement fund. There are random chargers throughout the state as well. Most are either ChargePoint network or non-commercial offerings. The first Blink chargers in the state were just installed at the Mall of America recently too. Up in the tourist location I frequent, the Brainerd area, there's a SuperCharger. Along highway 90 on the way to South Dakota, there are both available and proposed SuperChargers. Just yesterday, a new set of ChargePoint stations opened up in Lanesboro, a great location in the south for biking a beautiful trail along the Root River. So, long story short, you can charge in the wild in Minnesota. We are much more progressive here than it would seem. We also have a plug-in owners group with a strong & diverse presence.
- 8-04-2018 Rely.** This could become a problem: *"I do think public charging stations should be limited to BEVs who rely on charging stations being accessible and not blocked by an ICE or PHEV."* It's the attitude many of us have been trying to prevent from spreading. Sadly though, some choose to fight. At least the vague *"No Plug, No Sale"* was easy to understand. Unfortunately, it was very shortsighted. Not being able to see beyond the sale is as bad as not understanding how important of a role the dealer plays in the sale. In other words, you cannot cherry-pick. Endorsing a product means understanding & embracing all aspects of it. I fired back with: Sure glad that attitude is not what our plug-in owners group endorses. If someone has to *"rely"* upon a public charger, it means they purchased the wrong vehicle. That dependency is a sign of a problem. We make great efforts to ensure people are well informed prior to purchase. The purpose of public chargers in non-corridor locations (basically, not highways) is for convenience recharging. Being able to get home using electricity is a benefit to everyone, regardless of the tech employed.
- 8-04-2018 Turning a Blind Eye.** It's this kind of hate that become the real problem: *"give it a rest already"* We saw that quite a bit when Volt was first revealed. No one wanted to address GM problems of the past. They all dismissed Two-Mode as a mistake that couldn't possibly be repeated. When I pointed out that Volt was the successor to Two-Mode, retaining much of the original design in addition to much of the development engineers & management, they did everything possible to try to shut me up. I see hints of that emerging again, as the tax-credit phaseout approaches. My guess is news to confirm their error feels spiteful, so they turn a blind eye to the possibility of being constructive. They are tired of dealing with failure efforts and just plain don't want to accept overall defeat. I could imagine how difficult that is, but still see the purpose of not giving up on electrification. My response to that was: Pretending the problem doesn't exist is terrible advice. I refuse to become an enabler. What do you suggest the next step should be? Keep in mind the talks of tax-credit renewal. Not addressing how the first round was wasted isn't good for anyone. Remember how the point was to reach ordinary consumers... not just enthusiasts?

8-05-2018 **Already.** Unrealistic expectations is quite common. The response to that is often to sight an extreme: "*We all should've been driving fully electric vehicles already. Unhealthy, polluting, fossil burning vehicles should have become a thing of the past.*" That's a great example. Oversimplifying the problem is why progress is so difficult to recognize. People in general don't notice detail, the small influences that really make a big difference. Seeing that a better product exists doesn't mean adoption of it will come easy, even if you see that step as trivial. After all, that serves as proof of the technology being viable. Old habits are difficult to break though. The purchase of a vehicle is profoundly significant too. It's the most expensive decision you'll repeatedly make many, many times throughout your life. Annoyed by such complacency of the situation, I posted: Between all the anti-hybrid rhetoric of the past and the reality of battery-tech still being sub-par for mainstream acceptance (too expensive, not energy-dense enough), there's no need to mention infrastructure shortcomings (houses without sufficient capacity). We will get there, but it's not ready for primetime yet. Think about the challenge of selling a profitable \$35k vehicle without tax-credit. Thinking we should already be there is quite unrealistic... especially when it comes to competing with traditional vehicles priced in the 20's.

8-05-2018 **Dominant.** Understanding the technology is a fundamental mistake those nasty Volt enthusiasts never learned the importance of. It was always rhetoric like this that they were endorse & embrace: "*Linked here from a Forbes article and I think it's safe to say the days of the Prius being anything near dominant are definitely over.*" That's all that was provided, no detail explaining why. They just referred to the link with the hope of not being confronted on any detail. I always push for detail. They see that as refusal to acknowledge the conclusion someone else drew, something you are supposed to do without question. Asking why is how you learn. They know that, so calling what you do as "*spin*" makes responses appear to be denial. In reality, I see how they attempt to draw attention elsewhere. In this case, the word "*dominant*" is re-associated to Prius, rather than the hybrid system. They know HSD is used in quite a wide variety of other vehicles and Voltec is trapped in a car no one wants. GM exhausted the market, reaching out to all possible conquest interest... because their own customers had no desire for a compact hatchback. Toyota has strived to deliver a compelling SUV hybrid. GM never did. The hope of one with a plug is still years away, with nothing certain planned. That's why there is so much rhetoric still. I simply responded to this one with: The tech in Prius will remain profitable & sustainable for years to come. We will see many more hybrid & plug-in hybrid offerings taking advantage of advancing batteries, whether it gets attention or not. That's the nature of most automotive business, not just a single model holding a spotlight.

- 8-06-2018** **EPA.** We keep hearing about the upcoming rollback. The current administration is getting ready to announce the elimination of new efficiency restrictions introduced by the previous administration, freezing current levels for the sake of safety. They are using the same old misconception exploit that sacrificing safety is the only way to achieve efficiency improvements. Having been proven false is of no consequence. They simply pretend that never happened. They are telling people what they want to hear for the sake of being able to continue driving guzzlers. Do everything to retain the status quo. Sadly, that "safety" is only with regard to perceived benefit. It's really a loss though. Emissions from that extra fuel consumption are harming people slowly. Pollution is costly, whether you acknowledge it or not. They couldn't care less. We'll have a similar problem with coal later this year too, except that is expected to remove many barriers... allowing for much greater pollution than the current levels. That excuse is for job security. Supposedly, that will save employment, even though the act of extracting & processing coal is becoming more and more automated. It's really sad. Even with that terrible head of the EPA having been removed, some of the destructive behavior continues. Our environment's well being is being traded for profit.
- 8-07-2018** **Doomed.** The message of doom for Toyota is remarkable. People without business background are judging the based exclusively on what they see right now, in the moment. That's called using anecdotal evidence. They figure their engineering expertise or their desire to pursue green solutions is all it takes to understand the "Who?" question. It's quite obvious they lack economic, accounting, and marketing knowledge. That causes them to make incorrect assumptions and follow false leads. It also leaves them vulnerable to repeat problems of the past, those only recognized from a business perspective. It's very, very easy to overlook the signs when you are looking for them. It usually comes down to thinking a well-informed consumers is all it takes for the automotive industry to change. They don't see the market as a whole, everything it takes to appeal to those who make it possible for the consumer to even have that choice. Ugh. Oh well. I keep pushing to get that message across: Toyota's measure of leadership is being able to capture the hearts of their true customers... DEALERS. That's a fundamental mistake GM made they are trying to avoid. If their dealers have no interest in stocking inventory, ordinary consumers are doomed. This is why Toyota has been working so much to stave larger hybrids for a plug, like Camry and RAV4.

- 8-08-2018** **Going Private.** Hmm? The comment about Tesla considering the possibly to go private caused quite a stir today. You don't expect a random comment like that from a CEO. It's understandable. The stockmarket is influenced heavily by short-selling, rather than long-term investment. Tesla is very much in the position of focusing exclusively on long-term well being. Having to deal with minor shifts shouldn't be consuming time & resources. Not having a public offering prevents that; however, it also raises concern of intent. We see commentary on a regular basis of how luxury automakers should be taking Tesla more serious. Why? The target-market for Model 3 is mainstream consumers, not those in the luxury market. Remember? It's all about delivering an affordable offering with a price competitive with other high-volume vehicles. Luxury offerings are by no means high-volume. They are a well establish niche, which works just fine for that audience. You don't transform the world from gas to electricity with a narrow scope. That's why idea of going private raises alarm. What would that do to the mission statement? How would it change the business approach no longer being under public pressure? When would we get to hear about future plans? There are many questions.
- 8-09-2018** **Available Plug.** There's still this problem no one wants to address. Where will people plug their vehicle in to recharge? Taking it for granted that people will be able to front the setup money and understand all details of what that install entails rather naive. There's a lot of intimidation. There's also the reality of infrastructure shortcomings. I keep hearing there's a plug available to some percent of homeowners. None of those surveys actually sight any specifics though. In most cases, you'll be lucky to pull 8 amps, since it is an existing line that is already being used by some other device. That makes recharging a challenge for just one vehicle. For perspective, it takes 32 amps at 8 hours to recharge 200 miles of capacity. How many people are you aware of that have a 40-amp 240-volt line readily available to provide that? There's the logistics of simply how to park multiple vehicles for recharging overnight in the garage or driveway. We need to address these issues... so well, they become easy to respond to. Right now, I'm getting a lot of evade responses. That's not a good sign.
- 8-10-2018** **New Videos.** It was Summer break for me... time away from providing much Prius content online. My job actually changed, same location but in a significantly different role, that inevitable major shift you encounter at some point throughout the career. It's exciting, but lots of work. That made other changes, like work-time and parking-location, easier to embrace. So, I did. You get to see it in new videos. I filmed two yesterday. Unfortunately, the second (driving home) included a battery overheat issue with the 4K camera. Mounted in the windshield, it gets hot... blinks a warning... then shuts off. That's not good while you are filming. I managed to keep in cooler today. Between the drive being a little faster, the battery cool to start with, and leaving the camera cover open, I was able to capture the entire drive without issue. Phew! The other footage (driving to work) worked just fine first try. So, you get to see my full commute, the new ramp where I park & plug, along with the new route. More ideas to come. That at least rounds out the warm weather coverage.

8-11-2018 **Ramped Up Rhetoric.** Pressure from the upcoming phaseout trigger for GM tax-credits combined with the reality of poor sales has ramped up rhetoric. Anytime you bring up what's really important to mainstream consumers, there's a GM enthusiast there to evade the issue. They will typically either change the topic of Toyota's perceived lack of EV support or their interest in fuel-cell diversity. Both are obvious attempts to draw attention away, yet their actions aren't called out. We have large groups of enablers, no one will to speak up for what's really important. True, their silence is better than the meritless push for token rollouts of the past. Nonetheless, it's a clear barrier to progress. Efforts like that to impede advancement are undeniable after awhile. That's getting really easy to see at this point too... especially when "*laggard*" is brought up to describe work to advance the technology that aren't related directly to large battery offerings. I simply fired back to the post that set me off this way: Calling Toyota a laggard for delivering a more efficient and more affordable system is a disregard for what's truly important.

8-11-2018 **Priorities.** I climbed up on the soapbox today to address the rhetoric, with the intent to provoke new discussion by starting a new thread:

It's time to finally address them, moving beyond just the basic support for plugging in. We shouldn't allow EFFICIENCY and AFFORDABILITY to continue to get pushed aside, especially at the market becomes more of a challenge with the phaseout of tax-credits.

Plug-In vehicles can be guzzlers, wasting fuel just like the traditional vehicles they replaced. Needing more electricity to travel the same distance increases both vehicle & operational cost. We shouldn't turn a blind eye to that, or worse, feed rhetoric to draw attention away from the issue.

A simple example of EV efficiency is to look at the most common comparison, Volt verses Prime. 31 kWh / 100 miles is efficiency rating for Volt. 25 kWh / 100 miles is efficiency rating for Prime. That means it requires 6 additional kWh of electricity for Volt to travel that same distance in EV as Prime. (Put another way, Volt delivers only 80% the efficiency of Prime when consuming electricity for propulsion.) It also means more battery is required, as well as extra recharging time.

Even if electricity was provided entirely from renewable sources, would we really want to promote wasting it?

We are long overdue to finally start addressing issues like this. Seeing this group not take the responsibility route of encouraging the better technologies and pointing out those with shortcomings would be unfortunate.

In other words, don't allow enablers to distract from the importance of EFFICIENCY and AFFORDABILITY.

- 8-11-2018** **Measuring Efficiency.** It became obvious within just minutes of posting that message about priorities that some plug-in supporters have no idea what the heck I'm taking about. The discussion immediately took a turn in the direction of battery-pack size. In their mind, more equates to better efficiency. That's as absurd as the vehicle carrying a larger quantity of gas being more efficient. Ugh. I'll share a post shown the dashboard display with a miles/kWh readout. That alternate perspective of the same measure may help. It's not really any different from explaining how backward & misleading the MPG system here is. The rest of the world shows consumption in other terms for good reason... what we use is very misleading... as we see the same problem coming from capacity now. Ugh, again. I attempted to convey the message with this, but am sure more follow-up will be needed... which is good, since getting a discussion going was the point: You are comparing the size of the "*tank*" not the actual efficiency measure, think MPG but for a plug. kWh/mile is that measure for EV travel. For EPA rating, it is the number of kWh of electricity it takes to travel 100 miles.
- 8-11-2018** **Video: New Route, New Parking (to work).** The quest to provide as much detailed real-world data as possible continues. With this drive, I took a new route to work and parked in a new ramp. In this case, it was also quite a warm morning for here in Minnesota. So, there's nice variety to observe. Being warm already, I had the electric A/C running. That's a reducing factor in how far you can drive in EV mode. Another is the speed of travel. On this drive, there was about twice as much at 70 mph than with my old route. Upon conclusion of the 21-mile drive, there was a third of the usable battery-capacity remaining. That means I would have been able to travel roughly 30 miles total in EV, despite also using the A/C at the same time. It's a nice example of how under-rated the system in Prius Prime actually is... [Prius Prime - New Route, New Parking \(to work\)](#)
- 8-12-2018** **Setting Precedent.** I spoke out because no one else had. Drawing attention to the fact that no opposition or even acknowledgement makes you an enabler is important. That silence is setting precedent. Today, that silence was broken. An administrator reached out, saying the naming-calling (use of insulting & denigrating terms) is unacceptable by using my drawing attention of an automaker as an example. I pointed out that was just following what had been established, posting the same way others had been. He stepped up and deleted those previous posts, leaving mine to represent & document the change of policy. No more. Finally! It was the hypocritical stance of "*no plug, no sale*" that was getting to me. That supposed unity wasn't reality. An attitude of "*vastly superior*" had worked its way into the group. I was able to successfully get recognition of the problem that brought about. An administration reiterated goals. Phew! We're at a turning point. The stage of "*early adopter*" is coming to a close. That will bring about a new audience. This group isn't prepared yet to deal with it. Making sure we share goals is the start. There's an interest in equality, regardless of whether or not a vehicle guzzles electricity or is far too expensive for mainstream consumers. The goal is to push plug-in technology of all sorts. That's why the group embraced me years ago. Despite Prius PHV carrying such a small battery-pack, it was still an endorsement for lithium technology. Just imagine if those antagonists of the past had done the same thing. I wouldn't have learned so much from having to deal with their rhetoric... the precedent they set. As a result, I'm able to provide detailed education video & materials about plug-in vehicles.

- 8-12-2018** **Video: New Route, New Parking (to home).** This is the return trip home, a second half to complete the drive to work footage. Like that previous video, it is packed with detailed real-world data. With the new route and parking location, it adds to the collection of examples of what an owner may experience on their particular drive. There are so many factors of influence for efficiency, seeing lots of various sample videos if the only good way of building realistic expectations. Anywho, I enjoyed filming this particular commute. It was a nice summer day and just happened to end with a unique twist. That black car which cut in front of me near the end of the drive was a Tesla Model 3. Being able to follow that for a few blocks was a nice opportunity. As for the statistics, I enjoyed EV the entire 20.8 miles of travel, with an estimated 10 miles remaining. That's quite impressive for a vehicle rated for just 25 miles, especially when running the electric A/C at the same time. Notice that I just drove along with the flow of traffic, doing nothing special whatsoever to achieve those results... [Prius Prime - New Route, New Parking \(to home\)](#)
- 8-12-2018** **Attacks.** Watching Honda Clarity get attacked by Volt enthusiasts is interesting. I've been watching it take place on several venues. Some of the rhetoric is spreading to the EV purist too, those who are against anything with an engine, regardless of how it is used. I finally jumped into the wide-audience discussion: It comes from the basic misunderstanding of how they are designed and operate. It is easy to assume the system is just an enhancement to the hybrid, rather than being able to operate entirely without the engine. As with Prius Prime, everything is EV. There's a clutch to add in engine power, but that's unnecessary for ordinary drives, like the daily commutes. The larger hybrid systems, like that in RAV4 and Camry, can deliver more power too.
- 8-13-2018** **Opposition.** The rather terse debate carried on. I recognized many of the same problems that came from that daily blog for Volt. The old concern of "*too little, too slowly*" came about from the hope that more could be delivered sooner. It was the classic problem of trying to take on too much all at once. In other words, it was yet another form of "*over promise, under deliver*". They assumed delivering less more often would result in a diluted product that wouldn't stir much interest. To believe that, you have to choose an opposing position of progressive upgrades. That's a very expensive and very risky position to take... hence all my direct confrontations with Volt enthusiasts to stand their ground with actual fact. Much of what they presented was meritless, lacking any substance to actually support a position of successful paradigm-shift. In other words, what they proposed was too extreme... a heavy dependence on challenging cost & acceptance... no simple path forward. That's quite the opposite of Toyota... hence an oppositional stance. Anywho, I stated the situation this way: The supposed "*opposition*" comes from the unrealistic timing. It comes from not understanding audience. For example, the phaseout of tax-credit subsidies is about to reveal how the initial market didn't actually reach beyond just low-hanging fruit (early adopters). Appealing to ordinary shoppers (mainstream consumers) is a much greater challenge. PHEV offerings are strong in that regard, an easier step that will help stimulate infrastructure investment.

- 8-13-2018** **Fear.** If you push enough, listening carefully and being considerate of positions, you can sometimes squeeze out valuable information. True, you can do that with online combat too, but this is by far the preferred approach. In this case, the exchange today came down to: Being under the impression that PHEV doesn't endorse BEV works explain the reactions we've encountered. That's called a misconception. In reality, they help to support the future. Stepping up from hybrid to plug-in hybrid gets the upgrade process rolling, where you live and on the road. Both Mitsubishi & Toyota already offer CHAdeMO connections for their PHEV vehicles. Getting homeowners to setup 240-volt charger is an obvious bridge to BEV too. All you need is a 40-amp line to deliver 200 miles of range in 8 hours.
- 8-14-2018** **That Exchange.** It happened, the administrator came to terms with what I had been trying to draw attention to. Pointing out their is more than just innocent bias within your group needed to be done by someone. His decision was to shutdown the thread. After all, there were some obvious misconceptions at play feeding the problem. So, starting fresh later was an excellent choice. It was very clear the attack came from within. This person was a full EV family (two electric-only vehicles, no gas anything) who was clearly uninformed about what Toyota actually delivered. Like many, his assumption was that EV driving was just an enhancement to the hybrid system, not the fully capable design I enjoy everytime I get behind the wheel. The attack continued with an outright denial that we are witnessing the early-adopter phase come to a close. Phaseout of tax-credits is milestone ...he feels will have little impact. He also feels the "*laggard*" label is nothing but a identifier with no negative connotations and certainly in no way should be taken as offensive or insulting. A new thread emerged about the topic, specifically addressing responses to the other. Within an hour, there were over 80 replies. That discussion was about the very real "*shaming*" we, as PHEV owners, have to deal with from soon BEV owners. It was eye-opening. It also exposed a few misconceptions we were able to address, then debunk. I'm sure the administrator learned more about his group than he expected from that exchange.
- 8-15-2018** **Spreading Lies.** The death of that daily blog for Volt has left antagonists frustrated. Their venue for spreading lies is gone. Having an outlet for rhetoric is gave them purpose, since it was an common gathering location to build "*vastly superior*" propaganda. Being part of a team helping to spread the word about plug-in vehicle benefits is not what these particular individuals want. They are still very much holding onto the past of being the only choice available. That's not the world we are part of anymore, but they don't care. So, I'm seeing more meritless claims being posted: "*...cannot practically be driven with out the engine coming on to support the electric drive.*" and "*It's good to know that it's not truly a full-time EV.*" and "*Technically the Volt is way ahead in the PHEV game!*" are among what I stumbled across recently from those individuals in a forum thread attempting to mislead about the plug-in hybrid model of Honda Clarity. This is the very same nonsense they tried repeatedly with Prius. Over and over again, they'll post outright lies with the theme of Volt being more efficient overall. Evidence to that was always because it had a larger battery. That's why they are so aggressively dismissive about actual efficiency ratings. Try pointing out what happens if you don't drive far enough to use full capacity. They simply don't care about electricity consumption. They'll spread lies to conceal shortcomings. Ugh.

- 8-15-2018** **Ford Territory.** There's a booming market for SUVs. This is why Ford & GM all but entirely abandoned the car market. So, to no ones surprise, the first of the plug-in hybrid from Ford will be a SUV. Like with Toyota, they don't see benefit from messing with the delicate balance here. Work out the dealer's of customer preference, while also refining production & supply details, to address high-volume sales well. Next year, Toyota is doing that with an EV model of C-HR and a PHV model of Corolla. Seeing Ford do the same thing is a nice sign of accepting change. That effort to retain the status quo from GM is maddening. Antagonists get angry when I point of the lack of addressing their own customers. We have to wait several more years before anything for GM customers is rolled out. Heck, the latest promotion for Volt is \$500 of "*Conquest Cash*" at the time of purchase. That's a blatant sign of not targeting the right audience. Ugh. Details of this new Ford SUV, called "*Territory*", weren't provided. All we have been told is that it will be a plug-in hybrid. The 2 photos (1 interior, 1 exterior) released didn't give any sense of scale. But since intended use is for city driving, being small has obvious advantages.
- 8-16-2018** **Toyota's Future.** No matter how many times it is stated that their hybrids are vehicles to help transition to more electrification, all some people hear is the current advertising of "*no plug needed*". Regardless of the plans stated to offer more plug-in choices in the future, some absolutely insist that isn't what Toyota intends to produce & sell. It's maddening how they simply ignore some information. That cherry-picking is a dead giveaway you are dealing with someone who simply doesn't care. These are the same individuals who think nothing of spreading lies. I read an article this morning about the rollout of Corolla hybrid in Australia. They advertisements directly address the misconception of hybrids needing a plug. Antagonists are already spinning that to mean Toyota who ever be offering something with a plug, despite the press clearly including quotes from an executive (head of sales & marketing) there stating the contrary. Ugh. By the way, their expectation is for 20% of Corolla sales there to be the hybrid model. Premium for the hybrid model of each of the package grades available is \$1,500.

8-17-2018 **Suppliers.** Attention was focused on them today by Toyota, from statements about how production will be changing in the next decade as electrification takes hold. Rarely do enthusiasts take the role of suppliers into consideration. Most have engineering blinders on, resulting in a complete overlook of business impact from change. Those delivering high-volume production can't afford to be so blissfully unaware. That type of blatant disregard for the fragile system of production parts is financial suicide. The industry leaders cannot afford to make such impactful mistakes. This is why GM hasn't delivered much for either Volt or Bolt. They know change would be detrimental to profit. Keeping the status quo, but still appearing to be fully participating, is an unfortunate reality... one that early adopters fail to recognize. This is why "*leadership*" is so poorly misrepresented. They don't understand what it takes to actually change mainstream consumers. Looking at suppliers is a way of learning what's really involved. Unfortunately, telling that to enthusiasts is basically pointless. So, I kept my contribution to the discussion simple: Prime time will be the early 20's, a generation beyond the first profitable worldwide offering. That's exactly as anticipated. In fact, this quote confirms it: "*Toyota announced plans to add more than 10 all-battery models to its lineup starting in the early 2020s.*" In the meantime, we still have to deal with early-adopters not understanding how products are sold to mainstream consumers.

8-17-2018 **Market Disruption.** Quotes like this are reason to give pause: "*The real disruption from the EV adoption will be at the dealer level.*" You should ask yourself was what the intended message was from such a statement. Is that recognition of the true customer? If a dealer isn't interested in selling the EV, it doesn't do much good for the automaker to produce them. That reality is usually overlooked. The assumption is consumer education will solve the problem of limited inventory. That isn't how disruption works, though it is a contributing component. Demand can be driven by stirring interest. But when it comes to supply, the dealer must find a compelling reason to stock. If that resulting inventory is difficult to sell or results in a small profit margin, why bother? This is the issue GM has faced. Executives listened to enthusiasts, neglecting dealers in the process. That didn't result in real disruption. In fact, Volt was basically a failure... since sales never broken into the mainstream. There was always a dependency on tax-credits and GM's own loyal customers never showed interest. Selling in low-volume to only enthusiasts is a doomed path. That is not a sustainable business model, the process dealers must operate. So, we have a conflict of understanding... hence all the online conflict over the years. Today, it has pretty much come to down to just stating this: Dealers are the true customers of Toyota, hence... know your audience. Early Adopters have an extremely difficult time accepting that, consequently misunderstanding how mainstream acceptance actually takes place. That's why talk of supplier issues rarely gets addressed, yet is fundamentally important to profitable business.

- 8-18-2018** **Charger Issue.** That was screwy. We drove out to the lake to kayak, which is at a park with charging-stations. Problem was, I couldn't unlock the cord. The charger would begin the session, but hardware wouldn't release. I tried countless times, working that handle every way I could. Neither the wave of my card or my phone made any difference, on either side of the station. Both refused to let go, but started & ended sessions just fine. I finally gave up my efforts and called the toll-free help number. After a surprisingly quick welcome, I was already debugging the issue with support. His guess was something related to network communication was causing a problem. That didn't make sense. So, he tried sending a release signal. It worked. The cord was mine to use within seconds. Cool. Even better was seeing another Prime parked nearby after returning from our time on the lake.
- 8-19-2018** **Antagonist Attack.** My post from over a week ago was attacked. It came from an antagonist, one deadset on doing everything he could to belittle Prime in the past. Now, like the others, he's seeking out new venues to do the same... since that daily blog is now dead. This is what I woke up to today: "*A paltry charge, after ten to 15 or even 20 minute walk+task after plugging in my Gen I and Gen II Volts was enough to convince me that the slow trickle of juice was definitely not worth the frustration to myself or passengers to face the inconvenience.*" Seeing that was a true surprise. I didn't think anyone would be so desperate. It makes sense though. If Volt continues to suffer, why not take others with? That is obviously a terrible belief, but his beloved is struggling to retain attention and there is no successor. To make matters worse, that situation is what I predicted. The second-half of a second-generation is not where you want to be without any plan forward. Needless to say, I was happy to post this: Who are you trying to greenwash? Anyone who has even just a basic background in L2 recharging knows that a load of garbage. 7 min 56 sec delivered 0.389 kWh of electricity the other day when I stopped at the grocery store, paying close attention to the process... knowing any response to my previous post would be an obvious effort to undermine. That short, very convenient recharge resulted in 2.9 miles of estimated range... more than enough to get home from there entirely with EV drive. You flash your card or phone, then plug in. That's it. Spinning the process to be frustrating & inconvenient is big disservice to anyone who owns a plug-in vehicle.
- 8-19-2018** **Kayaking.** The racks for carrying stuff on the roof of the Prime work great. We carried 2 kayaks on top to enjoy Lake of the Isles in Minneapolis last week. Despite that massive added drag & weight along with having the A/C cranked, that 51.8 mile round-trip delivered 72.5 MPG overall. That's incredible performance for a Summer activity. Normally, I tell people not to even consider the efficiency impact of such an event... because they are too rare. How often do you actually get to experience recreation on that scale? My wife and I had a blast. It would have been totally worth it regardless of MPG results. The location is literally ideal, a treasure for paddling around. It's so incredibly scenic there. Right on the edge of the city, you wouldn't expect so much nature. We paddled through the maze of islands, along the waterways to both adjoining lakes, and just floated around for awhile. We got to watch a few kids jump off the bridge too. It was a good time made convenient & efficient with the Prime.

- 8-20-2018** **Rapid Dismissal.** You typically only have 10 seconds to captivate an audience. Within just 1 or 2 sentences, people listening would have already made up their mind. It's the nature of how we operate. Whether assumed or learned, the information people collect leads their daily activity. Wanting to find out more or question past experience generally doesn't happen. That's a rare event, not something you'd hope would occur routinely. That means you need to assess the audience quickly & correctly to make whatever you share really count. If it isn't compelling, they will just reply with a rapid dismissal. Losing attention is all too real of a problem. That's why knowing whether or not to convey "200 MPG" or "25 miles" or "2 hours" is vital. Those are all brief responses to encourage an ask of another question. Whatever the person did to stir the topic, usually a question, make sure your effort to promote provides something directly related. In the event of an emotional appeal instead, return whatever their observation was with a confirmation... otherwise, opportunity is missed. This is why I pushed so hard against enthusiast appeal. That provides nothing of interest to mainstream consumers, who just dismiss what you point out so rapidly, you lose them before even finishing the comment.
- 8-21-2018** **Efficiency.** Speaking of rapid dismissal, you'd be amazed how often I encounter it with respect to plugging in. The person will just make a comment about electricity source being dirty, then end the topic. It's a read-between-the-lines moment. You hear a dismissal of the plug. But what they actually just did was justify continued support for traditional vehicles. Had there been something mentioned with regard to non-plug hybrids instead, that would be different. That wasn't the situation though. Getting any type of endorsement moving forward is what you need to listen for. Absence of that is the real problem. Pick something green. They say no. It's what makes them feel better. After so many generations of hybrid being on the market, there is no excuse anymore for not looking forward. Just outright statements of being unacceptable for not being an ideal is no excuse. So what if the electric isn't from an environmentally pure source. That's no reason to refuse to acknowledge its use results in far less waste than traditional vehicles. Efficiency isn't an all-or-none choice.
- 8-22-2018** **Appearance.** We are witnessing the end of sedan appeal. Push of highly profitable SUV offerings has been so successful, people are losing perspective. Few question the move away from efficient choices in favor of a large vehicle. It's that simple... so much so, anything that doesn't share the bulky profile is labeled as ugly. Have you noticed that change? Hearing it only about Prius makes the subtle shift very easy to overlook. Go ahead. Ask someone which looks better, the new RAV4 or the new Camry. This is why the remaining cars are taking on such a "sport" type look. The image of a family vehicle has transformed to tall guzzlers. It's an unfortunate trend that had no other path. Human nature is to obsess for more. That's why we hear the "ugly" label getting used so often. People don't want to say what they really think. They want a SUV. That's why the original push was they were safer. It was obvious they were not, but people turned a blind eye to the appearance difference (pun intended) to justify their choice. This is why the more powerful system we see in the larger Toyota midsize hybrids offer so much potential. Think about how easy it would be for RAV4 to take on a larger battery-pack and plug. The only necessary alteration for propulsion is that one-way clutch the Prime model of Prius introduced.

8-23-2018 **Greenwash Articles.** Many have titles that present bait: for example: "*Would YOU Ever Sacrifice LOOKS For MPGs?*" When you read them, there's nothing to actually support what was claimed. Most articles will simply discuss something else instead. In some circumstance, you'll get something that does address topic. However, it will just gloss over it, for example: "*Without leveraging the battery of the Prius Prime, I chalked up 59 MPG on my way home from my Manhattan office. In addition, after spending quite a bit of time with the vehicle, I netted 55 mpg without even trying.*" The purpose of that was to lead you astray. That wasn't even an attempt to downplay. Benefit of plugging in was just outright dismissed. That was literally the only reference in the article about efficiency, despite the fact that MPG was mentioned in the title. Ironically, there was only one tiny photo and nothing at all mentioned about looks. That part of the greenwash was obvious. By omitting anything to actually look at, the hope is you'll make incorrect assumptions. How many people have actually seen a Prius Prime? Not realizing it doesn't look like the regular model is the mistake the writer hoped readers would make. It's sad to see automotive publications work so hard to mislead like that. But then again, leaving out vital detail is nothing new to hybrids.

8-24-2018 **Teaching Moments.** That plug-in owners group I am part of is missing some. Right now, they are part of the "*Eco Experience*" at our state fair. A person there are spoke with had fallen into the same trap I have seen countless others fall victim to. They become well-informed about current offerings without any real understanding of what's to come or what kind of impact that will have. It was basically a relay of information without any thought. It was throughout, but in no way forward-looking. It lacked substance about importance to how that will apply to ordinary people. You had to become a plug-in enthusiast to be part of what was being conveyed. That perspective is limited, a short-sighted portrayal of the future. Rather than teaching people about what's to come, it was really an effort to encourage change. Understand that fundamental difference? We want people to see the paradigm-shift as the next natural step forward. To do that, you must downplay. That's not exciting. That's just blah. But it's how business-sustaining profit is made. High-Volume sales absolutely require "*ordinary*" appeal. In general, people will do everything possible to avoid change. You must present change as an effortless gain. Some of the most successful changes have basically been invisible... to the point where some will argue that it was anything but inevitable. Stirring effective enthusiasm is difficult. Most people get excited about speed & power, but being willing to pay a premium for it is an entirely different matter. Think about the progress of computers. It wasn't overnight. It took countless years... actually several decades... of exposure to become thought of as common. Now, we carry them in our pocket with very frequent use. Teaching about technology acceptance is about seeking moments to do it... often & discretely.

8-25-2018 **Turning Point.** Our current administration here is a replica of what I dealt with in the past. They would just spin and spin and spin. Their goal was to simply keep conclusions from being drawn. Way back when, it started with the "*up to the chore*" discussion thread. No one ever imagined it dragging on for 1.5 years. That's because prior to it, no one expected outright lies and direct contractions easy to disprove. You figured when the person was caught intentionally being deception they would stop. We have since learned that doesn't happen. Volt enthusiasts would do everything possible to prevent any type of closure. Every technic imaginable was employed. Trouble is, that only gives the impression of victory. Reality is quite different. Consequences of pretending all is well resulted in progress not actually being made. In the case of our automotive business here (in the United States), cost of poor decisions or efforts to retain the status quo means being left behind by the rest of the industry. That's why the claim of "*falling behind*" and "*laggard*" name calling happens so often. It's a physiological effect known as "*projection*". We look upon that as an acknowledgement of the situation. GM supporters are keenly aware of "*falling behind*" and "*laggard*" due to it always being on their mind, but fail to recognize that is actually description of themselves. This incorporates blame shifting. They know there is trouble but don't understand the source, resulting in accusation of others for the situation they ended up in. Anywho, hope from those witnessing this self-destruction keep expecting a turning point. With the plug-in disaster, it can obviously be identified as those loss of subsidies. Will it? There's lots others to blame and excuses to be made... much like the administration. Notice how no particular event or revelation is ever significant enough to derail the destructive trajectory? Each seems to have the potential, but it never plays out that way... because the next distraction is introduced. Don't look everyone see what really going on. Misdirection is interpreted as being off course... with the hope no one will notice the course was never correct in the first place. Volt was flawed from the very beginning. Targeting a niche audience never made any sense; yet, there was an effort from the very beginning that Toyota's effort to appeal to mainstream consumers would never be good business. Much like bad politics, there are consequences for being wrong. That's what confirms we are truly at a turning point.

8-25-2018 **33 MPG.** As the years progress, it's becoming easier for GM enthusiasts to recognize the problem I've been pointing out for years. Their hate for Toyota clouded reason, preventing them from noticing the pattern: "*Chevrolet could work harder to close the cost gap if they wanted to, and upsell many/most Cruze buyers to the Volt.*" Sadly, that quote represents only a rudimentary understanding of the problem at hand. However, it is progress. At least they are now comparing GM vehicles to Volt, rather than thinking other plug-in vehicles are the competition. That's progress... despite being so painfully slow. Oh well. It's not like I didn't try to stir awareness sooner. This is what I had to say about that situation today: Volt hasn't ever been able to compete with Cruze, even with the \$7,500 tax-credit. Belittling CVT efficiency from a non-hybrid won't change that. It's a cold, hard reality for enthusiasts to accept. 53 miles of EV capacity makes it basically impossible to compete... which is why GM has focused on conquest sales instead. GM's own loyal customer simply are not interested. Toyota is well aware of how much of a challenge it is to appeal to mainstream consumers, which is why they would never succumb to the same "more" trap GM did. That's why Prime is priced \$6,000 less than Volt and comes better loaded as that base level. Competition with Corolla for their showroom shoppers is very difficult. Think about the Corolla plug-in hybrid Toyota will be introducing to shoppers in China next year. How will that be configured to compete directly with the CVT model? How should GM have configured Volt to better compete with Cruze? Trying to place blame or responsibility on those involved with sales to work harder to upsell reveals a grave misunderstanding of the market.

8-26-2018 **Old Posts.** Every now and then, someone will post a comment or question in a very old discussion thread. In the example today, it was on a video I shared for the Classic model Prius. That many generations ago doesn't stir much interest anymore; however, there are some intrigued about the differences. Finding out about how a technology evolved can be very informative. That type of well informed background is what gives you insight to make accurate predictions. Figuring out what is to come depends upon a strong understanding of technical limitations and consumer reaction. You must keep the discussion from getting too in depth though. It's a matter of drawing them into conversation by sharing something they may find of interest that they wouldn't have otherwise come across. This is the information I chose to share with respect to being asked why the engine ran so much more frequently than it does in the current generation of Prius: Stealth drive (as it was known back then, that's a maximum draw of 10 kW from the battery-pack for EV speeds up to 42 mph) didn't last long. So, you'd often see the engine running to recharge. Also, don't forget that engine-off isn't the most efficient use of the hybrid design. Blending is better overall when there isn't a plug.

- 8-27-2018** **Solution.** GM raised the price of Volt for next year by \$300. That opened up new discussion with a new audience. I dove into that head first with: Delivering an affordable choice for the masses has always been the intended outcome. Rollout would balance design cost to be directly competitive with traditional offerings. Automakers could set their own pace based on tax-credit sales count, followed by phaseout calendar. GM didn't care about that and instead flaunted enthusiast appeal. It's a real-world example of the tortoise and the hare. They now find that focus was not on what was important to appeal to ordinary consumers... in other words, actually winning the race rather than getting cheered on by spectators. \$34,395 base MSRP for a vehicle that is small, inefficient in both EV and HV modes, and doesn't include features shoppers now expect to be standard (like dynamic/adaptive cruise-control) makes it a very hard sell. What dealer would want to stock that inventory? What salesperson would want to take the time to show it? How many people have a 40-amp dedicated circuit at home to deliver 7.2 kW charging anyway? That begs the question: How is Volt a solution for mainstream buyers?
- 8-27-2018** **False News.** That's what the revelation of "*fake*" news has brought to light. It's what I have been dealing with for years that others never believed could have any meaningful influence. Memories of being laughed at from pointing out how seriously people took the greenwash are still quite vivid. They didn't believe me... until now. My pointing out of how influential the misleading blogs could be were just outright dismissed. I'd draw attention to how GM would release an ambiguous statement, knowing the Volt enthusiasts would spread meritless hope. The reality that claims being made had nothing of any substance to support them didn't matter. It's what emboldened them to interject outright lies. There was no consequence of intention misleading. They could undermine all they wanted and get others to pass along their false news. That went on for so long. Ugh. It's hard to imagine anyone being so gullible; yet, witnessing that became a daily routine. Some would go out of their way to make sure it was difficult to figure out what was true anymore. I sure am glad that terrible history was so meticulously documented. Learning from the past is how you prevent bad outcomes from repeating.
- 8-27-2018** **Unaware.** Not having full information is quite common. In fact, that's usually the situation. Most people aren't well informed; however, you'd expect the daily posters in big forums to be aware. Some are not though. I end up putting them on ignore after awhile, once they reveal no desire to learn. Sadly, some simply find the online experience entertainment rather than a source for sharing knowledge. Fortunately, not all posts from such a source are counter-productive. Sometimes, they do queue up an opportunity for you to provide exposition... or even outright education. Today, those provided such a predicament: "*And if Toyota ever adds higher charge capability to their Prime ... or if/when Toyota returns to building EV's ... this bad boy can deliver an incredible 22kW's !!*" I was happy to jump on that: Toyota already has delivered that. 80% recharge in 20 minutes. Remember, the CHAdeMO plug for Prime in Japan? 7 kWh in 20 minutes works out to 21 kWh for 60 minutes of charging... a rate of 21 kW. In other words, very close to incredible.

- 8-27-2018** **Predictions.** Today, it was: "...predicts that Electric Vehicles will account for over 50% of light duty personal transportation in as little as 20 years." I found that start of a new discussion thread worthy of jumping all in on. So, I did: 20 years from now is 3 full generations, starting with the successor to Prius Prime. Keep in mind that simply stocking inventory is far from the end game. To achieve 50% penetration, some major infrastructure updates will be required. Many will face the challenge of just getting a single high-speed charger setup at home. How many cars are in your garage? One 40-amp line will deliver 200 miles of range from 8 hours of charging. That's 32 amps sustained (20% safety buffer), which is a rate of 7.7 kW. Draw will slow as "full" capacity is reached. There are some charging losses from the AC to DC conversion too. Figure an efficiency of 4 miles/kWh for the anticipated EV travel. So, even if affordability is reached and there's a diverse choice of electric vehicles offered, the challenge of acceptance is far from over.
- 8-28-2018** **Setting Precedent.** With an entirely new venue for green discussions (new forum with new participants), I was intrigued what a topic about GM would stir. It was about the new Cruze offering a CVT model. That's the traditional equivalent to Volt, as was Corolla to Prius from the perspective of typical comparisons. Sure enough, Volt came up with a vastly superior claim. I jumped in with "*inefficient in both EV and HV modes*" which clearly wasn't liked. I was happy to provide a reminder that his own peers were the ones who pushed the basis of measure. So, I pushed back, but not as much as I could have. They love to refer to gen-1 specs. I could have easily done the same... by pointing out HV efficiency of the Classic model Prius was more efficient than what GM delivers now, all these years later. Instead, I stuck to the basics: EPA rating is a standard measure for non-bias comparison. Finding an example of results that are higher doesn't mean that's the norm for everyone. 31 kWh/100miles and 42 MPG is not efficient. Keep in mind it was Volt owners who set this precedent, forcing everyone to acknowledge the EPA rating as the only proper comparison measure.
- 8-29-2018** **Rhetoric Spin.** That saying of "*There's a sucker born every minute.*" is not well understood, despite the obvious recent example of the con we've witness in our own federal government. People follow a path without question, not realizing their actions would be different if they took the time to really think about what just happened. In this case, I witnessed the reset of ethanol arguments. The same old FUD was being spread by the same old online trolls. But with a new audience, it appears to be new debate. I recognize the pattern. It's the same old claims but with newer dates and slightly different numbers to make searches more difficult. This resulted in a turn on me: "*You are the one making the claim. Burden of proof is on you, kiddo.*" That's what happens when the original poster appears to have a credible statement and you question their claim. Just like our president, a wild claim is made to get in front of an obvious losing battle. Make it appear that you are the defense, rather than the opposition. They create FUD... Fear, Uncertainty, Doubt ...about a topic that had already been well established. It's like pressing the reset button. If no one notices what they just did, the resulting debate will preoccupy discussion. It's a surprisingly effective undermining technique. I wasn't going to put up with it, even if that "*sucker*" wouldn't ever figure out he was being used to enable an effort to mislead. I ended it with: That's how rhetoric works. They begin the FUD, then expect you to debunk their deception. They click "reset" afterward too, keeping it from ever ending by drawing in a new audience who never witnessed that past.

- 8-30-2018** **Debate Takeaways.** That encounter with a Volt enthusiast brought about an interesting new perspective. Debates often do, if you can stick with them and pay close attention. The key is to remain concise and to not take their bait. All most care about is winning, even if the declaration of victory has no merit. Having the appearance of being cornered is what they look for. I hunt for substance, like buried treasure, some little nugget of new information. In this case, it was a revisit of the Volt "*lite*" model. Remember those discussions? Few do. So, this was pretty much a new discussion without anything to start from. He just made the assumption "*lite*" meant a smaller battery-pack. That was it, nothing else. In the past, other aspects of design would be tapered back too. But those weren't ever really addressed, since the rhetoric impeded progress. That didn't happen this time. I was able to actually address design. It was rewarding to be able to sight such a simple and oversight on their part, something I'll be able to use later in other discussions to quickly bring debates to an end. That's the type of takeaway you always hope to gain. Here's is the one I got: Think about the unnecessary cost & complexity of the T-shaped battery back. None of that would have been needed with a smaller capacity.
- 8-31-2018** **Knock Knock.** One form of spin that is actually appropriate is to turn the spotlight back on the antagonist. After all, their effort is often a means of taking attention away from them. Putting it back on is constructive, especially if you can take advantage by using some of their own rhetoric against them. Today, this was the provoke: "*...but it shows that Toyota is still dragging its feet and would not be entering the EV market unless it had to.*" I was amused. That only works if you cherry-pick by refusing to address the next stage, as I asked: How is that any different from GM entering the market, but not doing anything with it? That passive-aggressive stance GM has taken is actually worse. They rollout token offerings, do nothing, then end up claiming there was no interest. Sound familiar? Rather than waiting to come out with a product that competitive with traditional vehicles, they rushed. When has not taking time to do it right been a bad choice? People are portraying Toyota's effort to make plugging in a sustainable business that doesn't have tax-credit dependency a mistake. That makes no sense whatsoever. Yet, we hear "*fallen behind*" all the time without any actual substance to support it. If GM were really far ahead, they would have sales to prove it; instead, we see Volt & Bolt having eaten all the low-hanging fruit... a market without any early-adopters remaining. In other words, no one is knocking on GM's door.

9-01-2018 Product Approach. A well known troll attempted to stir the pot by diverting attention to management, away from product... either that, or he's completely clueless. Whatever the case, someone who has been a very frequent poster for many, many years should know better. Of course, dealing with a person who thrives on debate, you should expect efforts to keep conclusions from being drawn, anything to continue discussion. A dead thread isn't of any value for online participation. I didn't take the bait. Instead, it was met with a detailed description to get back on track:

Toyota's approach from the beginning has been to deliver a product that's affordable for the masses right from the start. That's why component size, power, and capacity was always limited by production cost. It eliminates dependence on subsidy and provides a clear upgrade path. It also provides opportunity for quick adaptation. That significantly reduces financial & market risk.

This is why the approach with a plug-in Prius was always targeted by Volt enthusiasts, their source of unending torment. GM's decision to take the risk instead by betting the farm on something with a costly & inflexible design has proven a terrible choice. That gamble of rapid market acceptance and rapid battery advancement didn't pay off.

As Prius supporters, we had to endure an onslaught of ridicule & downplay about this approach difference... which is now becoming quite apparent. Toyota didn't rely on tax-credits. Toyota didn't succumb to niche appeal. Toyota stayed true to their mission of emissions & efficiency for mainstream consumers. The result is a product capable of competing directly with the true competition: traditional vehicles.

All along, it should have been a design from GM that would draw high-volume profitable sales. That's what bottom-up is all about. Toyota targeted ordinary consumers, delivering a well-balanced platform which could be easily diversified to a wide product-line. We see that with the Corolla, C-HR, Camry, and RAV4 hybrids... each capable of simple adaptation to provide a plug, as Prius has now proven. The "start from the top" approach with both Two-Mode and Volt resulted in nothing but sales struggle. Whatever you want to call that difference, it clearly didn't reach the masses.

9-02-2018 **Understanding Efficiency.** There was an article published 2 days ago pointing out the extreme inefficiency of an upcoming EV from a high-performance automaker. Of the 204 comments posted, only 1 understood what was being addressed. Everyone else had the same old rhetoric to spread about electricity being better, regardless of how it was used. Interestingly, they don't actually know. This quote from the article itself is what I found especially disturbing: *"We don't know why, exactly, efficiency is rated as kWh per 100 miles instead of the obviously-more-sensible miles per kWh, but that is what the government has proclaimed to be the proper metric, so pipe down."* That's not good for a website thought to be a green authority not understanding how efficiency is depicted. They are obviously expecting a unit in terms of the way MPG is represented. Not having any idea how flawed the MPG system is should raise concern. It's not used by most of the rest of the world because it is so misleading. Think about a small truck getting 30 MPG and a large car getting 35 MPG. The difference is 5 MPG, right? What does that really mean? People don't know. Traveling 100 miles, the 30 MPG vehicle will consume 3.33 gallons. The 35 MPG vehicle will consumed 2.86 gallons. That implies the 5 MPG difference equates to 0.47 gallons. It doesn't though. Traveling that same 100 miles with a 40 MPG vehicle will consume 2.5 gallons. The 5 MPG difference equates to 0.36, not 0.47 gallons. The next 5 MPG increment reveals a 0.30 difference. In other words, the measure is not linear. People assume it is. That's a very real problem. This is why the government is not using that measure for electricity. It would allow misrepresentation the same way. Too bad the publisher thinks the *"miles per"* representation is more sensible. You want to know exactly how much fuel is used, that's the *"gallons per"* measure... or in our case, *"kilowatts per"*. Note that the rest of the world uses a distance of 100 kilometers. Our government uses 100 miles. The point is, you want a lower value. The fewer the kilowatts (kWh) of electricity consumed, the better. That's the opposite of MPG, which a higher value is better. See why there's confusion? Take the time to really understand what it all means. Once you do, it opens up a world of comprehending even the supposed experts don't see.

9-03-2018 Understanding Change, part 1. Most people don't recognize what's happening. They simply don't pay close enough attention or have the background experience to see the pattern. Not knowing means they are less likely to understand where this change will take us. So, I must interject observations to help the process along:

Simple... our market here is in a state of chaos... which is why Toyota found worldwide rollout all at the same time a better approach.

A little over 51,000 were delivered in 2017. That's amazing for a first-year rollout. Think about how complex the production process is for the intricately shaped carbon-fiber hatch and that distortion-free dual-wave glass, both new tech introduced by Prius Prime. There is also the vapor-injected heat-pump. Getting enough of that spread to each market to begin the education process for business & consumer has been a major undertaking.

As for the chaos, much of that has to deal with the push of Tesla (a non-legacy automaker) combined with the fallout GM has been facing, each heavily dependency upon greatly reduced production-cost. Why get involved in that mess when neither is targeting mainstream consumers in the short-term anyway? Toyota is refining in the process, using early-adopters to provide real-world feedback in the meantime.

Consider the obsession with SUV offerings. It seemed absurd 2.5 years ago when Toyota revealed a change of focus for Prius. The Prime model was aimed at families who have now grown up, hence seating to become more a sport/luxury design. Since RAV4 now targets the "*family hauler*" buyer, why not? We see the entire industry shifting away from sedan market for that very reason. It now makes a lot of sense that Toyota embraced the shift; after all, it will be easier to adapt a SUV to carry a larger battery-pack than a sedan.

Watch what happens with the market as tax-credit phaseout is triggered. Also, keep in mind the potential mid-cycle upgrades Toyota has had to consider for Prius Prime, as well as Prius itself. Change is coming.

9-03-2018 **Understanding Change, part 2.** The inquiry which started this was more complicated than a single post could address. The second part has to deal with infrastructure... which is beyond a mess... as I attempted to explain:

Most people have little to no understanding of how recharging actually works. Sadly, that includes many enthusiasts. So when it comes to plug-in hybrid operation, there's a huge void filled with misconception, confusion, and discouragement. We have much to address still before the inhibition of dealers to stock inventory subsidies.

It starts with education of what is needed for recharging at home. Do you know? If you are lucky, there will be a standard household 120-volt outlet available in your garage for recharging. That works well for charges overnight for one vehicle, but what if you have two? Most people have no idea what it takes to run another line for more electricity. That unknown creates trepidation, enough to deter the pursuit of even just a first plug-in vehicle. Why bother with the extra expense?

Public recharging is in the earliest stages still. We see a lot of standard uncertainty combined with a user-base poorly informed about what kW and kWh represent. Not understanding efficiency measure values and charging speeds, as well as the related costs, make adoption a nightmare. How do you attract business & consumer interest when there is such a basic shortcoming of knowledge along with the lack of actual chargers to use? There's the unknown of charger-etiquette too.

9-04-2018 **Careful.** A few days ago when sales results were revealed, we got the typical "*vastly superior*" response from a Volt enthusiast. Ugh. It was that same old nonsense I had dealt with for years. My reaction to that was posting some advice: Careful with the LOL posting. GM was able to deliver at a loss with tax-credit dependency. Doing the same without subsidy help for a profit is far more difficult.

9-05-2018 **Mainstream.** Measure of progress shouldn't change. If it does, that's called "*moving the goal posts*". Targets (and milestones along the way) are set for very specific reasons. That's how you determine how well things are going. If there's a shift of some sort, it should relate to refinements of the product itself, not sales. You still must have purchases to have a viable product. Falling under a predetermined threshold means you'll lose money. Contracts with vendors and expectations from resellers is a delicate balance of supply & demand. This is why minimums are identified. Back when Prius was still new, that level was clear. All efforts to exceed that success equated to selling more than that minimum. It was that simple. To "*out Prius, Prius*", you must achieve more purchases. That doesn't mean delivering an excessive inventory, then having to slash prices to clear out what doesn't sell at a profitable level. It means true sustainable sales. I was annoyed by someone attempting to redefine "*mainsteam*" and rewrite history as a result: For the last 15 years, the term "*mainstream*" has represented a green vehicle available nationwide that was able to support itself financially. With respect to sales, that worked out to minimum annual sales of 60,000. This is why sales of Volt falling well short of 5,000 monthly was always a concern. Not achieving that prior to tax-credit phaseout meant business sustainability of the tech would be in jeopardy... which is exactly what we are witnessing now. In other words, dealers will have no desire to stock a low-profit vehicle.

- 9-06-2018** **Plug-In Basics.** I started writing up a new document to inform people of how a plug-in vehicle works. It covers the basics, providing an introduction. We have a new audience emerging. These are those who have nothing in common with early-adopters. These are the wondering minds who have heard about plugging in but really don't know where to start. I'm hoping to provide that type of guide with this. It's a high-level summary sharing concepts you need to know for understanding how to start your purchase research. Since the goal is simplicity, it will take quite a bit of effort to find the right content. There will be some photos & illustrations, but nothing complicated. Think of it as a summary for confirming interest. We need to show that there really isn't anything to be intimidated about. It really is next step many can take without concern. In reality, you're just plugging in your car just like you do with your phone. The power needs truly are simple to fulfill. You just have to understand the basics.
- 9-07-2018** **Prius Recall.** Looks like 192,000 Prius from 2016 to 2018 model-years in the United States will be recalled due to a potential wear issue with a wire-harness. Over time, there could be the possibility of that causing a short circuit resulting in a vehicle fire. Worldwide total is roughly one million hybrids. Either a protective sleeve or tape will be installed, depending upon the condition of the wire. This is a voluntary recall, the type that is looked upon as a proactive measure... but you know the potential it leaves for antagonists to spin it as a major problem. Ugh. Oh well, it's not like there won't be some other recall from some other automaker at some point. Remember, you reap what you sow.

9-08-2018 **The Last Word.** This came from the very last voice on the dead daily blog: "*At first blush, this seems like good news. After 3 days though, I wonder if it doesn't signal GM's abandonment of the Volt (EREV) paradigm. Gas for long range vs ultra-charging...*" He has been continually posting new messages hoping to stir discussion. It hasn't worked for weeks. No one cares anymore. I figured, why not indulge his one last time, giving him an opportunity for the last word based on his own quote:

Bolt is what raised the question of intent. It was an undeniable shift away from the "*range anxiety*" solution. Rather than evolve their plug-in hybrid system, the choice was made to endorse much larger battery-pack offerings instead... a blatant contradiction to GM's previous stance.

Gen-2 Volt made that shift obvious, confirming abandonment. Rather than focus on making their own heavily promoted "*40 mile*" range approach affordable for the masses, GM disregarded that goal, choosing to deliver a next-gen with increased range & power... traits neither of which ordinary consumers had been asking for improvement of.

Reduced cost, specifically a MSRP at the long-promised \$30,000 target, was supposed to be the highest priority. Gen-2 fell well short of that though, instead remaining heavily dependent upon tax-credits to subsidize purchases. Elimination of the complex T-shape for the battery and unnecessary liquid-cooling would have gone a long way toward achieving that pricing goal. Those were clear opportunities wasted.

Focus of GM is now on delivering "*ultra-fast charging system that could add 180 miles of driving range in just 10 minutes*" which is feature of no value to a system with small battery-pack capacity... another feature potential "*EREV*" consumers were never asking for.

Stepping back away from the technology itself, there's the reality that GM dealers and GM customers simply aren't interested in compact hatchback offerings. They want SUV and CUV choices. Not seeing anything with a plug, or even just a regular hybrid, in that type of vehicle makes you wonder how long it will take for something competitive with traditional choices will finally be offered.

9-08-2018 Purpose & Intent. I continued on that soapbox, providing a part-2 for optimum understanding... with special attention to timing:

Volt's antithesis has always been Prius. The reason why is simple. GM's focus was enthusiasts. Toyota's focus was mainstream consumers. That resulted in vehicles with profoundly different traits; yet, Volt was promoted as a competitor. That contrast never made any sense. Know your audience.

Leaving that all aside and focusing on the technology itself, there's a very real problem of timing. GM will trigger tax-credit phaseout within the next 6 months. That puts the 2019 model-year in a very difficult sales position... especially if Toyota really does rollout a mid-cycle upgrade along with their ramped up production & distribution. Would GM respond with commitment to applying the technology to a SUV or CUV platform?

Prius Prime has proven the Toyota hybrid system can easily support a plug. The existing design simply needs the addition of a one-way clutch. That's their answer to delivering an affordable solution. Both RAV4 and C-HR hybrids are strong candidates for the upgrade. We already know that Corolla will next year for the market in China.

GM announced intent to debut at least 20 new EV in the next 5 years, back in October 2017. Within the next 18 months (which would be March 2019) the expectation was set for 2 new all-electric offerings. That most likely means we will get reveals at key autoshow... especially with the inevitable tax-credit phaseout rapidly approaching. LA is a strong possibility, in late November. Detroit is another, in early January.

The past is loaded with examples of GM obscuring misfortune with reveals. Volt is the most blatant, an obvious attention diversion from the terribly disappointing rollout of Two-Mode.

Whether you like hearing those facts or not doesn't change them. Choose to embrace GM's advancement by endorsing their investment in high-speed charging. We ultimately need each automaker to choose some electrification path. So what if GM's is different from Toyota? The point is to focus on replacing traditional vehicles, not winning some silly "*vastly superior*" contest.

Remember who the customers are.

- 9-09-2018** **Understanding Design.** I like reading comments like this: "*I really don't understand Toyota's design.*" It was in a discussion thread that brought up the choice of making Prime a 4-seater. Some people have an extremely difficult time accepting change. They don't recognize how little value a tight middle seat actually delivers. They simply see it as a loss. Coming to accept the fact that want can be costly is quite a challenge in a society when most things are perceived as need. Nonetheless, a balance must be delivered for high-volume sales to be both profitable & sustainable. That means looking at the entire package, not focusing entirely on just a single attribute. Far too often, people obsess with a trait that doesn't deliver a large return. Volt is a great example, since the capacity of the battery-pack so clearly demonstrates the problem of diminishing returns. Cost of miles delivers less and less as more and more are added. Think about it. If you don't drive the distance of the entire capacity, that extra is excess. It's a waste to buy more than what will actually be used routinely. Of course, people don't see that. So, responses must start out simple, sticking to the basics... outward appearance. I pointed out: The market is changing. Toyota recognizes the shift away from "car" appeal. Anything that doesn't resemble a SUV or CUV must take on a more aggressive styling to survive. It's not rocket science. It's the business of high-volume sales.
- 9-10-2018** **Plug Where?** It's nice seeing this come up from time to time now: "*Most people have no place to plug-in an electric vehicle.*" That was an issue often brushed off, dismissed as an effort to undermine. Ugh. It's bad enough not even having a plug. But when you look at the power coming from each plug that is actually available, there are issues too. Most of the articles you read promote charge-rate maximum as something you'll just naturally get at home from an ordinary 240-volt connection. That's far from the reality for most. I didn't get into that detail though. I kept it basic: That is exactly why fuel-cell vehicles will co-exist with electric-only vehicles. Hydrogen is a means of storing renewable electricity. Whether or not that is the best carrier of energy doesn't matter... especially with the hypocritical stance some EV supporters have taken, choosing to turn a blind-eye toward guzzling electricity. When the sun is shining and the is wind blowing, we'll have banks of batteries and tanks of hydrogen holding the electricity with what would otherwise be missed opportunity. Our grid can only hold so much at a time. Also, production can be shifted to more practical locations. It's really unfortunate that so many early EV adopters don't think about those who won't have a plug readily available or where the electricity to recharge comes from.

- 9-10-2018** **Why?** I'm watching the rhetoric fade into background noise. There's no reason to ask "why?" anymore. People don't know. For that matter, asking the question of "why not?" is rather pointless too. Minds have already been made up, based on misconceptions & misinformation. Substance is not needed to make claims, nor does anyone bother to provide it. Disregard for the bigger picture has become the norm, because it is no longer recognized. This is why it serves no purpose to try explaining. For that matter, the complete lack of understanding is why the tax-credits should be allowed to expire. No one knows what they were for anyway. You'd be surprised by the variety of responses queries about goals will bring. It reveals a lack of information. Many have no clue how the technology works... or what the infrastructure needs... or the many costs involved. Even related facts are brushed aside as irrelevant. It's all a big mystery surrounded by unknowns people don't bother to research. Most aren't interested. When something is revealed, they quickly make assumptions to connect the dots. It has become a game seemingly without consequence. While all of this sounds like a "gloom & doom" status, it is actually encouraging. It marks a turning point when rhetoric no longer has much influence. To that, I say: *Phew!*
- 9-11-2018** **What About?** The end has come. Talk of mid-cycle updates for Prius has killed off all but the most ill-intent posts. How this happened is simple. The speculation overwhelms the antagonists. Those wanting to undermine simply don't have a voice anymore. A few are rather desperate though, hoping to derail the topic by causing a distraction. Catch is, they have run out of subject matter for that. All that's left is rhetoric related to hydrogen... and now one is biting their bait anymore. The subject simply doesn't stir emotion when its so easy to focus on the opportunities that await. So, I help to point some of them out to get back on topic. In this case, it was a discussion about 2019 model years of Prius and Prius Prime, the potential they bring: Using the "What About?" technique to attempt to divert attention is telling. China gets a Corolla PHV and an EV model of C-HR. For that matter, Australia gets the Corolla PHV too. These are clear attempts by Toyota to shift the paradigm, offering popular vehicles with a plug. That experience there will provide value information about how to shift the SUV obsessed market here... something even GM hasn't attempted yet. RAV4 hybrid with a plug.
- 9-11-2018** **Charger Installation.** It's nice to see questions about them come up on a regular basis now. Here's my latest contribution to those discussions: How many vehicles do you think will need recharging at the same time? Remember, your service-panel only has so much capacity. 8 hours from a 40-amp circuit will deliver 200 miles of range. Knowing that rule-of-thumb, we installed two 40-amp lines in our garage. Choosing to use 3/4" conduit meant higher gauge wire could be pulled later. For now, our JuiceBox Pros are set (via the software interface) to only allow the 80% draw (32 amps). That 7.7 kW max rate should be fine. After all, many public chargers top out at 6.6 kW. Odds are, a future vehicle wouldn't stop at the charger's max of 10 kW anyway, so having allowed for 40-amp draw (50-amp circuit) wouldn't be much of an improvement. The spec for that port's protocol can actually handle 19.2 kW. Delivering that requires a 100-amp line though, which would be very expensive and brings you back to overall capacity available. So, don't worry about the numbers or future proofing. 50-amp line could be nice. 40-amp is fine.

9-12-2018 **GM Recalls.** Well, this is interesting. Last week's Toyota recall has already been overtaken by one from GM. This one isn't as simple either. It's a power-assisted steering problem. The issue involves 1.2 million Pickups & SUVs. Unfortunately, it's an extension of the previous recall that included another 700,000 Pickups. The steering can briefly shut down, leaving wheel turning entirely under the driver's own control. Not being aware of the sudden need for muscle does pose a risk of accident. 30 reports of crashes are on record. Hopefully, that will be addressed quickly. But that doesn't sound like a fast or cheap fix. It's really unfortunate when stuff like this happens. It eats into profit-margins for the automaker, causes full schedules at dealers, and impact resell values for owners.

9-13-2018 **When?** Some people never learn. They keep getting pulled into the same discussion without recognizing the pattern. Remember back in 2009, when GM promised "*14 hybrids by 2012*" with a grand announcement everybody got so excited about? Most people don't. That's why the "*At least 20 new EVs by 2023*" has become such a source of excitement. A new audience is getting drawn into a new round of substantless hype. That's how the Volt enthusiasts came about. Anything that pointed out an absence of merit was attacked as an effort to undermine. They became a brainless group of propaganda spreaders. GM took advantage of that too, routinely feeding them with vague tidbits of info. When you'd request detail, pointing out the suspicious nature of what had been stated, they'd attack you. Since there was never any accountability, this terrible behavior went on for an entire decade... to the point where it became normalized. What a nightmare. Looking back at that in a discussion about GM's future, I provided this reminder:

Anyone who has closely watched GM over the years recognizes there's a lot of hype. Press releases are ambiguous to serve as a means of stirring interest & discussion. That has led their reputation of "*over promise, under deliver*" to transform to a concern of "*too little, too slowly*".

We have witnessed the rollouts of BAS and Two-Mode go nowhere, despite so many expectations having been set. The real-world results of the technology didn't meet the business return needed. That knowledge & experience was carried over to e-Assist and gen-1 Volt, which also fell well short of the hope outcome. Looking at Bolt and gen-2 Volt, we see nice technology struggling to compete with traditional vehicles, even with generous tax-credit help.

So, what's different from this latest round of announcements? There's no substance, just a looming phaseout of subsidies and a challenging market that's becoming increasingly difficult to address. There is no spotlight for GM to take advantage of anymore. There is no politic will to support green offerings. There is still little understanding of what electrification actually means.

Remember how GM said there would be 2 reveals within the next 18 months about 11 months ago? What should we expect at this point? When will something aimed at their own showroom customers shopping for a SUV have a choice with a plug?

- 9-13-2018** **Approach Choice.** Each automaker has their choice of how to use their tax-credits. It's a untimed limit of 200,000 vehicles, then switches to an unlimited quantity with a time limit of 1.5 years of phased reduction. One of the Volt enthusiasts who gave up on Volt and switched to Clarity made this comment: "*I find it an odd choice that Toyota chooses to use up all their tax-credits on the Prime.*" That was it. Nothing else, despite years of discussion on the topic. Why? My guess he still doesn't understand the business. Some people have it in their mind that only a single approach works, that no other choice is actually available. Seeing how close-minded our current president is, that is now a very easy perspective to accept. Some simply never learn. Ugh. To that, I kept my response brief: Having a vehicle profitable as it hits the phaseout stage is ideal, since there are no quantity limits at that point. Toyota is doing exactly what's needed to capitalize on the opportunity.
- 9-14-2018** **Motivation.** Sales of Tesla are often used as a basis of measure to gauge legacy automaker progress. That never made any sense. Such an expensive product that was supported in large part by investors seeking new opportunity is dramatically different from trying to change an extremely well established traditional production & distribution process. They have so little in common, it's futile to compare. Yet, we see those without a good understanding of business do it on a regular basis. They don't understand change. It's a problem GM has done a horribly bad job at addressing. One terrible choice after another... often repeating the same mistake. Ugh. With respect to the discussion at hand today on that, I jumped in with: Low-Hanging fruit isn't a motivator for legacy automakers. They depend upon high-volume profitable sales that have a strong outlook of being sustainable. Tesla hasn't proven that yet. Model 3 has great potential, but it could be a one-hit wonder. Looking across the legacy product-line, there's good reason for trepidation. The Osborne effect is a very real problem. For example, GM announcing a plug-in hybrid version of Trax or Equinox could cause their traditional sales of those vehicles to tank.
- 9-14-2018** **False Information.** Spread of it in the past was a very common problem to have to deal with. That was before "*fake news*" was identified as a legitimate threat. I so clearly remember comments just brushing off the source as having no power of influence. Such naive belief is how it got so out of hand. Fortunately, the truth has triumphed in most places. Not all circumstances getting the attention needed to squash the spread. Some comments slip through, like this one today: "*Take the gas engine out of the Prius no movement. Take the gas engine out of the Volt you get a total EV.*" You can guess how the text that followed was an endorsement for Volt. Anything that can be said to mislead about Prius has been tried. This one struck me as odd though, since it is so easy to recognize it as being false. Of course, it was in an article pointing out how much better Toyota sales have been compared to GM. So, attempts belittle were expected. The means to which it happened wasn't though. Deception source is difficult to pinpoint, quite unlike motivation. I punched back with: Poorly informed or intentional greenwash? That's the question to ask when reading a post which spreads such false information. The plug-in model of Prius is just like Volt, an EV with a gas-engine available for when the plug-supplied electricity is depleted. The notable differences are that Volt offers a larger capacity battery and more power motor while Prius delivers both more efficient EV & HV drives and more efficient electric-heating.

- 9-15-2018** **Death of Diesel.** We're seeing BMW & Cadillac announcements of diesel offerings being discontinued. EV fans are doing all they can to distract from plug-in hybrids, attempting to have focus be entirely on EV offerings. They don't want you to know other choices are available. They don't want to endorse small battery-pack capacities. It's quite a gamble targeting diesel enthusiasts who thrived on MPG numbers, especially when a plug-in hybrids can so dramatically exceed diesel. It was only a matter of time. Why some automakers even bothered to certify their new vehicles is a mystery. What a waste effort. Taking about short-term thinking. To think that I fought so many for all those years, warning them of ever-improving hybrid performance. They didn't care. In fact, they all turned a blind-eye to how diesel MPG numbers didn't add up. It never made any sense how the claimed improvements were achieved without emission sacrifices. They wanted you to believe it was some type of engineering miracle. They were wrong, very wrong. Our suspicions were correct.
- 9-16-2018** **Reverse FUD.** It has been interesting to witness the change of market. With the early-adopter phase coming to an end, there's a new audience to appeal to. That's putting the current "*not as good as Tesla*" mantra as a new challenge to face. Dealing with the "*vastly inferior*" posts is a pain, a twist on the old "*vastly superior*". We went through that with a certain plug-in hybrid and now see the same emerging with electric-only. Thank goodness the conflict of green is being brought to the attention of others through a variety of sources now. That's a big difference from the past. There is a day-of-reckoning on the way, when the tax-credit phaseouts are complete and choices must be made. Lack of a standardized new infrastructure and no common message of intent are obvious problems still not dealt with. Achieving growth without a clear direction and no more subsidies is something we should be far more concerned about; instead, there are arguments among the ranks. Not good. Some are spreading FUD with that message of it not being good enough. It's a problem that could get out of hand. This is how the quick-to-dismiss mindset takes hold. People see other offerings don't measure up, so they don't bother at all. It gives them an excuse to wait, just sticking with traditional vehicles for another generation instead of even taking what's available now into consideration. That's something to watch out for and fight against early on. Don't let someone else's lack of critical thinking make you miss out on opportunity.
- 9-17-2018** **Audi e-tron.** Countless announcements have been made recently, many with prototype reveals. Plug-In choices are coming. The catch is, many will be extremely expensive. The average price paid for a Tesla Model 3 is currently \$60,000. That long-awaited \$35,000 model is still not available. It will be... someday. In the meantime, there are other expensive choices coming. Today, it was a big event to declare Audi's commitment to change. At \$74,800 base for their upcoming EV called "*e-tron*" there isn't a large audience, but that's ok for the luxury market. Offerings are all over the place for those with money. For those looking to get something affordable... competitive with Corolla or Camry... the choices are very limited. This is why Toyota's choice to position Prius Prime in that market. It will be many, many years still before we see others able to offer something able to compete directly with other mainstream vehicles at the price people in the middle are willing to pay. That's too bad, since the electric-only driving experience from Prius Prime is a luxury trait. That smooth & silent drive is wonderful. Anywho, Audi does take it to the next level for the price they are asking. You get virtual side-mirrors, with screens nicely integrated into the interior. You also get a 100 kWh capacity battery, which translates to roughly 250 miles of range.

9-18-2018 **Not Yet.** Early adopters like to get way ahead of themselves. Seeing the technology up close and so frequently, it's easy to lose perspective. As a result, they need reminders... like today, with this: "*EV has gone mainstream.*" I wasn't sure what exactly was meant by that. It certainly wasn't with respect to cost or availability. It wasn't with regard to understanding or recognition either. We don't see charging-stations in great abundance... or even in scarcity. Sightings on the road are rare too. So, what was it? I jumped in to point out: Mainstream sales are not government subsidized. Until we see purchases without tax-credit dependency, we are still in the early-adopter phase. Patience, it will happen... but hasn't yet.

9-19-2018 **Ditching Diesel.** Talk of automakers abandoning the dirty & wasteful technology in favor of something with a battery is bringing out attempts to rewrite history: "*The Chevy Volt was from day one intended to be a limited production halo car...*" Spinning the intent GM had and the actions that followed is now surprise. Volt is among the industries largest blunders. Simply ask yourself what the point was and how much was spent to supposedly achieve that. It's a great example of what not to do. You don't design a vehicle for enthusiasts and promote it as a product for the masses. That's doomed to fail... and it did. Remember all the "*too little, too slowly*" posts? That was with regard to Volt's intent. It was supposedly the successor to all green technologies of the past... in other words, diesels and Prius. That obviously didn't work out. Sales never exceeded niche, even with tax-credit help. I corrected the attempt to mislead with: WHO IS THE MARKET FOR VOLT ?

That question was asked literally hundreds of times during the gen-1 offering of Volt. Each time GM did something that to give the impression of mainstream promotion, enthusiasts would defend Volt's position as a Prius fighter with the claim of mainstream sales coming for gen-2 Volt. The targeting intent was obvious.

Admitting Volt was really only a halo didn't come until near the end of gen-1 production. All the years prior to gen-1 rollout and while it struggled with sales the first few years of availability, we were very much under the illusion GM had high-volume plans.

There was no doubt that GM goals set the expectation of Volt becoming a profitable vehicle. In fact, that technology was part of the bankruptcy recovery strategy. Nothing became of it though. We have yet to see Voltec rolled out in a vehicle GM customers actually want... a SUV.

For that matter, quite the opposite happened. GM promoted traditional vehicles heavily, rolling out Cruze & Equinox diesel choices instead.

9-19-2018 **No Choices.** The discussion started to take an ugly turn. I hoped to prevent an emotional stir, especially with the hit of anger coming. Some simply stop listening when they hear something they don't like. There's a lot of defensiveness with regard to Volt still. The technology didn't result in any mainstream offering. Diversification never happened. All the claims of GM rolling out green choices so much better & faster than Toyota never happened. In fact, basically nothing beyond showcasing happened. GM proved they could deliver great things from their engineering, but didn't apply it to any of their own product-line. Quite unlike Toyota with all of its hybrid choices, there's virtually nothing from GM... hence all the rhetoric I have to routinely deal with. If you want to purchase a GM vehicle and you are wandering around on their dealers showroom floors, what is there to choose from just as the phaseout of GM tax-credits is about to be triggered? The goal of those subsidy dollars was to help establish green choices able to compete with other vehicles there at the dealer. That didn't happen. Meanwhile, we see Toyota scrambling to make their hybrid models available for each vehicle they offer, with the hope of plug-in models to follow. There is still plenty of tax-credits available before the Toyota phaseout getting triggered too. I responded to the GM nonsense this way: That line of reasoning falls apart when taking hybrids into account. Those sales are quite strong with respect to any "*halo*" offering. For example RAV4 hybrid, an offering clearly greener than traditional choices, saw 5,058 sales last month. There's the growing availability of plug-in hybrids too. How come those choices are conveniently overlooked, especially when GM doesn't even offer a "*halo*" of any sort for their own customers, who overwhelmingly prefer SUV choices.

9-19-2018 **VW 100 kWh.** It is difficult to take announcements like VW made today about the intent to deliver a vehicle using a 100 kWh capacity battery-pack seriously. Exactly when & where will that actually happen? How much will it be priced? How many will be produced? It's all so vague, what's the point? Toyota remains almost totally silent; we really don't ever hear much. Hype doesn't result in sales. In fact, hype often feeds enthusiasts... making the vehicle take on the image of a niche, rather than targeting mainstream consumers. In other words, putting a spotlight on it can have the opposite effect. Notice how many people there are that don't want a standout vehicle? That's why there are so many blah SUVs now, most sharing the same basic lines and in dull colors. It's strange how black, gray, and white have become the dominant choices now. But it is what the masses are currently drawn to. That's why questioning what the right capacity is for a high-volume seller can be such a critical thing to ask. We really don't have a good idea what priority people will place on range. After all, look at how poor sales of Volt were. Price & Size were far more important than Range & Power. We can clearly see that now. Early on though, I was a lonely voice pointing out what ordinary middle-market consumers would be drawn too. Anywho, there's something to look forward to from VW. The announcement today really didn't tell us much about it though. In fact, it barely told us anything.

- 9-20-2018** **Admit/Acknowledge.** It's bizarre to witness same brainless claims I experienced countless times online with plug-in battles while watching political interviews. The host will acknowledge something, the guest will claim that was just an admission. There's a profound difference between stating words of recognition and actually taking a stance. That refusal to see a world of compromise is how we became so polarized. It's all about absolutes. In fact, the word "*compromise*" is no longer thought of as seeking a balance. It's been given the stigma of losing, a sign of weakness. Basics of being polite are gone for some. They just plain don't want to listen. How did we lose a mindset of progressive updates? Seeing upgrades routinely in the past was a norm. You could expect each iteration to be better. That's how the spirit of competition thrived. Somehow, that got lost along the way. That often happens from attrition. As those with knowledge depart, the remaining support struggles with the difficult challenges. Instead of seeing them as opportunities, they incur "*technical debt*" as a matter of survival. That's the consequence of not continuing to invest. Just getting by is how I watched software developed at my employer become increasingly difficult for the customer to use. Upgrades to the newer software were met with only minimal coding updates. It was a recipe of falling quality. That's when the defense nature of ownership emerges. They come to realize sacrifices were being made... but don't want to acknowledge how. So, they get others to "*admit*" it was the fault of someone else. Ugh.
- 9-21-2018** **Identity Crisis.** Long ago, I said the lack of any clear message would have consequences. It was summed up with the most basic question of "*Who?*" That inability to identify audience meant everything related to promotion would be a challenge. All those claims of being "*vastly superior*" positioned Volt as direct competition with Prius; yet, none of the traits attributed with demand for Prius matched what Volt claimed as strengths. It never made any sense. Now, we see many of the former supporters looking at Volt's struggle for sales as confirmation of it really only having been a "*halo*" or a "*stopgap*" offering... which is a narrative that doesn't work in a market where the supposed successor is also struggling for sales. This is the inevitable disaster that was predicted back when it became obvious the tax-credits were being wasted on outside conquest, rather than actually helping contribute to customer change. Proof of the problem now has emerged with the 7.2 kW upgrade for Volt. That's double the current recharge speed. Why is that necessary if 53 miles was declared enough to cover all daily driving needs? Think about how often we hear from Volt owners who claim their engine hasn't started for weeks, or even months. Portraying that operation as common means there's nothing to gain faster charging. It's quite hypocritical. What is Volt for? The term "*plug-in hybrid*" upsets Volt owners. The term "*electric vehicle*" upsets EV promoters. The term "*EREV*" is an ambiguous identifier. None of it makes any difference in the end though. Volt is simply too expensive for the masses. Being a compact hatchback starting at \$33,520 and lacking some features available in much less expensive choices (like the base Prius Prime), it simply doesn't have any more than just a niche audience. It's really too bad GM never delivered the technology in a vehicle their own customers would actually want.

- 9-21-2018** **Mainstream Attention.** There isn't any. Enthusiasts don't watch the larger market. They don't care, as this quote stressed that point: "Yawn... Toyota... Yawn" That came from a plug-in enthusiast website... and was no surprise at all. It's no different than what we heard from enthusiast magazines for all those years. Neither has any interest in what happens for ordinary consumers. Their focus is niche... to the extreme where they aren't even aware they are seeing the world with blinders on. It's unfortunate how much of a voice they get anyway. Despite the obvious bias, people turn to them for advice on mainstream offerings. Why? Anywho, I replied to that with: Mainstream sales have always been a yawn. That's the basis of appealing to the masses. You see Camry & RAV4 all over the place, almost never noticing whether or not they are hybrid models. Corolla & C-HR are available as hybrids in other markets the same way. All can upgraded to offer a plug... without stirring any attention. Achieving profitable & sustainable high-volume sales is not exciting, yet that is what automakers require. Do you really want a standout vehicle that is nothing but an expensive halo sold to only enthusiasts?
- 9-22-2018** **4 Sightings.** That was sweet. I saw 4 today. With supply in this region nothing but special orders from extremely limited inventory, the chance of seeing another Prime simply isn't realistic. Doing a search for some for sale within a 500-mile radius only reveals 72 available. Within a 100-mile radius, there are only 2. So, this wait for the 2019 model-year with potential mid-cycle upgrades is agonizing... though, quite worth it. A refinement to the system followed by actually having some in stock at dealers would be wonderful. I understand the reason for holding back. There's no reason to rush. Do it right, not quickly. Know your audience. For the case of Toyota with Prime, it is very much a situation of appealing to showroom shoppers. Those wandering the floor their local dealer hoping for something to jump out at them will discover this new plug-in Prius. It's not easy drawing interest from those who owned cars all their lives by are now compelled to consider a SUV. With Prime, there's a chance. More sightings on a regular basis could be realistic next year. Until then, it's still rather lonely... on roadways packed with guzzlers.
- 9-23-2018** **No Loyalty.** Yet another former antagonist has said goodbye. Tomorrow, his Volt gets replaced by a Model 3. It's ironic how the "Who?" question has become so relevant. Even the supposed die-hard supporters are jumping ship. Those conquest sales didn't result in any long-term support, exactly what I expressed concerned about. They were just enthusiast taking advantage of cheap prices to entice early-adopters who would just chase the next low-hanging fruit later. Since those were the only people who purchased a Volt, it was a very real problem to come. No loyalty from them and no interest from ordinary GM customers. It was a recipe for disaster; yet, those antagonists simply didn't care. They would belittle & insult Toyota, then pretend none of it ever happened years later. They just vanish, exactly as I said would happen. Having witnessed that in the past, the pattern was easy to recognize again.

9-23-2018 **False Information.** I find it remarkable by the quantity of posts just like this I encounter on a regular basis: "*The volt does not have an engine. It has a small generator to charge batteries. Why so many uninformed people commenting?*" It comes from people reading supposedly credible sources spreading that false information. As with problems like that in the past, there's a very real possibility that it feeds what will eventually become history. Misconceptions unable to be verified as true or false do that. There isn't anyone to verify or contest at some point. It distorts expectations going forward if you don't have an accurate past. For that matter, you cannot even measure progress if there isn't a base to compare with. This is what undermining is all about. Antagonists will misrepresent things to their favor. Whether it be dishonest about their own preferred product or about the competition, the outcome is the same... a confusing mess... which is exactly what they hope for by spreading false information. As usual, I was annoyed and kept the reply brief: Because that claim is false. Volt's engine is the same size as some used in traditional compacts and it provides power directly to the wheels at times.

9-24-2018 **New Blazer.** Looks like GM completely abandoned the expectation they had set long ago for affordable green choices. Enthusiasts had set a great deal of hope on the MSRP of \$29,995 for Volt. That never happened. The system is simply too over-engineered to achieve that price and still be profitable, especially when that base lacks features Toyota offers standard. GM's own customers certainly haven't been interested, even with tax-credit knocking down the price to about \$27,000. The reason why is simple. Those GM shoppers want a SUV instead. That's how the new Blazer came about. It's yet another choice and it's at that magic \$29,995 price. GM strived to make it competitive too, giving it a 9-speed transmission with 2 engine-sizes available. It's quite obvious from the reveal articles published today that GM wanted to make this offering very appealing. It isn't green though. Not a peep was said about emissions or efficiency. There clearly won't be anything to that affect soon... despite the reality that Toyota is upgrading both RAV4 and Highlander to next-gen hybrid systems. This is why the "*too little, too slowly*" concern was conveyed so relentlessly. It should have been obvious Volt wasn't going anywhere. It's tech will take a painfully long time before it finally makes its way into a GM mainstream vehicle.

- 9-25-2018** **Just Plain Wrong.** I was somewhat blown away reading this today: "*If you live in the mountains, there's a special Mountain mode that prevents the car from juicing up to 100 percent -- that way, if the first part of the commute is entirely downhill, the car will use brake regeneration to add that last bit of charge, saving a few bucks' worth of electrons in the process.*" That was so wrong, even the Volt owners reading the article went out of their way to correct the author. How could such a mistake be allowed? It's one of those sources where you wonder if a test-drive was actually ever taken. The way that mode actually works is, when pressed, a means of forcing a recharge from the gas-engine. It only provides a small buffer though (20%) to serve as extra power for when driving in the mountains. That reserved electricity is supposedly for helping with steep climbs... which, ironically, Volt owners claim is never actually needed. But since GM was strongly opposed to providing a "*hold*" mode (since that would make it too much like Toyota) then gave in later, this served as an alternative back then. Of course, now Toyota offers Charge-Mode which much more aggressively replenishes the battery-pack and does it all the way to 80%. Any well informed writer would know that options like this exist. So, you'd think, they would research which the vehicle they are writing about delivers. Unfortunately, making up a story to explain what's offered is far too common of a problem. We saw that quite a bit with "*EV-Auto*" mode for Prime. The review would characterize behavior incorrect to what they assumed the system would do. Ugh.
- 9-26-2018** **VW Battery.** It was interesting to see conceptual drawings today of what VW is planning to deliver in a few years. They are basically just jumping on board like everyone else, saying they are investing in development with intent to produce too. VW is going with the "*battery under the floor*" type design. This allows for a simple cell layout, where stacks are neatly arranged without having to introduce much complexity. That's nice, but it becomes so integrated as part of the vehicle's platform that replacement becomes nearly impossible. That is a reasonable tradeoff, actually. To keep things affordable, you sometimes need to strike a balance like that. Ironically, the approach with Toyota to achieve affordability was just the opposite. Rather than integrating the battery, a drop-in pack was designed. It comes down to what you are building upon. VW has pretty much nothing to work with, due to their heavy investment in diesel... and subsequent scandal with severe penalties. Toyota has well established diversity among affordable hybrid choices to augment. Whatever the case, it is always welcome news to hear of any automaker investing. You wish them luck and give them continuous reminders of their promise.
- 9-27-2018** **Infrastructure Upgrades.** Reading about incentives like this is great: "*New York Offers \$4,000 Rebate To Install Charging Point*". That's to entice business owners to offer chargers for their customers. Whether you own a coffeeshop, restaurant, office, or apartment, you are the target of that money. The state recognizes the challenges that groups faces when trying to accommodate patrons & renters. Getting some money to help with the initial setup is great. That's just enough to provide some education & experience. Because once you have made an initial effort, anything you do following that is much easier. It makes for an excellent start. Good thing too. We have lots of other states who could benefit from similar incentive programs. Having New York become a success example to model from would be quick helpful.

9-28-2018 **2019 Volt.** It is interesting to read comments posted about a product without an audience. There simply isn't a mass-market for this small, expensive hatchback. True, it is what people had asked for, with respect to specifications. But that's the problem with commentary derived from autoshow. You don't get feedback about what people will actually purchase. Basically, all you hear about is what people desire. There's a huge difference. That fundamental disconnect is becoming apparent. You can see that based on replies from new articles, as was today about the newest model. I jumped in with: 10 years ago, a strong selling point about the revolution Volt was to bring was its target price of "*nicely under \$30,000*". GM set that expectation because it was vital to being able to achieve high-volume sales. Business requires that type of goal for profitability. In fact, the upcoming new Chevy Blazer will have a starting price (including destination charge) of \$29,995 for that same reason. Now, halfway through the second generation of Volt, we see a vehicle selling at niche levels even with the \$7,500 tax-credit. That's an undeniable sign of sales struggle for the compact hatchback; however, the technology itself could still be a source of business opportunity. Putting it into a body style GM customers prefer... a SUV model... like Blazer... would make sense. When will we see GM finally offer something to compete with its own product-line? We've been waiting 10 years for a vehicle able to take on GM's traditional offerings. It's not real change unless shoppers have a choice on the dealer's showroom floor that is actually competitive.

9-28-2018 **Beyond Confusing.** The labeling, which turned into propaganda for awhile, has devolved to a state of confusion: "*It's a very interesting compromise between PHEV and EREV.*" Who could read that and actually understand what it means? I certainly don't. People shopping for plug-in hybrids won't have any idea what those labels refer to. They shouldn't need to either. kW/mile and MPG are measures of performance, not some arbitrary label. Anywho, I took the offensive before anyone else could grab the ball:

Each design from each automaker is unique, which makes labels like that arbitrary. There's nothing consistent across the industry or even particular markets. It's basically just branding. The actual operation is meaningless. Ordinary consumers focus on the same priorities they have always considered important, like price, comfort, and convenience.

With respect to operation, Honda has a pedal feature, Toyota has a button, Chrysler doesn't offer driver control. Some have electric heaters of various types, others rely on the gas engine. Cold affects the battery-pack in each differently too. It's all just mix customers couldn't care less about... since the typical buyer doesn't cross shop brand anyway. They go to a dealer and choose among that selection there.

Of course, none of that matters. When a customer walks into the showroom at a dealer, all they will really see is:

PLUG
ENGINE
ENGINE + PLUG

Those categories are what people recognize. Detail of differences is pointless. We know this from decades of observing buyer behavior. This is why such passion has grown for large & expensive guzzlers to become the norm. This is why the tech from Volt must be put into a SUV for the shoppers at Chevy dealers to take notice. They couldn't care less how it is labeled.

9-29-2018 **Watching Change.** I liked this question: "*Is there anybody who frequents this site that actually learned anything from this article?*" It was posted as a comment to an article that was essentially an introduction to vehicles with battery-packs. That provided a great venue for reaching a new audience. People will stumble across articles just like this later on. Providing some context for this history, as it is playing out, can be quite informative. So, that's exactly what I did: 2,674 miles from my last tank. I refilled last night, since I'll be taking a long trip this weekend. It took just under 8 gallons. That's 11 weeks to use 70% of the gas capacity... which overwhelmingly demonstrates the 25-mile electric capacity from Prius Prime is quite capable of delivering impressive results. The devil is in the detail with plug-in hybrids. The electric-heater in Prime is more efficient than the electric-heater in Volt. So, the one uses less electricity than the other. But at least both are electric. With Ionic, the gas-engine must start for you to have cabin heat. Efficiency of the electric-motors for propulsion differ too. Just like with traditional vehicles, driving results will vary. In other words, simply putting the choices into categories or comparing capacities is not enough to make an informed purchase decision. Discussion of the seemingly basic article can reveal facts & experience frequent site participants may not have been aware of or overlooked the importance of.

9-29-2018 **Understanding Audience.** A conversation emerged from that introduction article: "*Such articles should be run on a regular basis to educate newcomers to the EV community. Every article need not be written for the existing community.*" It's nice to see most of the antagonists are gone now. So many of them stirred trouble just for the sake of keeping the spotlight on Volt. It was a seemingly endless effort to undermine. Their hope was a miracle would happen, that somehow battery cost would drop so much that larger pack in a plug-in hybrid would make it a compelling draw. That never made any sense. If cost were to plummet to that degree, why not just buy an EV with a ck large effort to negate any "*range anxiety*" concern? None of them wanted to admit there was a self-deprecating possibility. Now, they recognize the flaw in their logic... which is why they have abandoned Volt. That's the consequence of cherry-picking. They only saw & promoted what they wanted... which works fine for a niche, but fails miserably when attempting to appeal to the masses. I climbed up on the soapbox for this reply:

This audience will drop like flies when the tax-credits expire, those who are taking advantage of that pricing offset to help along progress of the technology. That's what early adopters do. We have already seen a large number who already moved on from Volt to Model 3. It's a natural next step for that group, because they are well informed about the hurdles of electric driving.

For those who are just ordinary mainstream consumers, what happens here during those initial years will never be known. They will be blissfully unaware of the challenges faced by technology requiring subsidies to assist with rollout to a new & uncertain market. They will never know... or care... about what it took to overcome issues will production & infrastructure. For that matter, they won't even understand what it took to convince dealers to carry plug-in choices as regular inventory.

Notice how simple things, like home & public chargers, are still far from standard? For that matter, even early adopters really don't know what kW charging rate makes sense as a recommendation for home & public locations... and they are the well informed about equipment cost & installation. Think about how much of a mystery that "kW" reference is to the typical showroom shopper.

We are only just now seeing what the market could be like as the early-adopter stage (clearly identified by when the tax-credits expire) comes to a nnd. The choices loyal buyers of traditional vehicles will likely be different from what those early adopters had envisioned. That's what happens as a technology evolves. Adaptation to appeal to a wider group means bringing up 101 education on a regular basis as a means of measuring the progress. Comments posted will reflect the change of audience.

9-29-2018 **4 Cars, 2 Spots.** The shift here is beginning. With so few public chargers available, it was only a matter of time. This morning at the grocery store, there were 4 plug-in vehicles all at the same time... Clarity, Cadillac ELR, Model 3, and the Prime. I parked across from the chargers, saying "*Hi*" to the Clarity owner as I passed. Got out, then I had to wait to cross as the Model 3 drove by. It was an unexpected, but welcome, experience... especially for a quick 10-minute coffee run. I took a photo and shared it online. That stirred quite a response. Lots of others were excited to see that too. In fact, some have experienced similar. It's a nice change from loneliness of the past.

9-30-2018 **Implied Audience.** It was interesting to read someone's assumption in the form of a reply that I implied something. That's quite different from when an antagonists intentionally twists your words, spinning them to mean something else. This was an example of a new participant simply not having enough information yet. That's exactly what we want on those topics aimed at new audiences. If you can get a person with a fresh perspective to join into the discussion, you have new opportunity. I took advantage of that:

15 years later, we have an entirely different audience. Those buyers may have shared similar traits, but in no way are they the same people. Just because someone may have been part of a prior group does not mean only those included in that can be part of the next. An early-adopter is anyone who jumps in to make a purchase when the mass-market has yet to be reached... or even targeted. Notice how the current plug-in offerings are being positioned for mainstream buyers, but are not actually offered to them yet?

Model-3 doesn't exist as a \$35k choice. It will. There's a great deal of obvious potential, but that affordable production hasn't started. Cost & Profit isn't at the necessary balance yet. Infrastructure is still being built up in the meantime too. Tesla is striving to make that all happen soon.

Volt suffered from cost & profit not being addressed. Dealers had to be enticed to carry inventory by GM providing lease prices at a loss. It was a way of stirring early-adopter participation, but meant a setback for reaching the mass-market. It was not a sustainable approach.

Prius Prime is addressing that same dealer (legacy sales) problem, but with a different approach. Toyota delivered a plug-in choice at a MSRP low-enough from the start to directly compete with traditional vehicles sharing the showroom floor. It meant waiting until mid-cycle to rollout beyond the initial regions, but that reduces dealer risk by confirming mainstream buyer appeal.

And let's not forget the role early-adopters play. They are the ones who provide education & promotion efforts... not dealers or automakers. Owner endorsements are far more effective than anything the business can do.

9-30-2018 **Making A Difference.** We are finally bringing the rhetoric to an end. Far more voices are asking why, confronting the antagonist, rather than having to put up with their rhetoric. Today, it was nice to see this: "*Why do people keep describing the Volt as a series hybrid?*" I like when it is presented as a question. The old days of having to directly confront the obvious efforts to undermine are over. Yeah! Now, it's responses like this that do the trick: It's a throwback to the "*EREV*" days, when enthusiasts tried to promote Volt as a successor to "*PHEV*". Problem was, their definition only applied to the concept model. The actual production model ended up the parallel type. To confuse matters even more, rollout of BMW's plug-in hybrid truly was the series type. Yet, they ignored that and persisted with the confusing term anyway. Realistically, it doesn't matter. Ordinary consumers won't care. Labels don't mean anything to them. It's the results. That's why kW/mile and MPG efficiency ratings are so important, as is price. That's what matters.

9-30-2018 **More Spin.** If you carefully re-read some posts, they make even less sense after the initial impression. For example, this snippet stuck out on that first pass: "...as the market for EVs has proven." Looking for detail about what it actually meant, I couldn't find anything. It was pointless. Antagonists often do that. It's the "what about" technique used in a subtle manner. They hope to draw attention away from the current topic, in this case, it was a discussion of audience... not going well for them, hence their quiet attack and my punch back to reveal their meaningless effort:

Again, know your audience.

I put up with the rhetoric here from enthusiasts for years, since I saw the bigger picture. My response over and over and over again was to ask: "Who is the market for Volt?" That's because I knew there wasn't one. The supposed die-hard supporters abandoned Volt as their leases expired and the EVs without "range anxiety" became available. They were early-adopters, which is why they moved on.

What they left behind was a disaster. All those years of pushing GM to create a niche that would be abandoned just as the tax-credits were nearing phaseout, leaving behind a vehicle mid-cycle with a MSRP so high it couldn't compete on the showroom floor and no one remaining to help promote it.

Why is faster recharging important to a vehicle that already delivers what has been claimed as enough for daily driving? It simply does not make any sense. What benefit is there from a battery-capacity that is said to be enough that only overnight recharging is needed? It's contradictory marketing.

In other words, what has actually been proven?

10-01-2018 **Renewed Attacks.** With third-quarter sales on the way, it's easy to see why recent posting activity has included renewed attacks. Those few troublemakers who feel a need to defend GM have emerged. Their daily posting nonsense is long gone, just a terrible memory. But when actual results are posted (on the quarter, monthly are only estimates), it's easy to understand their timing. This morning was an obvious effort to mislead about BMW i3 operation: "*Limping on the right lane at less than 50 MPH...*" Having already been through this with him, there's simply no excuse. Comments like that are intentional undermining. I turned it around using this: The gas-engine easily generates enough electricity. Cruising at highway speed takes very little kW draw. That's how Prime is able to deliver an EV speed of 84 mph. Not much electricity is actually needed. In fact, that is why even at 70 mph you still have some power available for passing.

10-01-2018 **Mistake Repeated.** It was inevitable: "*You spin those platitudes at odds with GM's HEV work, whereas I and the auto industry recognize GM's seminal HEV work as a well-done engineering achievement.*" The trophy-mentality is what fed the problem all those years ago. Seeing it return for the renewed attacks was inevitable... as well as reassuring. There's more data available now. I have a collection of 4K videos to refer to. So, that's what I do. I also suggested what the antagonists should do: Go ahead. Do it. Continue focusing solely on engineering achievement... just like countless many in the past did here too. It's quite remarkable to watch that same mistake repeated over and over again. That obsession with seeking praise is the downfall. You should move to helping promote what was delivered, rather than forcing the topic to first-year physics. Reality is, GM engineering achievement still has not been taken to the next step... actually implementing it in a vehicle GM's own customers would be interested in. Paying no attention whatsoever of that failure to advance the business is the mistake. There is nothing left to prove. Let it go. For example, I drove 2,674 miles using 7.896 gallons of gas over the past 11 weeks. That worked out to 338 MPG. What else do potential buyers need to know?

10-02-2018 **Move On.** I asked: "*What are you suggesting the "move on" to should be?*" Knowing the reply will be just like in the past, a vague reference to what I had posted followed by some lame excuse, there wasn't much to expect. Basically, I was just looking for closure and took advantage of the timing. Quarterly results, the very last just prior to phaseout, was the perfect opportunity. So, that's exactly what I got by posting:

That is a sincere question. After 10 years of the course change, what do you think should happen now?

Throughout the original development of Volt, it was promoted by enthusiasts as having an engine for backup purposes only. That gas-powered source of electricity would be sized for efficiency, to serve as supplier of energy for those rare occasions when you needed range extension. This is why a 3-cylinder engine was considered for gen-1, then delayed due to cost until later for gen-2. Neither got that; however, the BMW i3 did.

That "REx" system BMW delivered is exactly what had been the hope for Volt. The gas-engine is tiny, just enough to maintain a steady cruise while on the highway. Specifically, output is 25 kW.

The definition of Volt's system, given the "EREV" label, changed upon the discovery that gen-1 would indeed have a direct mechanical link to from engine to wheels. That was never supposed to be. It made the system a "*parallel*" type hybrid rather than the hope for "*series*" type. GM took it a step further for gen-2, making the feature enable over a larger span of power & speed demands for greater overall efficiency. That blending of engine & motor power made enthusiasts furious, since it made Volt more like a Prius and less like an i3... hence another definition change. Now, it means you get "*full*" power with both HV and EV modes.

That is, of course, rhetoric spin. No label can change how the system actually operates. Enthusiasts can push an automaker in a particular direction though. Proof of that is the innovator's dilemma they contributed to for gen-2 design. Enthusiasts pushed for more range & power. There's no reason they couldn't push for something different now.

Prius Prime has become the antithesis of Volt, due to its superior efficiency in both HV & EV modes and its much more affordable price. With temperatures in the low 40's and speeds varying between 60 and 70 MPH, my 175-mile trip up to Northern Minnesota last weekend delivered 61.5 MPG while leaving 90% of the battery for my travel later at the destination. Efficiency for the electric-only drive averaged 5 miles/kWh throughout the summer.

In other words, what direction do you wish the technology in Volt to take? Should it become more like i3 or more like Prime?

Think about how consumers view the EV driving experience now. Will they really be open to paying a premium to get a gas-engine tuned for power rather than efficiency at this point? With so many other green choices coming to market, you have to ask fundamental questions like that.

Then, think about how uninformed most consumers are about plugging in. We know that people have become mentally lazy. The lack of critical thinking is frightening. How much are they willing to pay to upgrade their garages when they have no clue what's involved or what doing that will actually deliver.

Put another way, how will you promote whatever it is that you choose to suggest?

10-02-2018 Well Deserved Rant. Sometimes, you just have to give a purist a dose of reality. It was well deserved too. Some of us are working hard to bridge the divide. Getting posts counter to that effort are frustrating to have to deal with. They forget the overall goal. I'm more than happy to give them a terse reminder in the form of a rant: 60 MPG from a low-emission hybrid system is considered a gasser? That's some serious cherry-picking. It's becoming easier to see the Reverse FUD problem. Try to open your mind. My last tank was 89% electric. Who cares if some gas was used. That's a remarkable step forward into the world of plugging in with such a supposedly small battery-pack. Put another way, GM has some serious marketing problems to address. We've seen countless former Volt owners turn on the very approach they praised for years once a selection of EV choices became available... especially since many didn't stay loyal by choosing Bolt. Think about how much switched over to Tesla. I know quite a few previously outspoken Volt enthusiasts who now own a Model 3. The goal at this stage is to replace traditional vehicles with those offering a plug. So what if it becomes a "gasser" on an occasional highway trip. Most of the time that vehicle is driven, it will be using electricity.

10-02-2018 Spewing Insults. There wasn't a pleasant mood on the blogging website for all plug-in vehicles. Insults from Volt enthusiasts started up. There's obvious anger without an outlet for expressing it anymore. That daily blog where they would attack outside opinion is gone. Now, they must remain civil. So, we get this: *"If it were the Clarity PHEV at #1 I could understand it, but the Prime is coasting entirely on name and is not as good of a product as the Volt or Clarity."* That resulted in a reply adding this: *"The Prime has more standard features (AEB and ACC) and optional features (sunroof and a HUD) than the Volt."* It set off an emotional outburst including *"distinctly inferior"* and *"underwhelming"*. Things feel apart from there. I ended up chiming in to that mess with: Who is that supposed to impress? Mainstream consumers couldn't care less about what enthusiasts have to say. What Toyota achieved with Prius Prime is what GM continues to struggle to deliver for Volt. It delivers efficient EV driving with efficient HV driving at an affordable price. As for what an enthusiast believes the competition to be, there's a rude awakening coming around the corner. That low-hanging fruit is almost all gone. Those purchases with government help don't in any way represent what the masses will face. Think about how many sales must be repeatedly achieved to really make a difference at reducing the number of traditional vehicles offered by dealers. Insults directed at Toyota are a waste. The real problem is what shares the showroom floor with Volt.

10-03-2018 **Know Your Audience.** I kept fighting back with that as my lead in. This followed: For many years that message of dealers being the true customers, not who ends up with the vehicle in their driveway, fell on deaf ears. Enthusiasts were so obsessed with the engineering, they fought tense online fights trying to convince others that's all it takes to achieve high-volume profitable sales. They believed a sustainable demand was driven from end-user influence only. The topic of carrying supply as ready-to-purchase inventory was attacked as an attempt to undermine. The importance of the business was brushed aside as unimportant. This is still way MSRP is such a touching subject. Enthusiasts don't want to face the reality of the sales so far really only being low-hanging fruit. Faced with the big picture of 60 million new vehicles being put on the planet every year, it's too large of a problem to not take seriously. Yet, the "*EV market*" blinders are still being used. That's all a bit of a downer. But until those here not addressing the affordable market and recognizing the role dealers play in that sales process, more opportunity will continue to be wasted. Think about how a middle-market consumer goes about making a purchase decision. It isn't anything like what those of us here do.

10-03-2018 **Narrative Pushing.** It looks just like this when slipped into an article about the evolved plug-in industry: "*You mean to tell me that Toyota has been dumping all of its EV budget into hydrogen cars for nearly two decades now? I find that hard to believe.*" Certain groups want you to believe Toyota is only in favor of fuel-cell technology, turning its back entirely on battery vehicles with the hope of a hydrogen-only future. It's a frustrating narrative to have to address, since people hear that and accept it as is. The lack of critical thinking on the part of listeners is sad. They have no idea they are being manipulated, nor do they care. It's a feel-good attitude they seek, rather than actually working to find a true solution. I punched back with: That's because it isn't true. Anyone with knowledge of EV design can easily see the investment Toyota has made in electrification. Look at Prius Prime... 25 kWh/100mi efficiency rating... vapor-injected heat-pump... carbon-fiber hatch... aero-glass window. How are those not serious investments in EV design? There's also the reality that all but the ECO model of Prius has been switched over to lithium batteries. This is a push into high-volume production, exactly what you need to achieve profitable sales that are sustainable. The hype involving hydrogen interest from Toyota also requires turning a blind eye to the reality that Honda, Hyundai, and GM are investing in development of the technology too.

10-03-2018 Too Complicated, part 1. This is what happens when you don't bother to consider the big picture: *"Honestly, I don't understand plug-in hybrids. They are too complicated. You already have a BEV but instead of adding to the size of the battery and be done with it, you add a whole ICE power train. It's like two cars, one on top of the other. You double the problems."* It is yet another example of *"not seeing the forest"* cliché. They just cannot figure out why that single tree is having issues. Ugh. All I can do is point out the perspective they are not seeing with the hope there will be a glimmer of recognition of the true problem. Today was yet another attempt: Spoken like countless others here... enthusiasts focused entirely on engineering and not considering what's involved on the business side. It's a fundamental mistake we have watched play out by GM twice with Volt, both generations falling well short of expectations. The problem was indeed not understanding plug-in hybrids. They are perceived as more complicated than traditional vehicles, despite the fact that their transmissions & operation can be elegantly simple. Neither dealer nor potential customer recognize this. That belief of *"too complicated"* makes traditional vehicles an easier sell. This is why the *"coasting entirely on name"* argument against Prius success is often used by antagonists to justify lower sales of their own preferred plug-in. Their hope is to conceal the reality that Toyota found a means of overcoming the *"too complicated"* concern. They simply proved the reliability by demonstrating it. The name became attributed to quality. So even though it wasn't actually more complicated than a traditional vehicle, there wasn't any reason to make that argument. People felt comfortable with the choice... which is why dealers stocked the hybrid models and consumers purchase so many.

10-03-2018 Too Complicated, part 2. I continued with a second post: There's a catch, of course. It must also be affordable. This is the primary reason Volt was doomed from the start. The approach taken was far too expensive. So, even though it worked fine from an engineering perspective, that high price-tag screamed *"too complicated"* to potential customers... scaring them away... which the dealer sees as a very real problem they don't want to have to deal with. So, many didn't bother, choosing to not carry Volt. You'd be amazed how much of an influence MSRP makes. Enthusiasts of Volt learned that the hard way, spending years arguing *"it is worth it"* to an audience just plain not interested in spending a premium for efficiency. Look at the simplicity of Prius Prime. From hybrid to plug-in hybrid is basically nothing but dropping a larger battery-pack into the hatch area. Shoppers naturally equate increased capacity to an increase in electric power. How it happens makes no difference to them. It just makes sense... simplicity at its finest. They consider the option based on price-tag, not engineering. Like it or not, legacy automakers are in the business of making profit. That means appealing to dealer & consumer, not enthusiasts.

- 10-03-2018** **Concern.** Thoughts about how to compose a final response took awhile. I simply didn't care what this particular antagonist had to say, but still wanted a wrap-up of some sort. The concern of *"too little, too late"* turned into the frequent asking of *"Who is the market for Volt?"* over the years. There was no progress and no audience. That meant nothing had been achieved. So much opportunity was wasted, not to mention tax-credits. It was a ironic twist of resting on laurels. They claimed GM would not do what Toyota would do. Turns out, what actually happened was the very opposite. No need to point out any of that detail though. I referred back to the beginning and summarized as follows: In those old times, there was a refusal to acknowledge the market for Volt was not GM's own loyal customers, those who shop the showroom floor looking for a new GM vehicle to replace their old GM vehicle. It was all about conquest sales then... which are not business sustaining. You should be concerned about that not having changed yet.
- 10-03-2018** **Back To Basics.** Within the crazy banter expected from disappointing sales results for others, we get some refreshing questions simply asking for more information about how Prime operates. This one stood out: *"Car is "heavy" and unlike other "pure EVs" doesn't have that quick off the line zip in pure EV mode."* Naturally, there is no direct question actually asked. It is usually just someone trying to understand more by sharing their observations with the hope of getting constructive feedback. My contribution to that was: Compared to most pure EV choices in this market, yes. Compared to the traffic you'll actually encounter routinely, no. Prime is quite a bit faster off the line in ordinary driving. The reason why is simple. You drop the pedal with a traditional vehicle, the engine roars and everything shakes... so you avoid ever doing that. But with electricity, it is always smooth & quiet. So, you quickly become accustomed to taking advantage of that.
- 10-04-2018** **BMW i3 REx.** It looks like the increase of battery-capacity for i3 to 153 miles will hit a threshold of EV enough to make the gas-engine generator of little interest to the market in Europe. So, BMW will be dropping the option there. Think about how different driving situations are from here. Carrying a backup power-source simply isn't worth the value we place on it in our circumstances. In other words, they don't drive as far. It may also become a reality that charging-stations will emerge as common enough to worry of getting stranded simply isn't what we have. I suspect the next upgrade will end that offering here too. After all, why is that much considered necessary anyway? The newest model of Leaf delivers a range rating of 151 miles. That's enough for many Nissan customers. Why not BMW too? It's a very good question to ask... and quite timely, as we see the phaseout trigger approach for GM without any clarity what future for Volt or Bolt will have to come. Will there be a more affordable version of Bolt be offered, using a smaller battery-pack to reduce the price currently unreachable for the masses? Volt isn't selling well, even with the \$7,500 tax-credit. What makes the complicated & expensive design it requires a good approach for ordinary GM consumers? Needless to say, we will see much close evaluation of value in the very near future.

- 10-05-2018** **Called Out, part 1.** I let things settle a bit, then fired by my assault: Dismiss what you don't like, then personally attack the messenger hoping important facts get forgotten along the way. That pattern of terrible behavior was same activity here for so many years, people who wanted to be true supporters stopped participating and left. I was curious how the remaining few voices would respond, hence a brief return from being gone to find out... and got a very clear answer. You were presented with solid facts, then repeated the same old nonsense. In this case, it was confirmation that the claim about driving at highway speeds would be under-powered was false. Detail of engine output was provided as proof. The small gas-powered backup delivers 25 kW, which is indeed enough power. To further validate that the effort here was to mislead, this is a quote from an owner who routinely has to deal with attempts to undermine the system from BMW: *"I've tested it myself, the i3 REX can cruise at 70-72 mph with A/C (Florida), 3 people, and all the stuff needed for a weekend trip with a toddler, and still maintain the charge."*
- 10-05-2018** **Called Out, part 2.** It wasn't over with a single post. I continued with: Data from my Prime also helps to show that claim is false. I have collected some data points using Charge-Mode. That's the ability to propel the car and recharge the battery-pack at the same time. During the summer while cruising at 65 mph with the electric A/C running, I witnessed a charge-rate of 6.5 kW. Two days ago, I charged from 45% to 75% in just 10 minutes. That's 1.58 kWh of electricity, which calculates to a rate of 9.5 kW. That short burst of power to the battery while on the highway is quite impressive. Yesterday with the temperature near freezing, I witnessed the charge-rate at 7.6 kW while driving at 45 mph and 8.1 kW while driving at 65 mph. It took 37.5 minutes to recharge the battery-pack from 0% to 80% while driving. Power was never an issue, at any time. It worked just fine... despite having an engine that Volt enthusiasts constantly claim is under-powered. Watching the same obvious attempts to mislead & undermine about BMW is unacceptable. You have been called out.

10-05-2018 **Surprise?** I found this comment within an article about September sales of interest: "*Not surprisingly, the Toyota Prius Prime lands in the four-spot for the month and the second-place position for the year as a whole, with sales on the rise from last month, at 2,213.*" So, I started a discussion branch in the comments to directly address it:

Actually, it should be at least somewhat surprising that was achieved despite large areas of the country not ever getting any real inventory. Rollout basically hasn't started in many regions yet. Here in Minnesota, some dealers only had a handful available for the entire year. Thoughts dwell on that holdout possibly being due to a mid-cycle upgrade on the way for 2019.

Toyota tends to quietly advance without much indication of when & how progress will take place. After all, the Prime/PHV design was a worldwide effort with lots of new tech and the opportunity to be used for other hybrids. In fact, we'll be seeing a plug-in hybrid of Corolla in China next year. There are also rumblings of CH-R hybrid getting the plug-in treatment, an easy step since it shares the same platform as Prius. We also see the great potential the next-gen RAV4 hybrid (just revealed in Paris a few days ago) has for support of a plug. Don't forget about the upcoming cross-license Subaru will have with Toyota for its AWD plug-in hybrid offering (2019 Crosstrek) either.

In other words, we see Toyota gearing up for a serious push to stir the status quo. So what if the battery-packs are small. That's still far more of a reach into the mainstream than any other legacy automaker is making to end the reign of traditional vehicles in the near future. Delivering profitable high-volume is quite a challenge. Having an entire product-line of hybrids easily adapted to offer a plug is a major step forward.

10-05-2018 **No Outlet Available.** How do you purchase a Tesla Model 3 without having a place to plug it in? The guy lives in a condo and apparently thought the process to get a charger connected would be simple. Ugh. A friend posted online with a request for help. I responded with the reach out suggesting: A key component to gaining access to electricity for charging at a public location is making it obvious to everyone that there is a transparent means of billing usage. If it is clear how that electricity is measured and who will be paying, then you get a blessing to proceed. The best way to do that is for the user to pay for an in-line meter to be installed. They start at \$39, so hardware cost isn't a big deal. With it, everyone can easily see how many kWh of electricity has been used by the charger. Having served on an association-board for several years, I know that you won't make any progress without a solid plan. You will need to show that you have considered every aspect already, including expected usage and anticipated monthly payments. btw, I only live a few miles from there if you need any help.

10-05-2018 **Not Easy!** I was quite amused to read the following... and not at all surprised: "*Thing is, offering a plug is *not* easy. Not only does it require a much larger battery - along with a place to fit it without compromising passenger/cargo space - but also a more powerful motor, and well adapted control software. The Prius Prime falls short on all of these measures...*" It was a reply to my post about sales. That provided a great opportunity to climb up on the soapbox, an unexpected teachable moment:

Like so many others, the assumption of how power is achieved is quite incorrect. In fact, that is so wrong, it's easy to understand why countless posts on this website don't recognize what has happened so far or what is to come.

Prius already has enough electric power. The traction-motor was always under-utilized due to lack of a large enough battery-pack. The draw simply wasn't available with less capacity. Combine that with a one-way clutch to add thrust from the generator-motor, you end up with a surprising increase for EV driving.

True, the stack packaging could be better, but that kind of improvement is what mid-cycle updates can deliver. We know for a fact the initial rollout of Prime focused on delivering a robust pack that offered much more punch for an affordable price... low enough to make it directly competitive with traditional vehicles. Size simply wasn't a priority for 2017.

As for well-adapted control software, there should be no dispute that was delivered already. The system is remarkably efficient, seamless, and adaptable. Don't overlook the fact that CHAdeMO charging is offered in Japan and speed of Charge-Mode is more than double the current L2 rate.

Lastly, don't forget that impressive larger hybrid system in the newest Camry and the upcoming next-gen RAV4.

In other words, it really is easy if you are aware of what it actually takes.

10-05-2018 **Incorrect.** The response to that was the same old spin: "*The Prime activates the combustion engine when more power is requested — so clearly the electric motor is *not* powerful enough on its own.*" And of course, that was followed by some hype for Volt. Ugh. I punched back with: Incorrect. That belief is the result of poorly informed writers rushing to deliver a review. Never trust at face value any article information coming from someone who sat behind the wheel for only a few hours. Most of what you get is anecdotal observations based on assumption. In this case, the review assumed "EV-AUTO" mode meant as much EV as possible. It doesn't. That actually means you are instructing the system to automatically start the gas-engine to maximize EV by saving it for the less demanding parts of driving. Owners... those who actually drive a Prime on a regular basis... will tell you not to use that mode if you want to keep the gas-engine from running. To get pedal-to-the-floor driving with just electricity, you must use "EV" mode.

10-06-2018 **Renewed Attacks.** That individual who created a new id just for the sake of attacking me had some sense pleasure returned from encounters of the past. The intent was blatant, quite obvious an effort to obscure & offend. I never cared. So now, all this time later, it's payback time. Each renewed attacked gets a return with research results. I now have the means of collecting real-world data... which is exactly what I do. Sharing that is my own sense of pleasure... vindication. In this case, I'm also helping deal with the obvious efforts to undermine BMW. It's so sad when a Volt enthusiast chooses to mislead rather than actually compete honestly. Oh well. I definitely have the upper-hand now. In this case, it was responding to this: *"Are you a BMW i3 expert? Are you a BMW engineer?? BMW does better than Toyota so your "experience" will never apply!"* That's what came after directly replying to his *"50 MPH"* claim. I was more than happy to continue contributing information: No data. No detail. No reason to listen. From me on the hand, I have lots to share. Today was another confirm of *"Limping in the right lane at less than 50 MPH"* claim having no substance. I set the cruise to 70 MPH, started up Charge-Mode, then watched detail on my aftermarket gauge. I witnessed a steady of power flow from the gas-engine at 23 kW while it delivered propulsion thrust to the wheels and 7.2 kW (at times higher) of electricity for charging the battery-pack. Just a little over 37 minutes later, the charging ended with the state-of-charge having reached 80% of the usable EV capacity from the 8.8 kWh pack (that's 5.07 kWh). What more proof do you need that a gas-engine with 25 kW output is capable of sustaining a cruise on the highway? My plug-in hybrid did it using just that rate of output while also replenishing the battery-pack at the same time.

10-07-2018 Leadership Shuffle. A stir within GM executive staff was inevitable. Remember what happened just prior to Volt rolling out? Everyone involved in the prior stage moved on. It seemed quite bizarre. When would any project advancing to the most vital phase... rollout... have those who know it best no longer be available. Reassigning them to other projects before work is complete made no sense. Of course, we later had our suspicions confirmed that such a shuffle eliminated accountability. Whatever goals had been stated no longer applied. Those now in charge were allowed to convey whatever narrative they wanted. They did too. It was an advanced move to deal with damage-control efforts. They knew Volt fell well short of expectations. Now all these years later, the struggle with Volt has grown worse. The ultimate goal of solving "*range anxiety*" issues ended up becoming Bolt, which has issues of its own. It's all quite a mess as the disastrous loss of tax-credits is about to make the situation an even greater challenge to overcome. No affordable solution for the masses is available yet. So, GM leadership is now changing. I chimed into that discussion with: Who is the market for Volt? That was the question asked hundreds of times with the hope of drawing attention to the reality that GM wasn't actually targeting its own loyal customers. Those shoppers walking around on the showroom floor hoping to replace their old GM vehicle with a new GM vehicle pretty much never encountered a Volt; instead, there was a line-up of SUV choices. Soon, GM will be adding another, the new Blazer. It is even has a base price of what Volt had as a goal, but never delivered. Conquest sales were all that Volt really ever achieved. GM attracted buyers from elsewhere, rather than actually stirring their own status quo. It happened with both generations, then carried over to Bolt. This all was made worse by the dependency of the tax-credits, which will soon begin phaseout. In other words, we need to see GM no longer afraid to address change to get their dealers interested. The problem is it will trigger the Osborne effect. A compelling plug-in choice for a SUV will sour the appeal of their guzzlers. There will be demand without supply. It's an ugly situation getting worse each year. So, the announcement of leadership shuffling is no surprise. That's long overdue.

10-08-2018 Renegade Plug-In Hybrid. We got this announcement today: "*The Renegade plug-in hybrid will be one of 30 different new models worldwide from Fiat Chrysler Automobiles to use electric, plug-in, or conventional hybrid drive systems.*" That couldn't be much more vague. There's no specifics... time, quantity, price? Nonetheless, it is still nice to see an expectation of change being set. Even if the efforts are only token at first, it does at least set the stage. Removing barriers is how it starts. None that diesel is finally gone, there's a "*What's next?*" type of mood. People expect change. That's why each generation of vehicle stirs new interest. The key is figuring out the right balance. Too much just scares away the masses. They simply don't see the worth when there's a lot of difference to accept. That's why enthusiasts have such difficulty trying to understand why niche vehicles don't appeal to mainstream shoppers. That audience isn't drawn the same way. This is the very reason why there was such a push a decade ago for hybrids to be offered as mainstream vehicles. So, it makes perfect sense that an ordinary choice like the Jeep Renegade would get targeted to become offered as a plug-in hybrid. Though, it does make you wonder why GM hasn't done that yet. My guess is concern about the Osborne effect. Fortunately, we don't see Fiat Chrysler in the same position.

10-09-2018 **Winter Travel.** A new Prime owner posted a question asking about how to prepare for a cross-country trip through northern states during the cold season. It seemed odd to ask. The advice given in reply was just plain bizarre though. Strange suggestions from those who obviously don't have experience in those conditions shouldn't reply. They do though. So, those of us who live in those regions try to deal with the confusion. This was my contribution: Here in Minnesota, Winter is simply called Tuesday. This coming cold season will be my 19th driving a Prius. It's no big deal. My suggestion is to make sure you have tire with good tread (all-seasons are fine) and don't drive like it is nice out. We take trips in Winter. The most demanding is during the holidays, from the east side of Minnesota through South Dakota to Wyoming. We encounter snow & ice on the highway. There's no drama. Just be alert. Slow down. Keep safe distances. That's all we do.

10-09-2018 **Lexus Approach.** The recent advertisement push from Lexus to electrify its product-line sure has some EV supporters spreading FUD concern. It's ironic how they perceive that effort to phaseout traditional vehicles as somehow being against a plug-in future. They don't recognize how short-term market change can have a profound influence on long-term support. I was intrigued why they felt it was an all-or-none situation. Turns out, some of that concern stems from not really knowing what Toyota actually offers. This is especially difficult to recognize from only looking at Lexus, which it turns out many have. I brought the discussion back to a little bit of a constructive nature by providing some obviously absent Toyota detail. Hopefully, this will dissipate some of their Fear, Uncertainty, and Doubt about Lexus intentions, as a reply to a post where there was an obvious lack of keeping up with upgrades: That misunderstanding of Toyota's hybrid system is quite common. Most of it comes from outdated information, a common problem after a technology has been around for over 20 years. Prius Prime introduced to-the-floor electric-only acceleration by adding a one-way clutch to the existing hybrid system. This allows the generator-motor to contribute propulsion power. Combined with the traction-motor and a larger battery-pack, you can acceleration & drive from 0 to 84 mph in EV mode. In the larger hybrids, like Camry & RAV4, it's easy to see the power potential Toyota's hybrid system has to offer with future plug-in models at little extra cost. Prius Prime also introduced charge-mode. This is a feature designed to recharge the battery-pack using the engine. It sounds counter-productive, since plugging in would clearly be more efficient overall than gas consumption. But surprisingly, it can still yield useful results. You can use the electricity later for local travel, a handy feature when on a long-distance trip without any outlet available. At 70 mph in Fall temperatures (low 40's for me last weekend), I was able to recharge the battery-pack from 0% to 80% EV capacity in a little over 37 minutes. That's 5 kWh of electricity generated while also delivering 40 MPG during that travel. In short, most people are not aware of what's possible after 20 years of refinement.

- 10-09-2018** **Lexus Potential.** My effort to educate continued: Clearly, you didn't see the recent Paris reveal of the next-gen RAV4 hybrid. 36,995 sales of the outgoing RAV4 so far this year in the US market have been hybrid. Think of the potential for both getting customers to abandon traditional engine-only models in favor of the hybrid and how much easier next time around it will be for them to purchase a plug-in model. In other words, Toyota (and Lexus) are setting the stage for when large capacity battery-pack offerings become realistic. Face it, they currently are not yet. Between the high-cost & production-limitations, it just plain is not viable for the masses yet. In a few years, it will be. Remember that luxury buyers tend to replace their vehicles sooner than those of us in the mainstream. So, the Lexus approach will naturally be different anyway. Again, think of the potential. How much would it really take to add a larger battery-pack and one-way clutch to that SUV platform to offer a plug-in hybrid model for both Lexus & Toyota shoppers? The raised platform makes a good means of introducing an EV model as well. So what if a few more years must be waited. We have had GM and VW (both legacy automakers) making "*in a few years*" announcements for quite awhile now. At least with Lexus, we see a clear effort already underway to phaseout traditional offerings.
- 10-10-2018** **Suggestion.** Hearing about a bill that was proposed to abruptly end tax-credits for plug-in vehicles has caused quite a stir. Those who proclaim "*laggard*" are celebrating. They see the 200,000 vehicle limit as a barrier to success. From their perspective, they see it as an unfair advantage... since they believe the competition is other plug-in vehicles. In reality, the competition has always been traditional vehicles. That subsidy money was to be used for helping the shift away from guzzlers. It was support for electrification, not to boost the reputation of those who rushed to market with a product unable to compete. Needless to say, there's an obvious panic building about GM support taking a plummet. We already see Tesla taking away attention from the bleeding-edge audience. The mainstream audience is far more fickle though. That's where the legacy automakers needed help. That's was the intended purpose of the tax-credits for them. Instead, GM squandered that money. Looking back, it's easy to see the wasted opportunity. So many chances to bring about change were neglected. I called them "*missed*" at the time. Now, it's easy to see those involved simply didn't care. The bet everything on hope of an abrupt shift, a very risky gamble with serious consequences. That mess must now be dealt with. I kept my reply to the situation very simple: Revise the bill to reward those building vehicles that actually target mainstream consumers.

10-11-2018 **What Will They Sell?** That suggestion of targeting mainstream consumers was not well received. There's a lot of hate still for having been wrong about the market... and me being correct. There's nothing to gain from saying "*I told you so.*" though. Instead, I push the look forward by asking an important question: Don't overlook the purpose of the tax-credits and why the phaseout stage switches to unlimited quantity. That subsidy was to assist each automaker with production & distribution, allowing them to get their product to a high-volume profitable sales level prior to hitting that 200,000 threshold. This would make it easy for dealers & salespeople to continue on with business-sustainable sales, despite the reduction of that boost from the government. GM didn't focus on their own showroom shoppers; instead, sales focus was on conquest. Rather than use those tax-credits to entice their own loyal customers to replace their aging GM vehicle with a new GM vehicle offering a plug, they focused on selling more traditional SUVs... hence the introduction of both Trax & Blazer, neither featuring a plug. Existing popular vehicles didn't get Voltec (the technology in Volt) either. The rollout stalled with a compact hatchback that wouldn't be competitive on the showroom floor without the tax-credit. In other words, consider the true competition problem. What will dealers prefer to sell?

10-11-2018 **What Happens Now?** I keep pushing for answers... or at least acknowledgement: GM squandered their tax-credits, using them for conquest sales rather than changing the status quo. This was the problem brought up as a concern way back in early 2007, when details of development indicated more of a trophy-mentality. Praise for performance became the draw. It should have been what it meant to actually be green. We saw the potential for an EV that guzzled electricity. But the bankruptcy recovery plan addressed that by raising the "*too little, too slowly*" concern. Volt could be rolled out any way that would stir market interest, then GM would move on to a more practical offering. Problem is, that never happened. Instead, Toyota & Hyundai stepped in with efforts to deliver EV offerings that used less electricity to travel the same distance. Sound familiar? Detroit obsessed with the wrong thing, yet again. History repeated. It's ugly now too, since so much time & opportunity was wasted. Look at the efforts delivered from Honda & Chrysler. Consider what BMW & VW are ramping up to deliver. The other big legacy automakers are taking the situation seriously... well, all but Ford. So, what happens now? What will GM reveal as that 18-month promise comes to pass, which just happens to be the same timing as the tax-credit phaseout transitions to the 50% level?

10-12-2018 **Compared To What?** All I can say is: Wow! This article title, from a supposed GM expert, caught my attention: "*With the 2019 Chevrolet Blazer, GM May Score Another Win Over Toyota*". Knowing the next-gen RAV4 coming in a few months will be rather impressive, I was quite intrigued to find out what the writer had to say. To my bewilderment, there was no mention of RAV4. Instead, the entire article compared the upcoming Blazer to Venza. That's right. The 2019 GM was compared to a 2009 Toyota. It made no sense whatsoever. The claim that Venza was the only proper comparison, since it was a CUV just like Blazer, was beyond absurd. It's the same old nonsense we dealt with for Ford. Remember when C-Max was compared to Prius v rather than the regular model Prius? The hope was no one would take the time to discover that was totally inappropriate, that those 2 vehicles of the time were very different sizes. Turns out, all the MPG claims Ford made were bogus too. Even though Prius v was larger, it did in fact deliver higher efficiency. It was a misleading effort that failed on multiple fronts. So, there's not much reason to be concerned with this either. Though, GM did briefly try to portray Bolt as a CUV. It is obviously a compact wagon. Blazer is obviously a SUV. It will be compared to RAV4... even if some fans attempt to spin it as something else.

10-13-2018 **Understanding Customer Priorities.** Now, all I can say is: OMG! The spin simply takes a different form. "*Let's Talk About Engine Stop-Start, Part 3: Stop-Start On The 2019 Chevrolet Blazer*" This was especially bizarre. It sighted the mixed feeling about the rapid fuel-saving strategy of halting the engine everytime you come to a stop works. Part 1 focused on the design and feature random customer comments. Part 2 mentioned how it could be disabled, using a system hack. Part 3 pointed out how the newest offerings provide a button. All of it left you wondering what the heck the point was. Why would you spend so much time & effort for a feature that customers could shut off? Remember how Prius was mocked years ago for behaving like a golf cart? It didn't actually. But since most people didn't understand how the hybrid system actually worked, they assumed incorrect. This feature from GM actually does work that way. What was GM hoping to accomplish? In other words, this is yet another example of the problems faced when not understanding customer priorities. This is why I so often end online posts with: Know your audience.

- 10-14-2018 Profitable.** Time for a reality check. I see a stir growing for GM's well being. That hope many had held onto with nothing to support such optimism is falling apart. For far too long... well over a decade... focus had been almost entirely on engineering. When you have an economy that's recovering and a generous tax-credit to help new endeavors along, it was a time for taking some risk. It's wasn't a time for catering to enthusiasts though. That bordered on stupidity even back then. Now, it's being looked upon as just plain foolish. What was GM thinking? How could a vehicle resembling a Honda Fit possibly compete directly against a sleek looking sedan? Bolt never made any sense at that price and we knew cost wouldn't drop prior to tax-credit phaseout to make it even remotely competitive. Who among GM customers would be interested? This is why further investment in Volt technology to implement it within a SUV would have been a far better choice; instead, the approach of further deploying that tech was abandoned entirely. I jumped into today's discussion with a dose of business reality, a bitter pill for many to swallow: GM's profit is mostly from large guzzlers. That's a formula for major financial challenges to come in world of high production-cost choices with a plug. Their opportunity to focus on affordability was, sadly, wasted on conquest. Attention should not have been on chasing Tesla customers. It should have been on their own demograph. Legacy customers will be very difficult to sell narrow-margin vehicles to.
- 10-15-2018 Value.** You'll find that enthusiasts have very different priorities than mainstream consumers. What they value is what they feel is most important. That's often a want, not a need. Mainstream consumers tend base more of their purchase criteria on necessity. This is why the shift to smaller SUV choices has seen some success. This is also why saying "*it is worth it*" does not influence such an audience. True, some of what enthusiasts focus on is beneficial. But selling the idea of paying extra for a premium feature is challenging, even if it is worth it. This is why the tax-credit only had an influence on early-adopter buyers. Know your audience. For GM, it was those willing to accept risk. For Toyota, it will be those wanting a vehicle already well proven. How to approach audiences with so little in common explains why we have rollouts so different. Unfortunately, many looking at the tax-credit are not as mindful. Short sightedness blinds them from recognizing this is not a one-size-fits all situation I try to provide that insight: Punishing automakers who carefully studied the market, rather than rush to it, doesn't make sense. They will provide that better value for the money. It's unfortunate opportunity was wasted, but that's no reason to pull the plug (pun intended) prior to others getting a chance... those who took the time to do it right. Keep in mind how few vehicles 200,000 actually is. Our market alone sells over 17 million new vehicles every year.

10-15-2018 **Video: Charge Mode (drive data).** Planning for this particular capture got quite involved. I needed to verify numbers, to make sure I wasn't choosing a circumstance that misrepresented what you'd encounter from ordinary travel. So, I tried it several times while on my recent trip to Northern Minnesota. That set some realistic expectations, as well as provide me with a few ideas about how to best film the drive itself. You'll see that in the new layout for the video. I needed a decent span of time to actually do the filming too. So, this was quite awhile in the making. It turned out well. Here's my comments with the publish: Charge-Mode is a feature Prius Prime offers where the gas-engine can be used to recharge the battery-pack. In most cases, this isn't as efficient of a charging option as just using the plug. But when you are on a road-trip and don't have an outlet available, being able to generate electricity while cruising on the highway can be helpful. That electricity can be used later when you are driving short distances at your destination. That avoidance of engine warm-up is overall beneficial, especially when taking advantage of steady-speed driving to charge. Watch data presented on that phone-app (vertical display on the right) connected to the car using an aftermarket OBD-II reader. It provides detail about power coming from the engine and how much of that is diverted to the generator while charging. Note overall results upon reaching completion. Also, notice the turn-around about halfway through the drive. This helped to take into account any influence of wind or hills. Watch it here... [Prius Prime - Charge Mode \(drive data\)](#)

10-16-2018 **Explain.** I was asked to provide some insight to what I was sharing in that video. Feedback like that is how you "*know your audience*". Understanding comes from exchanges just like this. With such diverse backgrounds from people participating in discussions online, that's a good way of moving forward. So, I tried my best to convey more information without being too overwhelming with detail. This will hopefully be effective: The aftermarket device with phone-app give an inside view of what's actually happening as you use the gas-engine to charge the battery-pack. It's especially important to understand, since misuse of the feature could have a negative impact on overall efficiency. Also, other plug-in hybrids may not operate in the same manner. What stands out for me is the bar in the upper-right corner. That shows how much electricity is getting sent to the battery-pack from the generator. Notice how that value is often in the low 7's for kW rate? It's proof that Prius Prime can already accept a faster recharge... another Toyota design feature that's under-utilized initially. That's a common practice for their tech rollout.

- 10-17-2018 Zero-Emissions Vehicle Division.** Investors of Toyota understand long-term plans and clearly see beyond current early-adopter hype. Prius Prime demonstrates a profitable path to affordable plug-in hybrids. Enthusiasts don't see that. So, response this announcement of a new division being created being negative online is no surprise. Other automakers are doing the same thing, but they don't get the spotlight. Green has been measured against Toyota for the past 20 years. So when you hear similar from VW, it's definitely not the same. They have to diesel disaster to overcome, being forced to help with our country's electrification effort as a result of the pollution added by their emissions cheating. GM isn't the same either. They put tell a story of electrification, but there's little actual substance behind it. Their offerings aren't selling well and there's no investment toward infrastructure. That's why so many turn to Toyota with the hope of rapid advancement, not understanding the work it takes behind the vehicle itself... hence today's press release. It comes down to raising awareness. It couldn't have been done any sooner either. This early-adopter phase we are only now starting to see beyond is how a receptive audience of mainstream buyers is beginning to emerge. Until tax-credits expire, not much with respect to acceptance by the masses will matter. Ordinary consumers just plain don't care. In other words, the difference between short-term and long-term strategy should be easier to understand now that the short is coming to an end.
- 10-18-2018 Watching It Fall Apart.** We seem to be rapidly drawing near to an end of GM's current existence. The reality of what I had been saying for years is becoming so difficult to deny, there's no strategy to repel it. All of the excuses have been exhausted. All of the distracts have becoming uninteresting. All of the hope had faded away. They have nothing left. Heck, even personal attacks fall apart. I wondered how it would all come to an end. I always knew what the timing would be though. Such heavy dependence on tax-credits made it obvious. Sales of GM plug-in offerings were a major struggle even with that \$7,500 subsidy and basically no outside competition. But with Tesla, Nissan, Honda, and Toyota all making their mark, you don't even need to consider the new pressure Hyundai, BMW, and VW will add. It's a mess that will grow worse very fast. I jumped into the floundering defense of GM with: It has been interesting to read opinions here from those who endorse niche approaches with hope of mainstream acceptance. Their opinion makes sense from an engineering perspective, since design is usually well thought out. But from the business perspective, their stance is disastrous. Betting the farm on a plug-in choice that will mostly likely never be competitive with that own automaker's traditional choices is like watching the Titanic sink. What's the point of pushing a product that dealers won't accept? This dislike for Toyota's recognition of need is bewildering from a group claiming to want the masses to embrace plug-in technology. So what if the specs aren't pushing the envelope? That isn't how business is sustained. Niche offerings are impressive, but it the so-called "*boring*" vehicles that bring in the dependable profit. It's ironic how much Prius gets mocked for being plain, ordinary, unexciting; yet, millions have sold. That's the very point of mainstream acceptance. Being ubiquitous means not standing out. Oh well. Some people won't ever figure it out. That's their loss, not Toyota's.

- 10-19-2018** **Guzzling Electricity.** There are a number of EV offerings now available that guzzle electricity. Unlike Toyota, some automakers simply haven't bothered optimizing operation. They just figured out how to make a vehicle go with battery & motor. The effort to refine their propulsion system isn't as much of a priority as simply having a presence in the emerging plug-in market. That's overwhelmingly obvious with the reveal of I-Pace today. That will be Jaguar's first offering. Focus was clearly on speed & power, not efficiency. Rating numbers make that obvious. *80 MPGe City. 72 MPGe Highway. 76 MPGe Combined.* With values that low, it's compete with Prime's 133 MPGe rating. But then again, it was never intended too. Nonetheless, you don't want to just waste a fuel... even if it is greener than gas. Of course, generating electricity isn't as clean as it could be yet. Sadly, we still get electricity from coal in many states here still. For perspective, remember that Volt was rated at 106 MPGe... in a market where efficiency gets far more attention. But then again, compared to Model 3's best rating of 130 MPGe, that value of 76 is pretty bad no matter how you look at it. Luxury or not, guzzling on that level isn't sending a good statement for EV adoption. Think about how much more battery is needed to deliver competitive range. That makes the vehicle very, very expensive.
- 10-20-2018** **Charge-Mode Warming.** It's getting cold here (Minnesota) now. That brought about an idea. A new use for Charge-Mode came to mind: electricity for warming the cabin. If you have the engine running in an efficient manner before parking anyway and you'll be coming out to a cold car later, why not? That new video shows it would only take a few minutes to generate enough electricity for that. The point of Prius is to significantly reduce emissions & consumption, not to eliminate them entirely. That's use of electricity is clearly an improvement over what traditional vehicles do... just run the engine while the vehicle is idle. It's another way of squeezing out efficiency, while at the same time improving the driving experience. Think about how the smooth & quiet of Stealth-Mode evolved into EV. We get preconditioning from the plug to warm the cabin anyway. If that occasionally comes from the gas engine, it's a little bit of an offset. There's tradeoffs with technology. Having a flexible system can allow you to optimize. So, give it a try.

10-21-2018 **Gone.** The biggest of all the antagonists, that one who would always try to get the last word in, is finally gone. He used every trick in the book to try to get me to stop posting about how GM was missing opportunity. So much time was wasted on conquest. Not targeting mainstream consumers made it a futile endeavor. How could a legacy automaker thrive when none of its traditional offerings had the choice of a plug? Status quo not changing is a recipe for failure. None of their vehicles even became greener. Popular choices, like Equinox & Cruze, instead added a diesel option. No plug. Not even a hybrid. It was a disaster in the making... with the tax-credit phaseout as the undisputable end. Unless GM would be able to achieve profitable high-volume sales with the potential to be sustainable prior to hitting that point, it would all be over. Now, we see that is exactly what's happening. Those 200,000 credits weren't used to actually bring about change on the dealer's showroom floor. Their loyal customers never showed any interest. All those years of expressing the "too little, too slowly" concern have been validated. In fact, it will be precisely 1 decade when the final moment is reached. That will be the end of March 2019... exactly when the phaseout changes the credit is cut to 50%... and exactly when GM's 18-month pre-announcement wait limit will be reached. The assumption is Detroit's auto show in January will bring about that long-overdue change announcement. The antagonist abandoned ship already though. His die-hard effort to protect the reputation of GM ended with the purchase of a Tesla Model 3. Knowing the absence of tax-credit help would basically kill Volt & Bolt, he gave up. There's simply no way such small vehicles with such large prices could appeal to GM customers. We've been watching the GM stockholders get nervous as share prices remain flat and even more dependency on high-profit large vehicles continues to grow. There's no path forward. It's not like Toyota, where the entire product-line at dealers will be offered with a hybrid option. He's gone now. He doesn't have to listen to my sensible analysis of business choice. GM chose poorly.

10-21-2018 Cannibalize ICE Sales. The topic of ICE (Internal Combustion Engine, better known as "*traditional*" vehicles) replacement is finally getting some proper attention. Most of the plug-in enthusiasts simply didn't care when the tax-credit was available. But now that it is about to trigger phaseout for GM, there's a state of panic growing. Taking about vindication for my "*too little, too slowly*" concern over the years. I predicted this very dilemma ages ago. But instead of getting constructive feedback, I got attacked... over and over and over again. Thankfully, my thousands of blog entries serve as proof of the level of resistance people have to change. So many techniques & excuses for not dealing with problems and taking responsibility... Ugh. Anywho, today's discussion topic really hit that mark. It focused specifically on GM. I jumped in with one of the first comments posting:

It's as simple as asking how our children will look back at this. You had the technology; yet, you chose to not make an effort to actually use it to change the status quo.

That has been GM's problem even before the plug. They had Two-Mode, then abandoned it. They had Volt, but roll out the tech to any of their ordinary offerings. Loyal GM customers looking to replace their old GM vehicle with a new GM vehicle simply had no choice. After all those years of supposedly being market leader, you still cannot purchase a green model of a traditional vehicle from GM. Their SUVs should have taken on the plug-in Two-Mode design a whole decade ago. Remember the prototype plug-in Saturn Vue?

Seeing GM move on to Bolt is a head-scratcher. Are they going to abandon plug-in hybrids entirely, completely contradicting their own "*range anxiety*" approach they pushed for all those years? If so, when can we expect a competitively affordable version of one of GM's traditional vehicles as a EV model?

Toyota is often claimed to be an industry laggard, but their path to electrification is clear. Prius already offers a plug. Corolla hybrid will next year as a plug-in hybrid. A model of CH-R hybrid as an EV is expected to follow. There are new generations RAV4 and Highlander hybrids on the way. Camry & Avalon hybrids are now available and competitive with their traditional counterpart. There is even a rumor of a new CUV hybrid on the way. All that is most definitely an effort to change the status quo.

Legacy automakers have the enormous problem of getting their dealers to embrace change. If they aren't interested in stocking green inventory, there's no way for shoppers to actually make a purchase. Cannibalizing ICE sales is much easier taking a smaller step to the plug by offering something compelling with a battery-pack first.

Watch what happens with GM over the next few months. Their tax-credit opportunity wasn't used to change behavior of their own dealers & customers. It's going to be a painful transition as a result.

10-21-2018 Osborne Effect. It was interesting to read a detailed post about GM's predicament, explaining how they were now facing innovator's dilemma. Anyone unfamiliar with the what that means would have easily accepted what had been attempted to be explained. I knew that was quite wrong. To be that situation, it would be a struggle of how to improve Volt to attract a wide audience. GM had listened to enthusiasts, resulting in even more of a niche. So, that does sound right. But GM has pretty much abandoned Volt entirely. There is no effort to delivering something with those characteristics for mainstream buyers; instead, GM must basically start over. See the problem? They have the tech already. So, that isn't the challenge being faced. It's the impact the next offering will have on GM's own current market. It could be profoundly negative... since the choice itself would likely be very positive. This is called the Osborne effect. Look it up. The name came from a real-world "oops!" in the business world that had disastrous results. Knowing that, I replied: No, that isn't the case. It was with Volt though, but that is the past. The situation now is different. The moment GM announces a plug-in hybrid SUV, sales of the traditional model will stall. It's known as the "*Osborne Effect*".

10-21-2018 Serious Discussion. Today's topic about the problems GM is about to face sure is stirring the pot. I jumped back in almost immediately, responding to a post starting with: "*As soon as one of the Legacies gets serious about US EVs, the whole house of cards will come down...*" It was followed by a vague statement that didn't actually say anything. There was no next-step suggestion provided. You know, I won't settle for that:

What does "*serious*" actually mean? Think about the situation from a mass-market perspective. How do mainstream consumers shop?

From a dealer perspective, that means the vehicles with a plug must be cost-competitive to the traditional offering. GM's approach with both Volt and Bolt have been disastrous in that regard. Neither supports a profitable approach and neither even resembles anything in their current product-line. What loyal GM customer would be interested? Seeing such strong demand for the highly profitable SUVs that GM dealers carry, it's easy to recognize the lack of interest.

Salespeople face an even greater challenge. Should the dealer decide to push plug-in choices, what incentive is there for a change sales approach? A fast & large commission from a traditional SUV is far more appealing than making an effort to educate a consumer about how to upgrade their garage for plugging in. That's a major challenge to address without even talking about the vehicle itself.

Think about how much easier the transition could be getting customers who already own a plug-in hybrid charged with an ordinary 120-volt outlet to consider the upgrade to an EV with a 240-volt charger. In other words, expecting a jump directly to EV for masses is not a "*serious*" approach... especially when you consider cost & production restraints. 17 million new vehicles in the United States alone are purchased every year.

- 10-21-2018** **Rhetoric Spin.** It has actually been awhile since someone tried to stir the pot: "*Toyota has dragged it's feet all along the way.*" That was to be expected though, on a discussion thread about the challenges GM is about to face. I don't let that opportunity for me to point out observations of my own on the topic. So, I did: That's just rhetoric spin. Anyone taking the time to actually look at the technology Toyota has delivered, they would see a remarkably efficient & affordable design. Their approach of rolling out first to hybrids is a very effective means of establishing high-volume production to take advantage of economy-of-scale benefit... which is absolutely vital for a successful paradigm shift. The upcoming next-gen RAV4 hybrid is another big step forward. Like with Camry hybrid, we are witnessing great potential for vehicles larger and more powerful than Prius to capture sales from a very large audience. So what if a model without a plug isn't available yet? Motor & Inverter production is well underway. Real-World rollout of their heat-pump and carbon-fiber tech is taking place too. Let's not forget the lithium battery-cells being used either. In other words, the claim of "*dragging*" actually reveals Toyota's electrification effort to reach mainstream buyers without tax-credit help is well underway.
- 10-22-2018** **Frustrated GM Investors.** There's a lot of attention growing for GM. The reason is simple. A comprehensive third-quarter financial report is about to be released and the prospect doesn't look good. It's much like the lead up to bankruptcy a decade ago. Profit depended heavily upon large Pickups & SUVs. Investors want sedans to be phased out entirely to help keep that revenue stream flowing. This time, there aren't serious retirement losses at stake though. Instead, it is the reality that neither Volt nor Bolt captured customer's interest. Both were major resource drains that didn't result in new revenue. Not deploying the technology into a mainstream vehicle shoppers would be drawn to was a colossal mistake. The stock value for shares here and for the division in China, which had been flat, are now both down. There is the uncertainty of GM in Korea as well. Authorities are questioning whether or not GM's 10-year commitment as part of that division's bailout early this year will hold. Needless to say, pressure is building for the CEO to be replaced. It seems like a narrative, something I would make up... especially since the timing of the tax-credit phaseout is drawing so near. But anyone who has been watching closely for the past few years would recognize my push for GM to take a next step forward. Volt's gen-2 upgrade was a step in the wrong direction, delivering more for enthusiasts and even less for GM's own shoppers. Bolt has just been a confusing mess; it changed the message for "*range anxiety*" and was supposedly designed to compete directly against Tesla's Model 3. Needless to say, sales of both are well under expectation. Sound familiar? Remember the timing & circumstances of Two-Mode's death? There was a genuine concern about "*too little, too slowly*". The situation now confirms there was valid reason for it. To all those who attacked me for pushing for an actual change to the status quo, rather than appealing to early-adopters, you now have frustrated investors to deal with.

- 10-23-2018** **Looking Ahead.** I shared some wisdom: Knowing there will be a mid-cycle refresh of the regular Prius and that tax-credit phaseouts will shake up the market, it is reasonable to wonder if something could change for the 2019 Prime. Late November is the LA auto show. That is likely when we'll either find out or get a teaser. My guess it will be the latter with a full reveal in Early January for the Detroit auto show. Think about the positioning of GM with respect to plug-in hybrid choices. The expected 50% drop for their tax-credits in April and how much of a struggle sales have been anyway, it makes sense that Toyota has simply been laying in wait. After all, we saw them do the very same thing already. We witnessed the quiet of gen-1 plug-in Prius, with lots of spin during that supply halt that was just plain wrong. Why compete when it will only serve to confuse potential customers, especially when you can focus on refining (production, design, cost, etc.) in the meantime?
- 10-24-2018** **Spreading Narratives.** It was called hype, seemingly so far back, you could say "*once upon a time*". That was obvious. You hope for a miracle. It turned into "*fake news*", where there was on-going effort to deceive using enough apparent material to form a believable story. When confronted, the story simply changed to something else. Each time built on assumptions and the knowledge that most people don't apply critical thinking. Just accepting what you are told at face value, without ever bothering to research, is key. That eventually fell apart, since you can only change the story so often before people get confused. Now things are settling back into an approach of spreading narratives, where you just keep telling the same tale repeatedly. You don't even bother to provide any substance. For example: "*The hybrid is going to be phased out, and it's sad that Toyota is going to be dragged kicking and screaming into the future.*" Sadly, I run into claims like that often. There's nothing at all provided to so support it. There's just a mantra repeated over and over. I keep my reply simple with: Toyota already produces electric-motors, controllers & chargers, battery-packs, and a rather impressive heat-pump. They are setting the stage for large-scale customer acceptance of plug-in vehicles, as well as refining their production & software along the way.
- 10-24-2018** **Facing Reality.** This quote speaks for itself: "*So what does GM do now? They've used up their 200,000 tax-credits that were supposed to help them transition to non-subsidized plug-in cars, but I don't see any future product plans. The Bolt and Volt are not compelling products without the tax credit, so unless they can cut prices on them and be profitable (doubtful) where are they?*" Seeing such a sentiment pop up from time to time now in discussion threads is encouraging. Rather than an army of enthusiasts doing everything possible to provide excuses, there's a message coming through expressing concern. I endlessly posted my own concerns about GM moving so slow, this day would come. Sadly, it seems as though the momentum forward has actually stopped. That's what is drawing attention now. Bolt clearly wasn't competition with Model 3. So, what is it? That was supposed to be GM's premiere plug-in product, an offering so impressive it was the "*range anxiety*" solution Volt failed to be. However, that perceived progress didn't result in strong sales. In fact, it's rather obvious the loss of that \$7,500 incentive will bring an end to the effort as we know it. I suspect early next year will bring about a reset of sorts... a reality enthusiasts really don't want to face. The claimed leadership position will be lost. Starting over is all but inevitable though. That's why milestones to consider lessons learned are vital. Skipping them, as enthusiasts did, makes the penalty for trying something different much later a much larger loss to deal with.

- 10-25-2018 EPA Dismissals.** We just learned that EPA has dismissed 2 advisory panels of outside scientists. They provided information about smog & repository concerns. That fear we had about properly addressing pollution related issues is proving to be a very real problem. There are clearly efforts underway to undermine. It's really sad when such blatant favoritism for business is put over the well-being of people & planet. This reminds me of what the administration 18 years ago did. They just ended a well established green program abruptly under the guise of starting a comprehensive study. Remember the PNGV program? They tried to pretend the existing effort had failed and this was a bold new initiative to stimulate progress. We all knew it was a reset. We also knew it would be half-hearted. The vague nature of what is being established as a replacement is a dead giveaway. We see people taking power who favor business over environment, people who will sacrifice a great deal to protect old-school industry. It's an effort to hold back progress. Think about the intentional damage relaxed regulation will cause. We know how to prevent, but choose not to. Imagine how future generations will look upon this time.
- 10-26-2018 Closed Minds.** There are a few on the big Prius forum who focus entirely on the short-term. They just plain don't care what's coming. That means any effort that's long-term is simply ignored. Closing your mind to anything except the immediate is a terrible waste, since it makes progress a challenge. People don't want to invest in the future. That's why the tax-cuts were received with such high praises. Barriers that move to live in the now created weren't taken into consideration. It's a selfish move. You intentionally sacrifice the future. Yet, there are many in our society who do that. This is how great powers fall. We have many examples throughout history. There is a cost to pay. Sadly, some contribute to the mess. You have to turn on former allies as a result. It's the figurative slap-in-the face, with a hope of waking them up to their complacency. Maybe it will work. Maybe it won't. The point is, I tried: You are feeding a greenwash narrative by cherry-picking like that. Prime was clearly designed for profitability. Compliance vehicles don't bother. Toyota's effort to deliver affordability is overwhelming evident that it is targeting mainstream sales. Choosing to only acknowledge the short-term perspective is intentionally misleading.

10-27-2018 **What A Mess.** There's an obvious effort beginning for GM's defense of their end as supposed leader. Proposing a new mandate was today's desperate move. It's obvious because it was so vague and set the bar so far back. Bold initiatives of the past are all but forgotten. It is that reset we've been expecting. I took the stage for this one. No soapbox this time. It's an all out battle declaration:

This is the same old rhetoric repeating, apologists cry FUD when actual change to the status quo is brought up. Inevitably, that is following by "*laggard*" claims as distraction. It all comes down to GM not having targeted their own customers with Volt or Bolt. Who shops the showroom floor of a GM dealer looking for a compact car to purchase? GM's audience is primarily SUV buyers; yet, all their SUVs offered are traditional still.

GM's plug-in hybrid tech should have been rolled out to a small SUV years ago; instead, there was an effort focusing on diesel. Both Cruze & Equinox diesels were offered post-dieselgate. Why? Now we see Trax & Blazer completing a full passenger SUV product-line, none of which offer a plug still. Why?

GM offered Two-Mode an entire decade ago. It was even followed by a plug-in prototype SUV. Yet, all these years later, there is not a single green SUV offering... nothing with a plug or even just a hybrid option... despite so much praise for supposedly being the leader of legacy automakers.

Now, we see an effort to downplay. Rather than make an effort to actually electrify their product-line, it's just more token gestures. Actually trying to change the status quo still isn't happening. Their dealer's showroom floors still look basically unchanged.

Toyota gets slammed all the time for their effort to change. Camry, Corolla, RAV4, CH-R, Highlander, Avalon... are all available as hybrids in different markets. That's an undeniable investment into electrification with an easy & profitable path to offering a plug. We also see Prime demonstrating potential for EV choices, by establishing production and promoting refinement of related EV components.

Remember all the hype about a "*Volt lite*" years ago, when enthusiasts tried to push GM to offer a more affordable plug-in choice? They knew the disaster of tax-credit phaseout would arrive someday, when GM would get stuck with plug-in vehicles totally unappealing to dealers. Why even try to sell an expensive choice that will deliver such little profit? Even if that inventory was stock, what salesperson would even bother trying to persuade a shopper for so little commission?

This has been a problem in the making since sales struggle of gen-1 Volt resulted in a dramatic price down... which didn't result in an overall sales increase. All these years later, we still see sales on the bottom of GM's list. That's a blatant sign the technology should either be diversified or abandoned. Seeing no progress in that regard to Volt and the rollout of Bolt as their solution to "*range anxiety*" instead, there's good reason to question motive of the recent proposal.

Notice the lack of detail and how low the bar is set for time & quantity? Rather than "*just do it*" to force the other legacy automakers to follow suit, there's a negotiation with

the our government taking place. Why? Talk is cheap. We're seeing pushes in Europe & China regardless of whether or not the United States joins in. The world will suffer from oil-dependency & climate-change regardless of whatever official mandate gets passed.

In other words, how long must we wait for an affordable Chevy Trax plug-in hybrid to finally be offered... or Equinox... or Traverse... or Blazer?

10-27-2018 *Getting Messier.* I got called a "*shill*" many times in the past for my critical thinking. They'd claim that under the pretense that it was really just a defense of Toyota. Seeing the reality that it was actually just good business sense for any of the automakers we too much to accept... because one can never agree with a competitor. Never wanting to accept the fact that traditional vehicles are the competition has been the problem. That means you much acknowledge a problem from within, rather than just blaming someone else for your own struggle. Oddly, they keep trying. This time though, it was so desperate, I was left beside myself. The claim now is that autonomous driving is an essential part of EV delivery. I fought back that nonsense with: Autonomy. Huh? The article topic didn't make any mention of it. That certainly hasn't ever been anything I've been interested in or even commented about. It's totally unrelated to any type of EV mandate. Why was it brought up? Let's try a different perspective... Profitability. That's how you know an automaker is attempting to deliver a product targeted at mainstream consumers. If the vehicle was designed to sustain high-volume sales, that's all the more confirmation you need. What does a mandate achieve? We've seen both Volt & Bolt rolled out as niche offerings, since they rely heavily upon tax-credits and haven't demonstrated appeal to GM's own loyal customers. If there was mandate already in place, it would be easy to label them a compliance rollouts. Remember, the goal is to replace traditional vehicles. That's means what is found on dealer's lots must change. Waiting many years for a few token offerings is not enough. The entire product-line must have some type of path to electrification. Without that, dealers simply won't bother, which means potential customers won't have anything with a battery-pack to purchase.

10-27-2018 *Phew!* It's nice to enjoy a pause from the fight. This was just an ordinary response to an ordinary discussion, a very nice change from the growing mess: The genius of Toyota's approach has been flexibility. "*Just drive it*" provides results well above that of traditional vehicles, regardless of your driving circumstances. The addition of a plug builds upon that. When you recharge from an outlet, results are amazing no matter what you do with that electricity. Having the option to recharge using the gas-engine is a bonus. If you want to exploit the design to squeeze out even higher efficiency, you have that ability. It is by no means necessary or required. Some owners will never take advantage of having it. Others will exploit the opportunity. The point is, you are given that choice. So, we make an effort to explain how it works. Keep in mind that you also have the choice of recharging speed. For 120-volt connections, you have 8 & 12 amp options. For 240-volt connections, it is currently limited to 3.6 kW. As demonstrated by this video, you can see that 7.2 kW may be offered in the future. It's a flexible design. Toyota carefully studies how it is used & responds and tweaks choices accordingly. Give it a try.

- 10-27-2018** **Whoa!** I just had a parking lot encounter at lunch today. It was with my 2003. I was able to confirm up close that it was indeed my old Prius from 15 years ago. The package was a rare choice, quite distinct in appearance, and I put a very unique dent in it. That was strange seeing it after having upgraded 3 times since the trade. There were a few new dents and one of the headlight fogged. But otherwise, it looked fine and was obviously still in use. Too by I wasn't able to chat with the current owner. I had been looking for years, hoping the purchase was local. I did see it roughly a month after having upgraded, but not since. Doubt about ever seeing it again is realistic; though, today was a heck of a surprise. At least I know it survived beyond the duration anyone expected it to. That's a great endorsement for Toyota's forethought. They really designed a system to last... something quite realistic for ending the reign of dirty guzzlers.
- 10-28-2018** **Behind.** It has been interesting watched firsthand: *"The fact that you continue to stick up for Toyota says it all. Had they continued to push forward to EV they would be light years ahead. They have buried their collective heads in the sand. When they come out with an EV they will also be years behind vs. the years ahead they should be."* That story is told over and over again... but without substance. There isn't ever any detail provided to support the claim. They just get angry and declare *"behind"* without follow up. Having studied business so extensively in college (it was my minor) and worked in retail for that many years, then followed the automotive industry closely for the past 2 full decades, I know what I'm talking about. You don't study so much for so long without recognizing success patterns. There's also my passion for computers which dates all the way back to the 70's. Watching that industry evolve was quite exciting. Anywho, I get tired of those who don't bother to do their homework. Making empty claims is unacceptable. If you have good reasoning, share it! Don't just start a quarrel without any intent to back it. Geez! Oh well. That's what I have to deal with. In this case, I responded with: Behind what? The market hasn't even emerged out of the early-adopter stage. Whether or not you accept the fact that Toyota is working to refine their already available EV drive, plus related components & software, is not their problem. They are busy setting the stage for dealer & salesperson, as well as building a process for traditional vehicle phaseout. It never ceases to amaze me how some feel *"ahead"* should be quantified based on short-term measure, even though production cost is still out of reach and energy-density still isn't quite there yet. As for where they should be, where exactly is that? There's no basis for a mass acceptance of plug-in vehicles yet. High-Volume sales without subsidy haven't even been attempted yet. Reliance on tax-credits is a problem Tesla is scrambling to avoid though, but it is not a legacy automaker. GM is and will inevitably pay the price from not having a competitive product prior to triggering phaseout. Toyota still has time and will smoothly pass by from having taken the slower path to adapt a system capable of sustainable profits with a clear path to a wide variety of plug offerings. They carefully studied the market, rather than rushing to it. It's like watching the Tortoise & Hare story playout right before our eyes...

10-29-2018 **Possibly Failing.** You can feel the pressure growing. With Tesla speeding ahead, the decisions for legacy automakers is finally getting some necessary attention. That's long overdue. Direct comparisons to a well-funded investor-supported startup is a terrible measure progress forward for the market as a whole. Many early-adopters are only now coming to realize that. Too bad they didn't listen to that message over a decade ago. Ugh. Oh well, they have no choice but to listen to it now... especially when attempting to belittle Toyota:

That claim about Toyota possibly failing is a narrative you should be smart enough to see beyond. You know Toyota is waiting for the cost tipping-point to be reached before deploying to the masses. It makes no sense doing that prior to the profitability stage being reached. That's why rollout is being held to limited markets. The tech is being refined in the meantime.

No legacy automaker can go all out with high-volume deploys yet. Batteries are still too expensive and density too low for that profitable level to be reached. It will happen, perhaps very soon. But until we see sales growth without tax-credits contributing to that, we haven't left the early-adopter stage.

Consider audience. Buyers of plug-in vehicles now are pretty much exclusively enthusiasts. Reaching mainstream consumers... those who basically just go to their favorite dealer and trade-up for the latest model of something there... will be extraordinarily difficult to appeal to. Current plug-in offers have too high of a price-tag still, even with the tax-credit, to be a realistic competitor yet.

In other words, look at the preparation is each automaker is making to address their own particular customers. What must they do to achieve & sustain profitable sales of plug-in vehicles? With that, you can see Toyota is well under way. Having a wide selection of hybrids in place makes taking the next 2 steps much easier for all involved... dropping traditional vehicles and rolling out plug-in choices.

What legacy automaker do you think is better positioned? It certainly isn't GM with their stubborn reluctance to spread plug-in tech to one of their mainstream vehicles.

10-30-2018 **No Longer Quiet.** The quiet of GM has changed to sending mixed messages. That sounds familiar. We are back to the uncertainty stage, yet again. It makes sense, knowing the timing of the tax-credit phaseout and how poorly plug-in sales have been. The downturn of the stockprice and market pressure from the new tariffs having a negative effect is really making a mess of things. What should investors expect? For that matter, what should customers expect? Both of those questions raises uncertainty for dealers. What will they sell? I took offense for today's play, grabbing the ball and running like hell with it. I don't think the antagonists saw this coming: GM did not target its own consumers; instead, they offered vehicles appealing to enthusiasts. That is the very definition of niche. Mainstream buyers should have been targeted. They were not. Technology developed for the purpose of widespread deployment was never widespread deployed. The origin of Volt was the Two-Mode hybrid, which we saw a prototype of with a plug way back in 2009. Yet, all these years later, there is still no SUV with a plug available from GM. Attempts to change the topic or make up info about the messenger won't change any of that.

10-30-2018 **Turning Point.** The antagonists didn't see it coming. I took them by complete surprise. This (along with an attempt to personally slander, of course) was all they could stir up: *"At least GM is taking a stance."* I found that particularly informative. But even better was what followed, a link to a video stating the predicament GM is now in. I took advantage of that for my secondary reply:

Listen to that video? The summary reveals the true story: *"In other words, a ZEV mandate would benefit a company if they already have the technology ready to go."*

Toyota does. They have already been producing motors & controllers that are affordably competitive with their own traditional offerings. That's because they invested heavily into driving costs down and efficiency up through their hybrid sales, which brings up the second point: *"If GM is going all in with electric in the future and already has vehicles in the pipeline, a zero-emission mandate could help fund development of those models as well as secure sales."*

It's GM being subtle about asking for more government assistance. That makes sense too, since also investing in improvements to traditional vehicles to meet the current MPG mandate would be very expensive... a problem Toyota does not have... since Camry hybrid already delivers 52 MPG and the upcoming next-gen RAV4 hybrid is expected to deliver similar efficiency.

That *"too little, too slowly"* concern has been validated. GM didn't use their tax-credits wisely. Their *"stance"* is really a request for help. And don't you dare attempt to spin this about me, because I'll just point out how many who use to frequently post here have traded in their Volt for a Model 3.

Like it or not, a turning point has been reached. It's time to move beyond niche offerings. The fleet itself must finally be addressed. GM must provide something for GM customers.

10-30-2018 **L, LE, and XLE.** Most of the time, what Toyota does goes unnoticed. Why should it anyway? Toyota focuses on its own customers. When something about them is brought up in automotive discussions, it is almost entirely negative. That's because enthusiasts just plain don't care about mainstream offerings, but find Toyota an excellent *"What about?"* to distract from their own problems. In this case though, even this slipped by quietly. That's probably because nothing good could come from pointing out that Prius is very much a mainstream offering now. Being available in the United States since for over 18 years now and being available in a wide variety of models, as well as having diversified the technology as rollouts in other popular vehicles, there's a solid history of not being a niche. After millions of sales, it is the new normal... especially as we approach the final year of the second decade of the 21st Century. Guzzlers just plain don't make any sense anymore. That's why the announcement last week of Prius package naming is such a fundamental move. Rather than the numbers, Prius now gets identifiers instead... just like the other Toyota vehicles. In this case, it is L, LE, and XLE for the 2019 model year.

10-30-2018 **Fallout.** I really hadn't expected such a negative turn for GM. I figured their would be the usual denial & defense, but the tone has become that of fallout rather than an attitude of resistance. The problem of delivering a product that focused on want rather than need has consequences. Like that analogy I used long ago, the homework GM turned in wasn't what the teacher assigned. So, regardless of how good the effort was, it completely missed the point. It's like buying magic beans. Ugh. Anywho, there are plenty of discussion threads popping up all over to focus on the disaster taking place. It's like the death of diesel. A realization of what just happened takes a bit to absurd. You need to accept the fact that there was a complacency so extreme, priorities were neglected on a scale so large there's no way to recover other than just starting over. That means, watch for announcements with an entirely new approach. The current efforts clearly failed. In the meantime, consider what I posted: GM will struggle with the Osborne effect because they have nothing to bridge the gap. That extreme product-line difference could have avoided by rolling out a modest version of Voltec long ago, back when enthusiasts were begging for a next step to be taken. Instead, we have watched innovator's dilemma ploy with Volt, leading to an abrupt approach change leading to Bolt. Just imagine if an affordable model of Volt or an Equinox with that technology had been rolled out years ago. So what if the range would have been less? That would have attracted new interest and explored new possibilities for electrifying the fleet without requiring a massive step all at once. GM brought this struggle on themselves. The reluctance to do anything to make a mainstream offering from the effort with Volt is a clear drop of the ball. GM knew when tax-credit phaseout would be triggered. GM knew the timing of Tesla's push for Model 3. GM knew legacy automakers would be also pursuing plug offerings. They will indeed end up undermining their own ICE sales. We all saw it coming.

10-31-2018 **Sales Expectations.** It's rather odd that so late in Volt sales (midcycle of second generation) to hear people focusing on conquest sales. How does taking away sales from other automakers actually help change the wants of GM customers? It's a blatant distraction that should have been addressed long ago. 8 years after rollout began is far too late. The expectation of status quo shakeup should be of great importance; instead, it's a landscape of complacency. There's nothing on the outlook for mainstream penetration. There's no push anymore. For that matter, there are almost no enthusiasts anymore either. It's just a blah crawl of uncertainty. If anyone ever doubted the concern of *"too little, too slowly"* as not being genuine and not having very real consequences, all they have to do is study what happened with Volt. The hype of a decade ago fizzled to a movement that lost its way... or as I put it, never had an audience. It's sad that they chose to hope for the best, rather than make a serious effort to understand change. They still don't get it either. I continue to provide reminders: Why would any legacy automaker focus on conquest sales? That certainly didn't work for GM. Their own customers haven't been interested in a compact hatchback. Toyota on the other hand, is targeting Prius owners and Toyota showroom shoppers, with Prime. The upcoming Corolla PHEV will obviously target Corolla shoppers. We could easily see the RAV4 hybrid offering a plug later too, targeting RAV4 shoppers.

11-01-2018 **Monthly Sales.** The complacency with regard to monthly sales is getting really bad. Tesla reports them on a quarterly basis. The hope was to get the industry to not obsess with minor fluctuations, to focus on the bigger picture instead. It didn't work. People found a means of getting monthly statistics to share anyway. GM is dealing with same problem. Enthusiasts live in the now and most don't show any interest the larger market. They only see the niche. So, my reminders about this current sales surge not necessarily being representative of what mainstream acceptance may be is falling on deaf ears. They don't care how much of an influence that \$7,500 is making. They don't care that these current buyers tend to have a large amount of disposal income available. They don't care about the potential for market saturation either. It's very much a hopeful bliss... with signs of reason to be concerned emerging. We've seen this before. Remember the fallout from Volt after the first few years? With a very hard push from Tesla to achieve an affordable offering, some of that could be avoided. But from a legacy automaker, like GM, what is the next step to prevent a big sales loss? Enthusiasts claiming leadership don't understand the consequences of slipping. Toyota is choosing the slower route with a tiered approach. VW is planning to go all out, but not until it is cost-effective. With the others, who knows? BMW and Hyundai aren't really growing much. Honda is a bit of a mystery. Ford is just gone. I'm obviously hoping for a midcycle bump. In the meantime, there's a looming phaseout that will likely contribute to monthly drops.

11-02-2018 **Sales Growth.** There's a new form of "*vastly superior*" emerging. Resentment from EV owners about having to share news about sales with PHEV offerings is becoming far too frequent... to the point of sending an unwelcome message. The moderators have not stepped in yet either. Recognize the pattern? Hopefully it doesn't get too bad. We'll see. That attitude of unwelcome is far from new. Only thing is, the shoe is on the other foot now. I'm enjoying the irony. For now, my response will be somewhat general: Isn't the point to get as many as possible to plug in? Focusing only on BEVs would be counter-productive. I traveled 2,674 miles with my last tank of gas. It took less than 8 gallons to refill because 89% of those miles were electric. That's a dramatic reduction of gas use from a small battery-pack in an affordable vehicle. Don't you want PHEVs to help contribute to the growth of charging infrastructure?

11-02-2018 Starting Threads. I don't actually do it often anymore. My role had become answer provider. But as Prime rollout progresses, there's reason to take a proactive stance. So, I am by starting a thread with this title: "*Electric Heating (winter driving with Prius Prime)*" It contained some basic info, along with some relevant videos from my collection, to stir discussion: I was fortunate enough to have my Prime prior to winter last year, so I was able to capture a few drives as the temperature dropped to share with those curious this year. The electric heating in Prime is provided by a vapor-injected heat-pump. That's the most efficient means of cabin warming currently available for electric-only driving. It operates in temperatures down to 14°F. In conditions colder, the engine joins in to help provide warmth. So, for most of the winter even here in Minnesota, I get to enjoy EV mode. Of course, when the engine does start, it eventually shuts back off to circulate hot coolant as you drive with only electricity. (Watch that data shown in the second and third videos, indicated by the 2 aftermarket gauges displayed on the right.) Here's a video of that electric-only operation at 16°F: [Ordinary Winter Commute](#). This is that same drive at a lower temperature, down to 7°F: [Heat-Pump with Engine](#). And here's one that even here in Minnesota, we fortunately don't have to deal with often: [One-Degree with Drive-Thru](#).

11-02-2018 Who Sells Prime. That was the title of a thread started today to stir discussion about distribution throughout the United States. Certain regions only got a teeny, tiny allocation... literally, just a few. Basically, they were only special orders. There was certainly no sense of inventory anywhere around here. My searches within 500 miles only reveal a few and that's all the more I have ever seen. That's why I'm thinking Toyota has plans to step up their offering... soon'ish. I put it this way: My hope is there's a midcycle update for Prime to coincide with the one for Prius... which I believe will be revealed at the LA show late this month. Then again, we may need to wait until early January at the Detroit show. Not stocking dealers with old inventory is both a wise financial/relationship move as well as good for understanding the tech itself. We have all had to deal with people referring to outdated specs & reviews. There's no need to make that situation worse when you know there's an update on the way. Remember those issues related to the previous upgrade? Speaking of upgrades, how many of you remember the "*generation*" Prius that came before the first that was rolled out here? What we got was actually a midcycle update. Toyota upgraded the battery-pack, switching from D-cell packaging to prismatic. For that matter, Prime itself was a midcycle update too. Knowing all that history and seeing the inventory situation now, it is quite reasonable to expect something like a change to Prime's battery packaging at some point in the near future.

- 11-02-2018** **Intentional Misleading.** Ford is up to their advertising tricks again. This time, it was Fusion being compared to Camry. What got me worked up was the reference to auto start/stop. For the "*not available*" to be believable, you have to ignore the hybrid offerings... from both automakers! It was bizarre to have no mention whatsoever about them, especially with direct reference to fuel economy. The other emphasis was on the self-park feature, the same thing I have in my Prime is what Ford also offers. The catch was, it was portrayed as a feature of great importance. In other words, that was a rather blatant effort to divert attention from Toyota's standard safety sense package. Those features are priceless for manual parking, what you are far more likely to do than with the automatic option only available for perpendicular & parallel parking. For example, when I pull into or back out of an ordinary angled parking spot, those sensors are priceless and have nothing to do with hands free driving. Needless to say, it was a great example of cherry-picking, where only select information was shared to create a false narrative... what we used to term as intentional misleading.
- 11-02-2018** **Desperation.** You know a tipping point has been reached when the excuses wildly fluctuate. The sign to watch for is when there is no longer a consistent message. Watch for something to come up out of nowhere. For example: "*Prius+Prime sales fell year-on-year again in the USA in October 2018. 5,773 down from 6,158 a year ago.*" No one has been using that metric to measure progress, because the message was never that of going groom hybrid to plug-in hybrid. Think about who would even consider that. It certainly wasn't GM enthusiasts, since GM basically skipped hybrids entirely. From EV supporters, we have seen only EV penetration in contrast to mainstream sales. This is mostly due to the fact that none of the automakers other than Toyota had an established hybrid customer base. And of course, we have a major non-legacy automaker (Tesla) serving as a source for confusion. Needless to say, I punched back at that desperate effort to greenwash: That year-on-year difference is only 1.7% (385 units), which is very much within the flat realm. As for 24 consecutive months, that's quite a stretch. Most deliveries for even the earliest orders didn't begin until 20 months ago... which meant unsold deliveries for immediate purchase took an additional 6 months beyond that. That perspective also requires putting on the blinders to ignore the rest of the worldwide rollout. Toyota rolled out to a wide variety of markets all at once, a move most automakers avoid... especially with new tech. Despite that, they were also to produce & sell over 51,000 the first year. Manufacturing that dual-wave glass and the carbon-fiber hatch isn't exactly a well established process yet. Lastly, I took the time to check the math and your numbers are very misleading. (Prime: Nov 17 to Oct 18 = 26,778) (Prime: Nov 16 to Oct 17 = 19,483) That's a significant growth rate, so significant you don't even have to use a calculator. That "*fell*" claim has been revealed as greenwash if you choose to cherry-pick a specific mix of plug & no-plug. RAV4 hybrid sales represent a growing market too, especially with the next-gen rollout happening in a few months.

11-02-2018 **Fight What?** That narrative of change only coming in the form of a full endorsement of a long-range EV continues to be a problem. This stems from GM's desperation to remain relevant. Both generations of Volt failed to draw mainstream sales. Heck, even growth with the generous tax-credit never happened. Nothing GM did resulted in a draw of attention from non-enthusiasts. Ordinary consumers just plain were not interested. That's why Prius was always flagged as the ultimate competitor. That idea was finally abandoned and focus shifted to Tesla instead. That audience cheering for GM saw that as a more realistic challenge than taking on a very successful legacy automaker. It is how Bolt came about. That failed too. So, attention is shifting back to Toyota again: *"...but Toyota continues to fight the transition to EV's with everything they got, too bad."* That message of resistance will likely backfire... since Toyota works hard to de-emphasize their technology advancements. They want their choices to seem as mainstream as possible. That's why the Camry & RAV4 hybrids basically go unnoticed. Making it seem as though you are taking a smaller step (think *"less risk"*) with a plug-in hybrid is exactly what is wanted. A perspective of *"no fear"* is great for sales. The key is making that choice affordable. (Discovering the remarkable efficiency and amazingly smooth & quiet drive experience can come later.) I responded to that nonsense effort to spread a misleading message: Toyota's emphasis on AFFORDABILITY doesn't count as a fight? Base MSRP for the 2018 model was \$27,100. They have no dependency on tax-credit help and it is technology easily adaptable for other hybrids. Think about how easily a RAV4 hybrid could be upgraded to include a plug. Toyota's effort to reach mainstream consumers shouldn't be dismissed solely on the supposed small size of the battery, especially with so many owners going months between fill ups.

11-03-2018

Spreading Fear. That has been a common technic used by politicians for as long as governments and ruling parties have been around. In the automotive industry, you'll often see "*FUD*" as the term to identify that activity. It is short for "F"ear "U"ncertainty and "D"oubt. I remember that from way back in the early 80's, when the primary way achieve improved efficiency was to reduce the weight of the vehicle... which meant making it smaller... which equated to a sacrifice of safety... back then. That was proven not to be the case, by a substantial margin, 20 years later when we found out SUVs were quite a bit more dangerous than an everyday sedan. In other words, fear helped to sell vehicles. People respond to instinct rather than actually researching. That's why safety ratings are still referred to "*crash tests*" without any mention of "*accident avoidance*". It's a sad reality. Worse though is they are now attempting the same with efficiency standards, but the government is now promoting fear rather than the automakers. The proposed SAFE program "*Safer Affordable Fuel Efficient*" vehicles rule for 2021-2026 cars & trucks. This is what was stated in the official overview released for it: "*The proposed SAFE Vehicles Rule seeks to ensure that government action on these standards is appropriate, reasonable, consistent with law, consistent with current and foreseeable future economic realities, and supported by a transparent assessment of current facts and data.*" Notice the insertion of fear? That not-so-subtle title says it all. If you take the time to actually read some of the information, it's a clear effort to stir uncertainty & doubt. Heck, just the "*appropriate*" and "*reasonable*" mentions provide an indication of intent. This is just like the FREEDOM program years ago. The government halts an existing effort to reassess worth. That worked too. They abruptly dropped PNGV funding with that excuse... and those of us supporting it had little power to do anything to intervene. It just died. This is no different. Who even remembers what the detail was for the 2025 mandate? Of course, this is where the uncertainty aspect comes into play. The administration released numbers that don't actually make sense. There's a bunch of number spin, where the outcome is totally misrepresented of the facts presented. Sadly, that's easy to do. Making it even more confusing is just a matter of adding some unsubstantiated assumptions and some vague estimates. That makes you doubt information shared in the past. It all comes down to finding an excuse to continue to sell guzzlers. In this case, the effort is to allow "*overcompliance*" credits. It's when an automaker pushes fleet emissions, focusing on improvement of only certain vehicles rather than actually trying to address the status quo. In short, this is a fight to resist change. We usually call this moving the goal-posts. By questioning, freezing, or rolling back standards, you effectively undermine progress... preventing a cleaner environment without dependency on non-renewable fuels. Ugh.

11-03-2018 **Holding a Grudge.** It has been interesting to read posts from a gen-1 Prius PHV owner who was upset about the battery-pack fit. For the past 2 years, he has done nothing but complain. The short-sightedness of his actions and absolute refusal to look at the big picture has been very annoying to quite a number of people. Lately, that has changed. Now, he seems angry about everything. There's no pleasing him on any topic. It has been an transformation I didn't expect. The resentment spans all topics now. This was the most surprising: *"our son is looking at an equinox (iirc) with diesel and start/stop tech, nearly doubles the mpg over gas"* Many of his posts are so vague, it's not even worth replying anymore. In fact, he has switched to replies without quotes, just a post in the thread with an implied target. That avoidance of detail is a dead giveaway of petulance. I wasn't going to let that go. So, I hit back with: Double of 28 MPG (combined for 2018 Chevrolet Equinox FWD 1.5 L, 4 cyl, Automatic 6-spd, Turbo, Regular Gasoline) is not the 32 MPG (2018 Chevrolet Equinox FWD 1.6 L, 4 cyl, Automatic 6-spd, Turbo, Diesel) rating no matter how you consider it, nor are the city or highway ratings. The outgoing RAV4 hybrids (to be replaced with a next-gen upgrade in a few months) delivers a 32 MPG rating and it is AWD. There's an expectation for it to get a significant efficiency bump, much like what we just witnessed for Camry hybrid. So, it makes no sense whatsoever to consider diesel (which is a more expensive fuel) as an efficiency choice. We know that turbulence in the oil market is about to get worse, causing gas prices to drop. That positions Toyota well to phaseout their top model of RAV4 as a traditional guzzler, replacing their high-end offering as a hybrid only. It's an important step forward that should not be overlooked... though, it will be. Toyota tends to make significant moves as subtle as possible. Think about how effectively that sets the stage for a plug-in hybrid model of RAV4.

11-03-2018 **Getting Caught.** A really, really well known antagonist who fought on GM's behalf for years only to abandon them entirely for Tesla, spoke out today. I was intrigued. What could he post that wasn't hypocritical? After an entire decade of praising GM for the Volt's solution to *"range anxiety"* then abruptly switching to a Model 3, my interest was peaked. That change from plug-in hybrid to EV and at the same time leaving behind a legacy automaker for a well investor-funded startup is something he himself would have attacked. But then again, he was known to lie. Being blatantly dishonest is what captured my attention. What kind of a person simply says whatever makes them feel better. Oh wait... you know. Anywho, he said this: *"I'd like to see this vehicle in the US, w/some cleaner styling, longer range, and 75kW DCFC."* It was about the upcoming plug-in hybrid GM is planning to rollout to the market in China. It is a size-category one model larger than Volt. So, we know it will require more electric power simply to maintain the same level of performance he sung praise for over the years and used to insult Prius with. I especially remember how arrogant he was about Prime. The obsession with power was overwhelming. So, this quote from the article he commented about had me quite intrigued: *"According to several Chinese news agencies, the maximum output of the motor is 85 kW."* That is only 114 horsepower, well under the 149 horsepower Volt delivers. That would put it roughly in the same power-category as Prime. I had caught him being hypocritical. How would he respond? Turns out, he pretended his focus was entirely on charging speed. Everyone reading that post can see otherwise. Figuring that would be the outcome, my comment was as follows: Here? In the land of vehicles where higher horsepower was claimed to be essential? Remember all those arguments? 85 kW from a vehicle larger & heavier than the 68 kW from Prime puts many in a contradictory position.

11-04-2018 Speculation. I took advantage of that sales discussion, after having stirred this reply: "*I would hope your speculation will come true. I think Prime is under appreciated car in public just as Prius Plug-in was.*" It's the story I have been waiting an entire decade to share, knowing GM would screw up the opportunity. How did I know? Simple, they were repeating the very same mistakes that had been made with Two-Mode. I recognized the pattern... and got attacked by enthusiasts whenever I pointed out the familiar course GM was taking. Ugh. Oh well, it's finally about to come to an end:

It is more like observation, rather than speculation. We witnessed a very similar inventory approach back with the Classic model. Toyota doesn't play their hand until the time is right. They wait for the market and study in limited areas in the meantime... even when it makes some supporters crazy with bewilderment.

In this case, it is to avoid the GM disaster. Getting caught up in their fallout wake would be bad for everyone. GM squandered tax-credits by obsessing with conquest sales. Focus on speed & power blinded them from the importance of actually bringing about change for their own customers. When things got so bad for GM with their "*range anxiety*" solution, they ended up making an abrupt strategy change. They abandoned Volt to create & promote Bolt.

Now as April 2019 approaches, that \$7,500 federal assistance they have depended upon heavily, will then drop to \$3,750 for the following 6 months. Following that, it will drop to \$1,875 for 6 months, then phaseout will be complete. That's really bad news for an automaker struggling just to retain attention. Sales have been far below expectations. The purpose of those tax-credits was to establish a high-volume profitable vehicle *PRIOR* to triggering the phaseout stage.

Remember, phaseout begins when an automaker exceeds 200,000 sales. At that point, there is no quantity limit. The automaker can exploit the opportunity by producing as many vehicles as possible... exactly what we are witnessing right this very moment with Tesla. It's an opportunity GM will miss, despite knowing years ahead of time that this very situation would happen.

Toyota will be ramping up as GM struggles to remain relevant, not having to deal with confusing comparisons to Volt from having waited. It simply didn't make any sense to make a major move any sooner, especially with the success of Tesla doing such a remarkable job of promoting plug-in vehicles. In the meantime, Toyota continued to refine their design to make it cost-competitive with traditional vehicles.

- 11-04-2018 Contining Attacks.** Just like with the other stages of fallout, there are a few who lash out with final words before fading away into defeat. Today, that came from a well known Toyota antagonist. I was assumed by his short-sightedness and feel quite vindicated for not having been pulled into such self-deprecating behavior: GM exploited tax-credits for conquest sales. They didn't focus on delivering something for their own customers. Like you, they focused entirely on "*out there now*" and didn't consider the consequences of not focusing on profitable high-volume sales instead. Quite the opposite of that is Toyota, who has focused intensely on designing a system to appeal to their own shoppers on their own showroom floors. Someone with an interest in Prius will be drawn to Prime. It's an affordable solution, without dependency on tax-credits. This is why the next-gen RAV4 hybrid is so important. It's path to a plug is a simple one, something those with interest in RAV4 will take into serious consideration. This is the same reason why Toyota is rolling out a plug-in model of Corolla hybrid in other markets next year. You aren't a Toyota shopper. So, what you think doesn't matter anyway. Know your audience.
- 11-04-2018 Fallout, narrative.** Things are picking up. Obvious pressure is growing. That means the narrative being pushed is no surprise. There is fallout from GM, what we have long waited for... so others can finally fill the void promised to be addressed by Volt but never happened. It was a monumental barrier that couldn't be overcome. How do you fight an idea? Delivery of promises fell apart. GM came up short of the price-point targeted all those years ago. Too expensive meant little to no interest from mainstream consumers. And sure enough, sales reflected that. Even with the generous \$7,500 tax-credit, there simply wasn't a market for a vehicle with such high cost. The choice to emphasize power & range was too much of an affordability sacrifice... and now we have overwhelming proof. Their nightmare has become a reality. Enthusiasts (the few who still remain) have fallout to deal with now, hence the spinning of stories now. The thread on that old daily blog struggling for an audience remains the home for them. So, I joined into the so-called discussion there with: That's a narrative being spread to avoid facing the reality of EVs not being cost-effective enough to compete directly with traditional vehicles. Turning a blind-eye to the mainstream market is why what you think doesn't matter. As for most everyone else here, they are early-adopters. Know your audience. Toyota is striving to deliver affordable choices that will actually be embraced by their dealers to stock & sell. How effective has that been for the other legacy automakers?

11-04-2018 **Fallout, treatment.** I could get a sense of unease immediately. The harsh treatment I routinely got in the past was about to return. So, I pre-emptively made the initiative. Why not? After all, nothing they tried in the past (and they would quite thorough) actually worked. It was attack after attack with every excuse imaginable attempted. They had nothing to lose back then. Right away, there were problems with Volt. In fact, that very first month the most prominent of supporters abruptly went quiet. Rollout revealed issues. The idea of promoting turned into damage-control almost immediately. A few things I had warned about had already been confirmed. They were not happy. Shooting the messenger was one of the few things that brought joy. I never let up though. It was always a matter of waiting until tax-credits expired. That artificial layer of protection was false hope... and now they know it. So, my hope now is to... ironically... provide damage-control. It's the very guidance they resented back then too, just sharing of important market information. Too stubborn to listen 8 years ago means a bitter pill to swallow at this point. Fortunately, it isn't too late. It's just a matter of not letting pride get in the way. Enthusiasts used their talent to create a very appealing niche. Oops! That's exactly what you don't want when the goal is to appeal to the masses. Oh well. Lesson learned, which I pointed out in this manner: GM's treatment of Volt says it all. Rather than forming it into a product their own customers would be drawn to, it was a game of conquest. The tax-credits were exploited to please enthusiasts. Now as the tax-credit phaseout rapidly approaches, GM has nothing appealing or cost-effective to sell. You know GM showroom shoppers. They are looking for SUV choices. That's why GM added Trax and Blazer to the product-line. But neither of which offers a plug or even just a hybrid model. They are all still guzzlers, despite having used almost 200,000 tax-credits to change that.

11-04-2018 **Fallout, status.** When you bring up GM fallout, there will naturally be a status for Toyota posted. No matter how hard you work to keep on topic, they always revert to basic diversion. A blog devoted to Volt naturally means you discuss everything except matters of GM. Ugh. It's so desperate of an effort to keep change from finally happening. Why do they fight the inevitable so much? It's just a stage, not an end. So what? Volt failed. It's not like another plug-in hybrid can't be offered. But to make themselves feel better, they have to insult & belittle others. The very idea of joining the team as an equal player is still shunned. That "*vastly superior*" attitude had stirred so much false hope, that's no surprise. Oh well, it's their loss not to be part of what happens next. It's not like they weren't informed about how to address change: As for that claim of missing the boat, there's no substance to such a statement. We are still very much in the early-adopter stage, which is clearly defined as the time when sales are not directly subsidized. Mainstream sales don't include tax-credits. They are just ordinary transactions from dealer to vehicle owner, purchased at a nearby location without any government incentive. None of the EV sales here have been in that manner yet. So, there's no merit to "*ahead*" or "*behind*" assessments of status. That stage... which represents actual change to the status quo... has not begun.

11-04-2018 **Fallout, shopper.** That didn't go over well. Effort to actually discuss GM on a website dedicated to GM is going to far, asking too much, expecting a miracle. Ugh. It's all about forcing a narrative about Toyota being so far behind, they'll never survive. That gives the impression GM isn't in trouble, that the end of tax-credits doesn't mean dramatic change. Oh well. The clock cannot be stopped. It will happen. We know when. Of course, knowing if enthusiasts will ever considering become supporters is an entirely different matter. No one has any idea what the response will be to this stage coming to a very predictable end. It's an odd situation, which should be this way. Purpose was obvious. Acceptance was far from inevitable though. Virtually all enthusiasts fade away prior to such conclusion. The void left behind is quite interesting as a result. In this case, I'm especially intrigued. Many of the original antagonist issues simply won't emerge with an entirely new audience. Much of the technology has changed since then. I summed up my long-term observations by pointing out the shopper's perspective: See where this is going? That "*GM must provide something for GM customers*" means people shopping at GM dealers are hoping to find something available that finally uses technology from Volt but doesn't require having to purchase a compact hatchback. They are loyal GM customers looking for a GM vehicle. When should we expect a plug-in hybrid Chevy Trax? You know a GM shopper will ask that question.

11-05-2018 **Fallout, replacement.** It continued... Buick Velite 6 will very likely become the Volt replacement, GM's move to finally take a first step toward actual change to the status quo. It will be configured the way many enthusiasts feared... a larger vehicle with a system that offers less power and less range. Heck, even the name itself suggests that "V"olt and "e"Assist and "lite" is a successor of GM's previous technology... which includes analogous naming. GM offering a vehicle for their own customers is long overdue. Tax-Credits were squandered for the sake of automaker conquest rather than GM addressing its product-line. Having that money to stir interest would have been quite helpful; instead, this new plug-in hybrid offering will have to compete based upon MSRP value. So much opportunity was missed, but at least GM is finally taking a step in the right direction. Their choice of the past to listen to enthusiasts here, who clearly led them astray, equated to a terrible amount of time wasted. Oh well. The experience gained from now rolling out in China first will help guide a sensible decision in the United States.

- 11-05-2018** **Fallout, apologists.** There's a defend-at-all-cost mentality to that happens prior to coming to the realization of being corner. It hasn't sunk in yet. The nature & magnitude of change to come is difficult for some to see. They get so hung up with their perspective, the impact to others is totally unknown. Something doesn't go right, they respond in a manner that everyone else sees as apologetic. Excuses seem realistic to the enthusiast, since they don't see the pattern. That's what happens when you only consider a narrow scope of time & audience. Looking at the bigger picture simply never happens. That's why much of what's posted really doesn't matter to them. They never see what really took place. Oh well. Hopefully, the lurkers do: GM must provide something for GM customers, who couldn't care less about rhetoric online. Those customers just want to purchase a passenger vehicle from GM that's cleaner and more efficient... Malibu, Trax, Cruze, Equinox, Impala, Blazer, Traverse, Tahoe... yet there aren't any. 2 plug-in vehicles that are small & expensive and won't be profitable until 2021 should be reason for serious concern. GM wasted tax-credit opportunity. Calling others who did not laggards (especially when they already offer a wide variety of impressive hybrids) is what an apologist would do.
- 11-06-2018** **Fallout, perspective.** That understanding of what went wrong can be so obvious years later, looking back. But when in the middle of it, perspective is often totally unknown. Responses are to the here & now, not to what overall goals are and why certain decisions are actually made. That's the reason market reaction is usually misunderstood. You have to know what to look for in the first place. This is why I stress purpose so routinely. What are they trying to accomplish. This is how races are lost. That story of "*Tortoise and the Hare*" provides a great analogy. Yet, even when pointing out the behavior pattern, it is still denied & dismissed. Like I keep saying, oh well. They'll eventually figure out the mistakes being made. It will be too late, but at least it's an end to the crazy competition we have been in. I keep trying to point out the situation though, prior to it drawing to what is now being an inevitable defeat: That would be a more accurate description of the situation playing out now. Being "*ahead*" at the moment is by no means a guarantee an automaker will win the race. This is where the often overlooked or dismissed detail of design cost & efficiency will really make a difference.
- 11-07-2018** **Fallout, redefine.** The world of the enthusiast is about to change. They won't provide the redefine as in the past... when things went wrong. Being able to just move the goal-posts only works for so long. You eventually back yourself into a corner. That time is near. They've exhausted absolutely every excuse for lack of progress. Not understand goals or even who is involved is why. It's basic avoidance. It will fail at some point; then, you're stuck having to deal with fallout. Soon. It will happen. In the meantime, words of warning: On a GM blog doing everything possible to avoid discussion about GM... Enjoy that while you can. Triggering tax-credit phaseout will bring about an abrupt end to the early-adopter bliss far too many enthusiasts didn't take seriously. Buick Velite 6 will very likely become the Volt replacement. Like it or not, that will redefine the "*range anxiety*" approach for GM.

- 11-07-2018** **Fallout, next.** It's pretty bad when you have to spell out the situation. After so many years of evade & deny, a few hope someone is willing to support the possibility of a miracle. That's why vague becomes so common. Detail isn't optimistic. It points out the cold, hard reality of having to accept defeat and move on. I'm happy to provide some: 196,986 sales so far. Time to take the situation seriously. 3,014 before year-end will happen. The point is to find out what comes next, from both GM itself and what's left of the enthusiasts. New vehicle. New approach. New audience.
- 11-08-2018** **Fallout, failure.** The end of tax-credits for GM clearly identifies a deadline having been reached. That expectation of high-volume profitable sales was not achieved. Volt failed to fulfill the goal of sustainability prior to phaseout being triggered. It's good reason for enthusiast disenchantment, which explains the irrational attempts to seek blame and divert attention elsewhere. The time to recognize market need over want is long overdue. GM's choice to sacrifice cost in favor of range & power was a tradeoff that did not work. Mainstream shoppers were not interested. GM will now focus efforts toward seeking a balance, reducing range & power goals for the sake of delivering a more affordable choice. We see in China there will be a plug-in hybrid offered by GM using a larger platform, providing a more comfortable interior to improve upon design shortcomings of Volt. We have confirmation that the power output will be much lower than Volt despite the heavier weight, delivering 85 kW (114 horsepower) rather than the 111 kW (149 horsepower). No mention of potential range has been disclosed, but priority for a larger space inside and a lower cost implies it will be less than Volt. In other words, this is the vehicle many had hoped GM would deliver years ago, but a group of enthusiasts fought fiercely against based on irrational fear that a "*diluted*" design would result in weaker demand. Since the stronger design failed to achieve needed sales, this is the next logical step. Put another way: Get over it.
- 11-08-2018** **AWD Teaser.** The timing is remarkable. Right as we are witnessing these final moments of fallout, the stir of hope has already begun. Toyota released a teaser photo today, complete with a rhyme to get people thinking: "*Fall is here, winter's near, but the 2019 Prius performs on roads whether snowy or clear.*" In that image, we can only see a little bit of the car itself. Most is obscured by a cloud of snow. So, there's no possible way to even get a hint of what the new tail-lights look like for the mid-cycle update. All we get the impression of is that AWD (All-Wheel-Drive) model of Prius that has only been available in the domestic market will soon be available elsewhere. That supports the rumor I had heard... and it makes sense, knowing Subaru is about to employ some of that tech from Toyota anyway. It's the next logical step to take for market acceptance... and great timing to do it. Within the next 2 weeks, we'll hear more about the new RAV4 hybrid. The week following that, new Prius stuff. Sweet!

- 11-08-2018** **New Audiences.** Ending of the early-adopter stage will bring about newbies, those who have no clue what happened in the past. You have to take the time to explain market operation & perception; otherwise, assumptions get out of hand. That's how mistakes are repeated. Learning about history is vital. Be a source willing to share your experience & observations. I do all the time, as I did today: MAINSTREAM has been defined for the past 15 years here as any vehicle selling at a minimum rate of 5,000 per month (average 60,000 annual) without outside assistance. The reasoning was simple, that level of sustainable sales was a benchmark for profitability. This rate from the automaker was necessary for suppliers & dealers to guarantee the on-going business without losses. The fact that EV and PHEV sales still have that tax-credit assistance for sales disqualifies them from the measure of mainstream. That's not a bad thing either. We are still in the early-adopter stage. It doesn't make sense to rush drawing any conclusions yet. Think about how different ordinary showroom shoppers are then our group here, which is very well informed and willing to spend extra for the sake of helping along the electrification effort. Wait to see what happens when the extra \$7,500 is no longer available. Put another way, the current sales are low hanging fruit. Attracting interest will be much more of a challenge when appealing to the wider audience, that group who is just looking to replace their old vehicle.
- 11-09-2018** **False Narrative.** The "fallout" thread ran its course. Time to bring it to a close: Why would a person on a GM venue continue to bring up Toyota over and over again, accusing someone else of doing that, despite obvious evidence to the contrary? It's really an effort to solidify a false narrative. By pushing the belief that Toyota is scrambling to catch up, it gives the impression that all is fine with GM. In reality, this is a means of undermining GM's position by preventing discussion of it. Notice how any attempt to share detail about GM design is obscured by a certain Tesla Model 3 owner trying to divert focus to Toyota? This particular thread has served well to reveal that pattern. Detail about GM to help provide a look forward to a realistic next step is followed Toyota rhetoric, just empty spin to confuse & mislead. That is clear confirmation of big change to come from GM. This end of tax-credits will force the status quo to finally break. Certain people have a very difficult time accepting that... especially when it will lead to a paradigm-shift with respect to how plug-in hybrids are accepted.
- 11-10-2018** **Change Is Coming.** I kept at it, pushing that message of change and drawing attention to the effort to prevent it: Use every technique available to avoid discussion about the topic at hand. Scream "*Troll*" and "*Toyota*" to dismiss any opportunity to be constructive. Our president couldn't have done any better. Major change is coming for GM. The failure of Volt to achieve high-volume profitable sales is not just an issue of oil-dependency and emission-reduction. It's having to answer to stockholders. GM is a business. The expectation is for technology investments to deliver a substantial return. GM should have diversified Voltec a very long time ago. A compact hatchback is a terrible platform for GM customers. That technology should have been deployed to a small SUV, like Trax, years ago. So much opportunity was missed. Both time & tax-credits were wasted. Now, we see the other automakers approaching with their more affordable and more efficient designs. They still have ample tax-credits available to, able to use them for the intended purpose of mainstream penetration. Evade the inevitable as long as you can. That behavior is obvious & pointless though. Major change is coming.

11-10-2018 Recognizing Efficiency. Phew! There are constructive discussion threads elsewhere. Today, it was a boost to the hope of raising awareness about electricity waste. To think that I was fighting that 8 years ago, raising concern about Volt owners dismissing electricity consumption as important. That terrible propaganda of "*saving gas*" was all they cared about. I'm sure glad that attitude is getting recognized as inappropriate, and gladly contribute to the effort to draw attention to waste:

This discussion topic is loooooong overdue for plug-in vehicles. Real-World efficiency verses estimated values have been a major problem for hybrids over the past 2 decades, but few seemed to recognize that same impact would affect users of plug-supplied electricity too.

Slower driving and the need for cabin heat during the winter, combined with the usual losses related to cold batteries should have been an influence often mentioned. Instead, there has been barely a whisper, despite being such a major factor to consider when comparing various designs.

When it comes to speed & power, I've been laughed at for pointing out "*electricity guzzling*" as a concern. Only now some are starting to recognize the problem that creates when waiting for your pack to recharge. You need to do that more often and it takes longer when the system is less efficient.

Simply adding more capacity brings about problems. Look at how expensive that made Volt. Giving it enough to deliver that "*40 mile, all condition*" range goal made it unable to compete directly with traditional vehicles... rendering it a niche, rather than being the next logical step in electrification. That's why the other automakers are trying to squeeze out greater efficiency, as we've seen from efforts by Hyundai & Toyota. Note their kW/100mi ratings verses other automakers.

Kudos to those helping to spread the knowledge needed for a better understanding of how electricity is consumed by plug-in vehicles.

11-11-2018 Attitude Adjustment. Sometimes you need to remind early-adopters that they are really just enthusiasts, not by any means representative of ordinary consumers. They forget. They lose touch. They can't see that perspective anymore. It's like trying to remember what the world was like before the internet. That connectivity becomes so second-nature, you don't recognize what life was like without. That leads to complacency, like this: "*Meh. 25 miles of range is truly uninspiring.*" Naturally, I was annoyed... but jumped on the opportunity to reply: Spoken like a true enthusiast. Know your audience. Mainstream consumers have different priorities. They quite pleased with the mix of EV and 200 MPG averages. Don't forget the success of Toyota hybrids in the past: Prius, Camry, RAV4. Were any of them given "*inspired*" reviews? No. They were just solid contenders in their market segment, paving a clear path to greater electrification efforts... which builds up a strong purchasing base for next-gen offerings. The goal of a legacy automaker is not to please niche consumers. Their bread-and-butter sales come from "*ordinary*" vehicles sold in very high volume with very little effort.

11-11-2018 **Calling Out Lies.** Our society isn't good at that. We are taught to avoid confrontation. In fact, this is how the problem with enablers came about. Not taking a stand to calling out issues, like blatant dishonesty... to the point of outright lies, isn't something we do but should. Timid moderators make it especially difficult online. That's starting to change. Some of it comes from the encouragement stemming from the political arena, where news teams weren't willing to directly confront. I welcome the attitude shift. More playing offenses is in order. This morning, I punched back to a personal attack. After a fluffy of meritless rhetoric, I had it. That technique of flooding a thread with distraction shouldn't be allowed to continue, especially when its such an obvious effort to greenwash & undermine: *"A compact hatchback is a terrible platform" says the guy promoting a 4 seat compact hatchback.* That crossed the line, since it left out of the rest of the sentence to change meaning. I left everyone know it too: Quoting out of context is an act of deception, intentional spin to mislead. That omission of *"for GM customers"* was an obvious effort to greenwash... which becomes especially apparent with what followed. I have been promoting SUV rollout for plug-in hybrids... TRAX, EQUINOX, BLAZER ...those are all familiar model suggestions for GM as a next step to take.

11-11-2018 **Cross-Forum Attacks.** Angered by their own failure, some enthusiasts will follow you from forum to forum looking for an excuse to make themselves feel better. That's what this post was all about. I'm drawing attention to his actions without direct reply, providing as much exposition as possible to catch up this audience to happenings elsewhere. Not sure how effective it is, but the practice of summarizing is always helpful: Toyota's goal is affordability. GM failed to deliver on their own *"nicely under \$30,000"* target and certain enthusiasts now hold a grudge, feeling the need to lash out at other legacy automakers for having got burned. So, don't listen to the disenchanted. \$27,300 MSRP for the base Prius Prime is an amazing achievement. That 25-mile electric-only range delivers impressive results for those not ready to spend a premium to get an EV. We're still in the early-adopter stage. So, drawing conclusions is far too premature. Ordinary consumers (those shopping the dealer's showroom floor) have yet to even consider the purchase of a plug-in vehicle yet. It's just a *"someday"* idea still. Sticking to a capacity that can be served by nothing but a standard 120-volt outlet overnight allows the opportunity to reach a very wide audience right away... which is ideal for legacy automakers hoping to quickly reach a large number of customers. Whether you accept that approach or choose to listen to the disenchanted makes no difference. That is their intent, like it or not.

11-11-2018 **Performance.** I was pleased to encounter this: "*EV owners have been making the wrong argument this entire time.*" That's very much a "*know your audience*" situation. We hear from early-adopters with authority, claiming to be a voice of the people. In reality, they're just enthusiasts. You can't take someone seriously who took advantage of a \$7,500 tax-credit claiming it won't be necessary to make the same purchase decision. Yet, they imply that it doesn't matter all the time. The biggest greenwash though is that the automaker will suddenly drop price \$7,500 to make up the difference. How does that work on vehicles targeted to make profit 3 years from now. We certainly won't be seeing Volt as a high-volume offering from GM with such a large automaker subsidy. Even if they did use profit from Pickups and large SUVs to provide that, what difference would it make? Sales are low already. Where the \$7,500 comes from won't matter... unless it is a direct markdown. But then again, what incentive would there be for a dealer to carry them? In other words, there is so much a play with cost, the topic of performance doesn't draw more sales. We've seen that approach fail miserably with Volt. GM delivered performance. Their own dealers & loyal customers weren't interested. Mainstream shoppers were not impressed. How many times can you point out the same issue? I did, one more time: "*Fun to Drive*" is a very difficult sell for mainstream consumers, especially if there's a premium involved. They have different priorities, like size & horsepower, as opposed to impressive handling. It's a diminishing return problem anyway. The suspension & body-stiffness upgrades to Prius, combined with the added torque from the larger battery, make Prime more compelling. But how much would even more actually draw if the audience is primarily SUV shoppers? Think about who you are trying to convince. Ordinary consumers... like my mother... couldn't care less.

11-12-2018 **No Pickup Plug.** An executive from GM made a statement today that shook the online community: "*The core business is going to be the core business for a couple of decades to come. There will not be any AV/EV pickups.*" Hope had been that there were finally be some type of EV (Electric Vehicle) or AV (Autonomous Vehicle) announcement related to pickups. Instead, we got nothing. There won't be a plug-in hybrid or even an ordinary hybrid. Either choice is long overdue. Remember Two-Mode? That long-forgotten technology for GM's fleet of SUVs was a complete disaster. It was expensive and didn't deliver much improvement. Pretending it never existed is what enthusiasts and even supporters choose to do. Having already tried is knowledge to suppress. Any technology to improve emissions & efficiency is unacceptable... since that supposed means compromise. The stiff competition for high-profit pickup sales is something they don't want to mess with. So, they will pretend it isn't important. Ugh.

- 11-13-2018 China Mandate.** I don't recall detail from the article. My main takeaway was simply that a mandate of 10% will begin next year in China. That means an equivalent of sales from each automaker is required. It's not a one-for-one situation. Different levels of electrification will earn different point values. Adding up those credits is how they will all meet compliance requirements. This is where the expectation of Corolla PHEV will play a large roll into Toyota's contribution. The rumor of C-HR as an EV makes sense for this too. A full electric-only offering would earn more points than a plug-in hybrid. Imagine if we had something like that here? California has a less significant mandate, but once upon a time, there was a CARB mandate that strict. Much as changed since then. That's really unfortunate... but explains why I have been so persistent over the years. Changing the masses is very difficult, but the impact is far more significant than token gestures... even though the latter makes a bigger impression. Actual change to the status quo isn't exciting. That's why mandates come about. Sometimes, you need to push. Seeing a lot of show with very little impact isn't acceptable to the environment. Our air requires more than just trophies. It is a relief to see China taking the situation seriously. When will that actually happen here?
- 11-14-2018 Cadillac CT6 Plug-In.** The second venture by GM into a plug-in luxury offering has failed. Just like ELR, price was far too high to be any type of realistic choice. How does something that expensive compete? Turns out, it cannot. Go figure. This is one of those very controversial aspects of intent. Why would GM rollout something doomed from the start? They don't get grief from it either. People praise GM for the effort... even though it is obviously not a serious effort. Who did they expect to purchase one? To see how much ridicule Toyota gets is quite hypocritical when you consider how much they strive to make their choices affordably competitive. It's a serious problem when people don't bother to actually study the market. They just cherry-pick and make anecdotal observations. That disconnect with true business issues being addressed is disturbing. But then again, arguing with people online is at best a hollow victory anyway. What really makes a difference is sales, not comment debates.
- 11-14-2018 Subaru Crosstrek PHEV.** We are starting to get speculation. The stir came from a document file by CARB. It was the measure of pack performance for this upcoming new plug-in hybrid. Knowing its origin is from Toyota based upon Prius Prime, there's strong interest. Interpreting results is a bit of a challenge though. We really don't know what some of those raw numbers represent in terms of what consumers will be informed of. They are just measurement numbers from standardized tests. Nonetheless, that's something to discuss while waiting for announcements to come soon. The belief is battery-pack capacity will be the same, but that vehicle less efficient due to the added bulk. We'll find out soon. Supposedly, this offering from Subaru will be available before the end of this year.

11-15-2018 Triple Sighting. That was quite a surprise. I had my first triple sighting today. It was a Prime sandwich, side-by-side... Blue, Red, Blue. I wasn't expecting to encounter 2 other owners randomly on the road like that, here in a region where there have only been a handful offered at random dealers still. Production & Supply will pick up, especially if there are mid-cycle updates on the way (as the inventory and timing with the regular Prius updates strongly suggests). There was the obvious wait for tax-credit fallout too. It has been pretty lonely otherwise. We're still on the early side of history. It's like the Classic model all over again.

11-15-2018 Great Product. I have been watching the desperate efforts of an enthusiast performing damage-control for several weeks now. This is what all that came to: "*Make a great product and people will buy it.*" That's when you truly have nothing. It's so vague, it could mean anything. But since sales never took off, despite having tried hard for 8 years, the time to draw conclusions is upon us. I summarized, then did exactly that:

Volt was supposed to "*leapfrog*" Prius. That meant become a sales leader in the green movement. It never happened though. The status quo at GM is stronger than ever. 3 MILLION sales in the United States each year with less than 1% being Volt, despite 8 years, 2 generations, and a generous \$7,500 tax-credit. People did not buy it.

The automaker you constantly mock has been striving to change their status quo, offering hybrids for each of their traditional passenger vehicles. Their newest Camry hybrid is amazing. We'll be getting a next-gen RAV4 hybrid in a few months. The upcoming Corolla hybrid will be revealed in 2 weeks. There's an Avalon hybrid available too. A new Highlander hybrid is on the way as well, to be built in Texas. C-HR is already a hybrid in other markets; rumor is it will be the first EV offering.

Prius Prime was their first hybrid to offer a plug. With just a simple modification to the existing hybrid system (adding a one-way clutch), it was upgraded to a more powerful EV drive. Corolla hybrid will be getting that same upgrade next year. Crosstrek will be getting it this year, along with electric AWD.

That's how the market evolves. Sales from within must embrace those new offerings, so the traditional choices can be phased out. It means no dependency on tax-credits and a primary focus of getting loyal customers to stay with the same automaker. True leadership is getting ordinary consumers to change, not appealing to just early adopters.

We still await GM to actually deliver an upgrade for their own product-line, offering something... anything... green. Where's that long-awaited SUV with a plug?

11-16-2018 **Initial Thoughts.** The upcoming next-gen Corolla was revealed last night. Sometime this spring, it will be rolled out. In a separate, small announcement, there was a note about a hybrid model on the way. That's what really stood out. The lengthy detail about the vehicle itself didn't matter... since all of that will still apply anyway. It's the addition of a battery-pack that matters. The move forward with electrification is vital. Corolla has always been key. That's the turning point. If you can reach that particular audience, there's a wave of buyers that will help bring about the end of traditional vehicles. Cost is a major challenge. To reach these consumers, there cannot be a noticeable premium. The option needs to be minimal, like that of a package upgrade. More would make it unreachable. But no need to mention any of that with an initial thought. Here's what I posted: We already knew it was coming. The plan for years from Toyota has been to offer their entire passenger vehicle line with a hybrid option. The Corolla hybrid is already available in some other market and next year it will be offered as a PHEV model in China. The next-gen Camry hybrid is amazing and we can see the same thing on the way for the next-gen RAV4 hybrid. Of course, there's Prius Prime too. We've come to expect Toyota to be comprehensive, affordable, and reliable with its tech.

11-16-2018 **Emotional Stir.** The statement which followed was annoying to me: *"This is really annoying... how Toyota keeps making the phev's exclusive for China... if Toyota don't start selling them worldwide they will start having problems with sales. Their hybrid system is amazing, but they are falling behind in every other market except the Chinese one."* How does the word "keep" apply? There is nothing exclusive yet. And how does "falling behind" apply? Who is making further progress with mainstream penetration? It's greenwash spin coming from the uninformed. Much of that comes from the short-minded, those who limit the scope of what they measure. That's not how a giant worldwide automaker works. I do appreciate how multiple markets are now being taken into consideration, but timing and the product itself cannot be disregarded. This was my response: Don't believe the "falling behind" rhetoric. Having a market now that's heavily subsidized and poorly informed should be major clues that something doesn't add up. Reaching ordinary consumers... which Corolla shoppers represent well... is extremely difficult. They want a basic sedan. No compromising that a hatchback requires is acceptable. They are a very different audience. As for China getting the PHEV model first, that's our politics combined with Detroit fallout. Remember, we still don't have detail on what a mid-cycle update for Prime may bring.

11-16-2018 **Random Attack.** Whenever you see a post count of just one, be suspicious. I noticed the tags right away. Most newbies don't have a clue how to use them. Seeing so many and for several to contain key words to stir fear, this appeared very likely to be an attack: *"safety issue! my rear window defrosters don't melt snow, and in snow, window is completely covered the entire road trip and very dangerous."* It's always possible that we were dealing with a case of basic stupidity. It's easy enough to imagine someone not even bothering to actually wipe off snow from their window before driving. Sadly, I see that on a regular basis. But being so early in the season and having no idea where this supposed new owner is from, benefit of doubt is not appropriate. The message was clearly posted to invoke fear. That likely equates to an attack. Nonetheless, I didn't fight back. Instead, I chose my words carefully: The very first post from a new member exclaiming a message of danger is a big red flag. It fits the pattern of a troll, so understand why it is getting called out. As for the message itself, what is the basis of such a claim? Those of us who experienced winter last year (like my wife and I, each in our own Prime in Minnesota) didn't have any trouble. Accumulating snow melted just fine. Completely covered is a rather odd statement too. At a minimum, the humps in the glass will clear themselves off from air push. Where do you live? Not having a brush available will catch some in more mild states off guard.

11-16-2018 **More Attacks.** These didn't come from newbies; instead, they were formulated responses from the disenchanted. Every forum has some enthusiasts who had set unrealistic expectations, been let down as a result, then held a grudge for years. You usually end up putting them on ignore. All that negativity and refusal to consider a different perspective is quite a turn off. This time, it came about from them having the expectation of Toyota progressing faster. They actually want a token of leadership to flaunt, rather than the slow & steady advantage of the masses. It's the trophy-mentality coming from a different audience. They focus on a dislike and dismiss everything else. That too is annoying. I responded to both with any direct quote, just providing some information on that new thread about the upcoming next-gen Corolla: Claims of focus solely on CARB and FCEV is just short-mindedness. We've seen a lot of that lately coming from those in a state of panic about tax-credit phaseout. Focus on early-adopter sales blinded them from issues related to mass appeal. Drawing sales from mainstream shoppers is far more difficult than the low-hanging fruit celebrations happening up to this point. Look at the disaster from GM called Volt. It exploited tax-credits to stir a green reputation, but didn't actually change the status quo. GM didn't get their own customers to switch to a plug. They just kept buying SUVs and the variety of SUV choices were increased. The compact hatchback stayed a niche throughout the entire duration of government incentive. Think about annual sales. GM sells 3 MILLION each year in the United States. Toyota sells about 2.4 MILLION here. That puts the 200,000 tax-credit into perspective. You don't squander them by offering a niche vehicle sold as a token of change. You want to stir actual change. Appealing to early-adopters is much, much easier than getting a showroom shopper to take the purchase into serious consideration. That's where Toyota's approach comes in. When they introduce Corolla Hybrid & PHEV here, they want high-volume right from the start. It means working out kinks in the meantime. That's what the limited market rollouts are all about. Take advantage of CARB and China for the sake of refining the product & production. It's a sensible move... even if it irritates the short-minded.

11-16-2018 **More Spin.** I did actually find this of interest: "*As to the other part, yes, of course toyota is late to the plug-in party. They should have a dedicated phev out by now.*" It was from an antagonist, the sort of person who may actually provide some useful information... if you have the patience. I do, though there is reason to doubt anything constructive will result. I tried anyway: Late to a party for early-adopters? That's completely meaningless, having no impact in any manner for ordinary consumers. As for "*dedicated*", are you really that blind? Prius hatchback from designed from day 1 to deliver EV drive. Remember way back in 2003, when we closely examined what had been delivered? That ability to travel at 100 km/h (62.1 mph) isn't a coincidence. That was quite intentional... should a battery-tech ever become available later to exploit it. That never happened, since battery-density remained far too low and battery-cost far too high. In fact, that's why the next-gen rollout was so limited, due to those same battery constraints. Prime was the first model of Prius actually able to capitalize on that design. So what if a non-plug model filled in sales while we waited? Prius has no traditional counterpart anyway. In the meantime, we got the one-way clutch enhancement. That's a nice affordable upgrade opportunity Toyota was able to take advantage of. Spin of somehow Toyota missing the boat requires quite a bit of turning a blind-eye about mainstream market acceptance. That's what Corolla PHEV will be all about. Delivering technology in the most subdued way to draw interest from ordinary consumers.

11-16-2018 **Sedans.** This is becoming quite obvious: "*People are moving away from sedans.*" On the roads, it is undeniable. At dealers, the trend is noticeable. Coming from automakers, there's a ramping down of production taking place. That's the case for Camry by Toyota. We've known the RAV4 possessed strong potential to overtake. We've seen C-HR reach out into that territory. We've witnessed the larger & smaller models of Prius loss popularity. Change is happening. I added comments to the mix: A few key sedans will survive the test of time. Corolla is the world's most popular car ever. It seems reasonable that affordably priced with the battery-pack concealed entirely under the rear seat, it will continue to persist... allowing Toyota to phase out the traditional model and other sedans. Keep in mind how tiny the SUV choices are becoming. I parked next to a Mazda CX-3 the other day. It was shocking to see how similar in size it was to Prime. It had more headroom, but Prime had a longer storage area. The point is change isn't abrupt and it favors practical. We're seeing the mighty SUV shrink to more efficiency sizes. Plug-In choices won't be for everyone. In fact, we could be seeing an ethanol-based based hybrid someday.

- 11-17-2018 Mid-Cycle Updates.** Ford Fusion Energi will be getting one. It's battery-pack will be increased in capacity from 7.6 to 9.0 kWh. That equates to an estimated 5-mile range addition, bringing the overall now to 26 miles. It's exactly the type of incremental improvement supporters have come to expect. Though with Prius Prime already at the desired target for this stage in EV market penetration, I suspect Toyota will put more focus on packaging. Being able to squeeze the 8.8 kWh capacity better into the space available without trading off the robust cooling & warming design would stimulate new interest. Stuff like that is how you reach out to a wider audience, rather than just bumping up an existing spec. We all see how poorly that did for GM with gen-2 Volt. More range didn't result in more sales. In fact, sales went from flat to fall. Seeing a few inches more of vertical space in the cargo area would be an obvious plus for Prius Prime. Think about how little trunk space Fusion Energi has to offer. That's a rather tight area to squeeze so much battery into. But that's the choice Ford made. We'll see if it makes much, if any, difference for sales.
- 11-18-2018 Understanding Basics.** Offering a nice balance doesn't make sense to most enthusiasts. In fact, their selective perspective is why they aren't recognized as supporters. The product must be well-rounded to appeal to a wide audience. This is what I get in response to such observations: "*You are all over the map.*" Seeing the bigger picture confuses them with so many influencing factors. It's their shortcoming. They don't understand the basics necessary for high-volume sales. I put it this way today: That's called good business. You cannot just focus on a single discipline. All must be addressed for the product to be a success. Accounting & Marketing are just as important as Engineering. Without, the effort is doomed to fail. That's why audience is brought up on a regular basis. Not understanding balance is the mistake GM made, as did the enthusiasts. This is the reason Volt struggled to achieve sales growth. Areas of importance were neglected, which is why expanding beyond just a niche was never achieved. Studying economics as a whole, you'll recognize the value of that balance. This is something Toyota does exceptionally well.

11-18-2018 **Focus.** The obsession with spinning "*too little, too slowly*" concern for GM into a "*too little, too late*" assessment for Toyota is becoming absurd. It's denial on such an extreme level, it's difficult to recognize the lines of reality. Certain enthusiasts turned antagonists are pushing their own distorted narrative so hard, they have lost touch. Stuff like this keeps coming: "*Again, focus your energy on TLTL Toyota.*" It boggles my mind how dismissive of evidence a person can become. They just ignore what they don't like. All you can do is continue to provide information, so those reading the insanity taking place within that discussion can see what's truly happening. For example:

I except your invitation. And since you obsess with timing, that is what I will address.

The claim of "*too little, too late*" is spin on the "*too little, too slowly*" concern which came about from GM's bankruptcy recovery plan. That task-force assigned to oversee that financial obligation wanted to ensure the Volt program would actually deliver some type of economic benefit for the automaker. That very specifically meant delivering a product that was profitable & sustainable. In other words, high-volume sales must be achieved. It never happened though; consequently, greenwashing emerged to undermine that concern.

GM pushed ahead with their plans, using up tax-credits by attracting customers from other automakers. Those purchases are known as "*conquest*" sales. They can be very effective for stirring interest, but financial success requires those initial purchases to draw interest from loyal customers. That outcome never materialized. GM owners didn't replace their vehicles with gen-1 Volt. So, to appeal to the wider audience, GM developed and rolled out gen-2 Volt. Sales growth was still not achieved. 8 years and a bulk of the tax-credits available had been wasted.

Toyota was carefully studying GM's struggle to reach ordinary consumers. Appealing to a niche was clearly a failed effort. The mid-cycle upgrade to gen-3 Prius adding a plug was limited to only 15 states, then rollout was halted entirely. Toyota used that isolated market to collect real-world data for their first mass-market offering. 1.5 years after the halt, that rollout in the form of a new Prius which included next-gen upgrades was the first choice for mainstream shoppers. This was an excellent means of avoiding Innovator's Dilemma, a common problem among emerging technologies

Toyota did not rollout that first dedicated plug-in Prius to all markets though. There was worldwide distribution, they introduce the product to a wide variety of audience, but availability was limited. In the United States, the rollout was limited to the coasts. Inventory in the Midwest and SouthEast only got very small deliveries, just enough for each region be introduced to the technology. It was an effective means of gauging interest while at the same time refining production of the technologies introduced, specifically the dual-wave glass, the carbon-fiber hatch, and the large battery-pack.

2 years into that, the limited rollout remains. It ensured tax-credits were not wasted and set the stage for a mid-cycle upgrade. It also ensured dealers would not get stuck with old inventory, to avoid the Osborne Effect, which could equate to large financial losses or even an end to sales opportunity. Most importantly though, it prevented confusion for shoppers. With limited or no supply in most markets, whatever happens in year-3 can be

considered a fresh start. Education of salesperson & consumer will not have to contend with outdated information.

As of 17 days ago, Toyota still had 109,301 tax-credits available before triggering phaseout. When that happens, an additional quarter (3 months) of unlimited quantity sales can take place before the 50% reduction of tax-credit value. GM will trigger phaseout in just 43 days. Their entire allotment of 200,000 will be used up. Labeling Toyota's position as "*too late*" is an act of pure denial. They have much opportunity available still.

With respect to "*too little*", that's a reference to audience. GM never found a way of appealing Volt or its technology to anyone but early-adopters. Toyota is striving to draw interest from their wide variety of car shoppers. Prius Prime is the first offering to do that. By year-end, that technology will be rolled out as a Subaru vehicle with AWD. In the first half of 2019, that technology will also be rolled out as a plug-in model of Corolla hybrid. Nothing about any of that supports a claim of being behind or struggling to catch up.

Toyota learned from GM's mistakes. It was a real-world depiction of the "*Tortoise and the Hare*" story. GM ran ahead without considering the entire race, celebrating along the way without any certainty of actually finishing the race. Toyota took the time to pace itself and not waste effort on things that may divert it from that finish line... tax-credit phaseout.

In short, the claim of "*too little, too late*" is just rhetoric to distract from what is really taking place.

11-19-2018 **Stupidity?** That question is worthwhile to ask, especially when getting this: "*Your last straw to grab at is tax-credits. How sad. This is just another example of how far behind Toyota is.*" I've been pointing out GM's dependency on tax-credits for years. He just chose to ignore that until now. His act of dismissal doesn't change my position. GM squandered those subsidy opportunities. Rather than use that money to change their own status-quo, it was just a trophy grab. Ugh. Oh well. The enthusiasts will learn the hard way. Something drastic will happen soon. They can't be so stupid they don't see it coming... or are they? Again, ugh. I wonder when we'll find out... before or after phaseout is triggered... hmm? These are the observations I posted about that: My final post on this thread will be to reiterate how often you reflect. That is GM, not Toyota. The purpose of the tax-credits was to establish sustainable sales. Each automaker would use their initial 200,000 to get dealers & salespeople working well with customers to set the stage for the UNLIMITED quantity aspect of phaseout. That is exactly what Tesla did. Notice how there was a massive ramp-up of Model 3 production just as the 200,000 limit was about to be reached? GM should have been positioning to do the very same thing, so Volt could see major surge of sales during the phaseout. Instead, basically nothing is going to happen during that upcoming unlimited period. Toyota, on the other hand, is doing exactly that. By pushing RAV4 hybrid and Corolla hybrid into the mainstream, they are showing a clear path to electrification. It's very easy for business & consumer to recognize & accept the addition of a plug, just like Toyota did for Prius. People understand the technology and cost involved. Seeing that there is also a tax-credit available is a well-timed bonus. Your deep hatred for Toyota and using me as a scapegoat won't change any of that. As for your feelings about GM, the disappointment is obvious. They squandered tax-credits on conquest sales. That's why they are lobbying for more now, to finally target their own loyal customers. TLTL reflection.

11-20-2018 RAV4 Hybrid. We are watching the problems of Detroit unfold again. Only this time, it is worse. They are depending heavily on profit from guzzling Pickups & SUVs again for survival. It's to an extreme now, where everything else is being phased out. That isn't working though. We are seeing buyout offers. A large number is required too. If that doesn't happen, the result will be layoffs. Financial trouble is looming. Making the situation even more of a challenge is the competition. When you do an exception job of knowing your audience, growth can come from gaining market share. This is quite different from conquest, since it very directly addressed loyal customers. In this very real situation, it is Toyota's rollout of the next-gen RAV4 hybrid. An expectation of up to 25% sales being hybrid has been set. How is easy to see. The 219 horsepower system will deliver 39 MPG combined for a starting price of just \$27,700. That news today shook the industry. Rather than making RAV4 hybrid favor efficiency, like Prius, it took on power attributes even more so that Camry hybrid. That makes it an industry-top for efficiency, but without compromise. In fact, that highest performance package is actually a hybrid. That will attract cross-shoppers... which is really bad if you are an automaker who has become very reliant on SUV sales and has nothing comparable. For GM, they don't have anything even remotely close. For that same price, you get 26 MPG. That's such a drastic difference, it's a game changer. Adding to this upcoming disaster is the reality that Toyota's hybrid system provides a very easy means of adding a plug. Put totally another way, Volt is dead. Competing against Prius never made any sense and now there is literally nothing the enthusiasts can say anymore. All those times I pushed for a SUV offering the technology in Volt, they were smug. Now, they are in trouble... too little, too slowly. This new hybrid will become a key contributor to change.

11-21-2018 Change. After so many years of having to put up with rhetoric, it's over. I'm on the offensive now. My effort to deal with "*fake news*" long before the term was coined... or even recognized as a problem... was challenging without real-world data. But that's not the case anymore. So, no need to put up with it anymore. After all, they allowed the tax-credits to be wasted. So much opportunity missed... Much of it came from enthusiast's blind hope. Sadly, some of that continues substance: "*I'm hoping GM surprises everyone with Voltec powered SUV.*" That isn't even a claim without substance. It is literally just a wish. I can turn-around the "*behind*" by pointing out how it is really a matter of being ahead: Not much of a surprise, since we've been waiting for years. Toyota is catching up too, by setting their stage with RAV4 hybrid. 39 MPG combined from a 219 HP system starting at \$27,700 is a nice base to provide a plug option.

- 11-22-2018** **Thanksgiving.** This was interesting to read: "*GM has decided to take a backseat in this fight. It's a shame they have gone from leading to also rans, great job.*" Coming from an enthusiast, it makes you wonder how much of my observations are now being taken seriously. I see supporters sharing similar sentiment, but not those who antagonize routinely. Their frustration was vented by using me as a scapegoat. Turning attention to GM instead is a switch. My guess is the reality of GM failing to exploit the tax-credit phaseout opportunity, quite the opposite of what Tesla is doing, has become a painful recognition of the situation at hand. Volt is in serious trouble. It doesn't matter whether or not Toyota puts on the pressure. We can see it building from other sources... like Honda and Hyundai/Kia. Eventually, VW will get into the game too. There's just nothing from GM anymore. The legacy that thrived on ambiguous press releases, and the stirring of hype which resulted, has become silent. The lesson learned from "*over promise, under deliver*" appears to have felt in a painful way. My guess is stockholders. Though, there is the difficult to deny shift from sedan to SUV that's making plug-in car sales more of a challenge. Who knows. Today, I'll simply be thankful for the recognition of that monumental problem GM got itself into.
- 11-23-2018** **Nissan Surprise.** Looks like the plan for the next-gen Leaf is now in disarray. Nissan's CEO has been arrested for financial crimes. That at a minimum will delay release of anything new. No one really knows what to expect. The surprise news has been quite a shock to the industry. There's a partnership with Renault that's left hanging as well. What does it mean for an automaker already dealing with complex challenges to suddenly and quite unexpectedly lose their leader? Did anyone else share the knowledge, experience, and foresight to take over? This is kind of like the situation for Tesla. Having a single-point-of-dependency can be a significant risk. Just look at the mess resulting from GM with their lost leader in the effort to deliver Volt. When he left, so did everyone else. Some of that was likely preventative moves to circumvent damage-control efforts before they are needed. Already being on a course to problems is nothing new. For Leaf, it was not having any active cooling of any sort. Neither air nor liquid for keeping the battery-pack from getting too hot never made sense. Yet, that was what Nissan delivered. This newest offering was supposed to change that, by introducing a liquid-cooled system. That isn't going to happen on the timeline anticipated now. Will it later? Who knows?

- 11-24-2018 Shame.** When antagonists turn to emotion appeal, you know they're in trouble. Struggling to deal with numbers is what causes that. They see shortcomings when constructive measure is used. That's why there is always such a push to dismiss counts. Being held accountable for specific milestones being achieved would reveal failure potential. It's especially bad when they try to turn that to a one-sided debate. Long story short, Volt is in serious trouble. Low sales even with a \$7,500 subsidy and years of visibility spell doom. How could it achieve necessary sales growth with such a high MSRP and the loss of tax-credit help? Compact hatchbacks are a difficult sell even with great performance. Who wants that when there's a growing EV market appealing directly to early-adopters? All those who wanted plug-hybrid choices as technology leadership have moved on. They couldn't care less about ordinary consumers. Ubiquitous equates to boring as far as they are concerned. If it doesn't stand out, what's the point? Their perspective meant problems from the start. It's that trophy-mentality issue... hence now the turn to shaming. Ugh. I kept my acknowledgement of their emotional appeal short: That's a double-standard, expecting "*significant sales numbers*" from Toyota to the point of SHAME but no mention of GM. Why not? Both Volt & Bolt are stuck as niche offerings, with no potential for high-volume due to such a high price. Notice how much Toyota strived to make Prime affordable? Notice the same for RAV4 hybrid and its potential to offer a plug?
- 11-25-2018 Golf Cart.** It is interesting when you encounter a comment from someone with so little background they post something like: "*I have seen this mentioned a few times now on different medias, referring to "Golf Cart". However, I can't seem to get any grasp on what this word relates to. What is the meaning of a "golf-cart" and why do the reviewers keep using it?*" Not having any frame-of-reference makes you wonder if what you post will be misinterpreted. I gave it a try though: "*Golf Cart*" has been the term used by reviewers for nearly 20 years. Specifically, it is a reference to the on/off nature of golf-cart operation. It's what they observe while driving on HV mode. To us, it means the reviewer is at a loss, without anything useful to contribute... a dead giveaway they are not a good resource for the required knowledge to actually to the review. Sadly, it also reveals the uninformed nature of the audience here. Not having knowledge of the past indicates they stand a chance of pulling the same greenwash nonsense again. Reviewers will continue to write based on anecdotal observations, rather than doing actual research. Post comments on those reviews. Don't allow them to pass off that dribble as journalism.

11-25-2018 **Build Up.** Can you feel it? I think others sense that the announcements Toyota is planning to make in 3 days will be rather significant. We know there's a refresh of the look coming as part of a mid-cycle update. What else would be enough to cause so much worry? Will the loss of tax-credits contribute to growth in demand for Prius? It's a screwy market right now with the price of gas so low. But with so much blame of sales slipping put on the visual appeal of Prius, this upcoming change eliminates all former claims. Antagonists will have to start over. That's really difficult, especially when sentiment like this is now circulating: *"I too am amazed by Voltec and amazed GM have failed to capitalize on it's greatness vs the competition."* Supporters abandoned GM due to that lack of progress. They expected the technology to be spread years ago. In fact, enthusiasts hyped how much faster that would happen compared to what Toyota did with their hybrid technology. That failed to happen though. GM dropped the ball. All that leadership bragging didn't result in substance to support expectations. Nothing else was rolled out to compliment or succeed Volt. No progress forward is a very real problem that no amount of spin can overcome, forgive, or excuse. There's a building up of something. Year-End will bring about a lot of tax-credit negativity reports. The articles will likely not be kind, especially with the Detroit autoshow so close at that point. My guess is we'll find out fairly soon, perhaps right before month-end sales are posted. Since GM doesn't share them anymore, the estimated values will include lots of commentary & speculation of what could come.

11-25-2018 **Holiday Road Trip.** \$2.29 today for me, on the way back from Wyoming. We celebrated the Thanksgiving Holiday with out-of-state family. Our drove back through the Black Hills of South Dakota over the weekend during a snow advisory. It was difficult to see lanes at times, but road handling was just fine. Overall efficiency, despite the 80 mph travel and no opportunity to plug in, was 45.2 MPG.

That 1,532-mile trip to coal country for the holiday really got me thinking about this upcoming oil crisis. We are about to see the bottom drop without any easy path to recovery.

We hit peak back in 2010, clearly marked by the loss of supply stability. That original measurement of oil quantity available in the ground still was proven worthless the moment investor activity started to become unpredictable. Seeing how much of a push coal has become in opposition to both natural-gas and renewables is what really made the problem obvious. The oil industry was already fighting among itself. That meant the entire energy market would end up getting turned upside-down.

Listening to the supposed "*experts*" related to plug-in vehicle support, any solution is problematic. Most have no idea what happened in the past. They don't bother to study hybrid history. Repeating the same mistakes will happen as a result. It's like reading reviews from over 15 years ago. There is no understanding of the market or what motivates mainstream consumers.

Our biggest problem in that regardless appears to be perspective. People here look at China as pusher of mandates and never bother to look beyond the government influence. If they did, it would become apparent that the culture there is more accepting of change. Our attitude here is if the vehicle isn't absolutely perfect, it will fail. We obsess so much with fine detail of reviews, we completely miss the point of the technology. That's really sad.

This plummet of gas prices will bring that point home in a painful way.

Watch what unfolds in the next few months.

11-26-2018 **Closure, Introduction.** Surprise! Things sure took an interesting turn. Exactly one month ago, the final attack took place and dragged on for weeks. It was the end of Volt was drawing near. Such an expensive offering unable to grow sales beyond a niche was doomed with the loss of \$7,500 subsidies helping it barely sustain. Today, a post declaring an end to production, complete with the March 2019 date specified, meant everyone still a hopeless enthusiasts would show up on that discussion thread to provide damage control. Keep in mind how much pride fundamentally influences their actions. Being misleading & dishonest had become routine for them. I could witness all kinds of emotionally driven responses. Objectivity never really existed. They selectively supplied information to create a narrative. That's why they were called "*enthusiasts*" rather than being seen as supporters. You can't just ignore what you don't like. In their case, it was business goals. They were compelled to focus solely on engineering achievement. That made them blind to profit & growth. Tradeoffs for the sake of delivering a balanced product was unacceptable. Their desire was a standout vehicle, not for something to become ubiquitous. That meant those enthusiasts would be at odds with supporters. It was the fighting that would emerge as a result which I concentrated my efforts on. What would they say & do to undermine themselves. It was a conflict of purpose. You can't have both. Either the technology would be for the masses or it would remain specialty. Those concepts are mutually exclusive. They didn't understand that. IT would spell their doom... and that's exactly what this topic was about. I suspect my blog entries for the next week or two to document that downfall, addressing the mistakes they made and the effort to conceal & deflect.

11-26-2018 **Closure, What A Mess.** Objectivity became a lost cause almost immediately: "*Where do you get that we've reached peak oil?*" When you are dealing with people who are supporting a narrative, it's easy for them to forget about their own blinders. They fail to see the bigger picture. This was a great example of that. I responded with an explanation: Instability of the market supply caused investor activity to become unpredictable. That marked "*peak*" oil. That combined with sedan marketshare has falling from 50% in 2012 to 31% now. Chevy Cruze sales have plummeted. The Lordstown assembly plant will be closed, as a result. That's where Volt was built. This is the "*too little, too slowly*" outcome those here shrugged off as a concern... the missed opportunity so often brought up as a problem not to be taken lightly. Volt is now dead without a successor established yet. That model of Trax or Equinox using Voltec should have been made available years ago. GM fell into the innovator's dilemma trap. That lead they had was lost. Meanwhile, we see EV rollout challenges that have not been properly addressed. What will happen with Bolt now? Will GM promote plug-in hybrids at the same time, despite the mixed "*range anxiety*" message? That abrupt change of approach going from Volt to Bolt is very confusing for potential customers.

11-26-2018 **Closure, Begged.** They claim to have had a consideration of the bigger picture. Evidence to the contrary is abundant. Whenever I brought up Camry hybrid, they would freak out and scramble to change the topic. That's why RAV4 has been even more of a scare to them. GM abandoned the idea of plug-in hybrids as a solution. We had confirmation (ambiguous in GM's usual approach) of that over a year ago. They announced 20 new "*all electric*" offerings to come. It was a vague reinforcement of the effort with Bolt... which makes sense, because GM makes terrible hybrids. They are expensive and are not efficient. It came down to this: "*The Volt was front and center when GM begged for their Bailout 10 years ago.*" No surprise that topic was stirred to look at the beginning, rather than focus on the end at hand. Look backward, not forward. Ugh. I punched back with: "*Too Little, Too Slowly*" was the concern raised by the bankruptcy recovery task-force in response to that. They had good reason to question how Volt would become a profitable contributor to GM's well-being in those next few years. Our government lost money in the end, selling their bailout shares of GM stock at a loss. Volt struggled with sales despite the \$7,500 tax-credit, never achieving growth to a sustainable level and far too expensive to be competitive. It has been a slow-motion disaster, as we watched GM fail to adapt to change. They have no clear path to electrification still, after all this time. There is no hybrid system in place to usher in plug options for any of their larger vehicles. Equinox should have been taken on the role of Volt successor long ago. There isn't even a hybrid option available yet. How is a 26 MPG rated vehicle going to be profitable when the competition is about to rollout an equivalent size & style offering with a 39 MPG rating? How will something with a plug addressed with such a disadvantageous stage now set? To all of you who were hostile to those words of warning, what do you suggest should happen as a next step?

11-27-2018 **5 Days Ago.** It was a loooong Monday at work. I wasn't able to sleep well as a result. So, I jumped online and stumbled across this reply to an old post: "*You hang out here too so you can bash the Volt just like you do at [the daily blog for Volt]? Geez. Not wasting my time with you here just like I don't waste my time with you there... Buh bye...*" In that post from 5 days ago, he could see the build up to the fallout about to come... a didn't like it. There are many who don't want to face reality. Consequences of the poor choices they endorsed were starting to emerge without any means of denial available. All the excuses have been exhausted. Pretty much anything you say at this point has become hypocritical. I was delighted to point out the situation too: Pushing GM to finally diversify by offering Volt technology in a vehicle like Equinox is bashing? You've got really messed up priorities if you think that. Of course, just 5 days later, I've been vindicated. The reason for my "*too little, too slowly*" concern was about Volt's financial viability. If GM didn't find a way to increase sales volume, it would be discontinued. That's basic economics. If the product doesn't grow, it will fail. Turns out, that is exactly what happened. Rather than the plant producing volume ramping down Cruze as it needed to build more Volt, the entire operation collapsed. The transition to an electrified offering failed. You wasted your time by not listening. My concern originated from the bankruptcy task-force, those put in charge of making sure GM had a solid plan to get back to good financial health. Volt was claimed to be part of that effort. Calling my contribution to get GM to diversify bashing is just plain wrong.

- 11-27-2018 Closure, Wild Ride.** That's how I describe today. Fallout from yesterday's announcement has been all over the place. One enthusiast came up with spin to label the 14,000 employee's GM is planning to layoff and the 5 production plants they will close as a move to electrification. Several stated this was the plan anyway, to abruptly stop production mid-cycle without any type of replacement already in place. Ugh. Our president got angry and threatened GM will some bizarre statement about taking away subsidies. What subsidies? The tax-credits will trigger phaseout next month regardless. One publication took substituted "Cruze" for "Volt", then went on and on about expectations not having been met. Of course, none of it matters. Production of both will end anyway. Impala will be discontinued as well. It's a nightmare for anyone who ever attacked me claiming the "*too little, too slowly*" concern was actually an effort to undermine Volt. That has been proven untrue to such an extreme, there's no recourse. They are simply screwed no matter what they say. As a result, it has been remarkably quiet on that front. I have been watching their wild ride. Uncertainty about what happens next is growing. The belief is GM will make an announcement in the next few months about an upcoming successor to Volt. It will undoubtedly be a scaled down version of the system adapted for a SUV... something long, long overdue.
- 11-28-2018 Closure, Downplay.** It's common to address defeat by downplaying the outcome. That's an expected response, as they put it: "*Much hand-wringing about nothing. We always knew that Volt was a gateway drug. This move by GM was expected. Continuing to produce models that are in a declining sales spiral would be worse.*" I was amused to read that, knowing there's never any substance to claims. That absolute of avoiding detail at all cost is their mantra. Next thing you know, they'll spin the plant shutdowns as preparation for a new electrification program. Trouble is, that couldn't be any more vague. What is GM attempting to achieve? Preventing job loss isn't getting addressed. It's that continued blindness of business. Keeping focus only on engineering efforts to advance technology can (and this case did) result in consequences of negligence. What the heck are dealers supposed to supply in sell if there is nothing to transition to? A diesel model of Equinox was such a wasted of resources. Yet, that's why GM delivered instead of something electrified. I posted this in return: That is a direct contradiction to what scores of enthusiasts have been saying ever since the topic of tax-credit phaseout was brought up years ago. Rather than abruptly stop production mid-cycle, GM's supposed plan was to drop MSRP to match the subsidy reduction. There is no expectation from GM. Using up limited tax-credits without establishing a successor in the process is a reckless business approach. What were they risking the PLUG-IN HYBRID approach for, to establish EV sales? That makes no sense. Even the narrative of succession is baffling. GM wants to produce Pickup & SUV only. Investing in a compact hatchback and a compact wagon is counter-productive... especially knowing that GM had already demonstration a plug-in SUV a entire decade ago, intended for rollout in 2009. Your attempt at damage-control is a load of rubbish. It's easy to prove too. Being an expectation would mean a plan has already been conveyed. What is the plan? What does GM intend? Tell us about the next move.

11-28-2018 Closure, Questions. The situation for GM has been revealed to be an economic disaster. The enthusiasts are quite angry by this outcome... what's remaining of them, anyway. So many became disenchanted, they are nothing but bad memories now. To think of how many of them moved on to other early-adopter conquests... That's why they hate me so much. To find out I was correct, that my concern for business well-being was indeed sincere, is too much to accept. What do you do at that point? I warned them about missing so much opportunity. Rather than persuade GM to take a better course, they obediently followed without question. It was a terrible choice. Fighting me made it worse. They have no doubt anymore that the outcome I warned about was a genuine concern... because that's what happened. Sadly, I was right. There was a hope someone in management would wake up. But with so many executives stepping down every time there was a problem, there wasn't ever a clear message of intent. What were they trying to accomplish with Volt? At each stage, the goals listed changed... and not for the better. Ugh. I ask questions for good reason. Here's are the most common:

Who is the market for Volt ?

The years of trying to evade that question and doing everything possible to avoid detail with regard to GM's intent are over. Volt failed without any successor established. Now, enthusiasts refuse to address the future. There's only vague mention of something coming... to the extreme of not even making claims of being "*vastly superior*" or "*10 years ahead*" anymore. This is disenchantment to an extreme.

Too Little, Too Slowly ?

That was the concern. It always comes down to the reality of economics. GM took a terrible approach with a half-hearted effort that did not result in the widespread acceptance required for a new technology to become a viable replacement for the old. No amount of spin can conceal that either. We all see that sales were a struggle, even with the \$7,500 tax-credit. Phaseout of that subsidy is rapidly approaching to. So, it makes no sense building a money-loser anymore... which brings up a new question:

Will there be a plug-in hybrid ?

GM's message of Volt being the solution to "*range anxiety*" was abruptly changed when Bolt was revealed. That EV offering was to become the new solution, since it offered 4.5 times the battery capacity, extending range without ever having to use a gas engine. Unfortunately, sales of Bolt did not achieve the significant growth that was required.

Where does that leave GM now ?

Hope to portray an image of industry leadership has been lost. GM has slipped into the bucket of automotive choices, no longer a choice that stands out. In fact, we see several other automakers all striving to deliver what Volt failed to achieve... being an affordable offering sold to mainstream consumers. It makes you wonder if GM leadership is willing to accept the idea of cooperation, becoming an industry player instead of being an example of what not to do.

What do you suggest GM should do ?

- 11-28-2018** **Closure, Get Over It.** Their denial is overwhelming. It really is over. Volt failed. Moving on after such a loss is difficult though, especially when they resist acknowledgement. Oh well. I'll keep reminding them of how they got themselves into such a mess and suggest ways of getting over it: My concern for GM not carrying forward the technology in Volt to something GM customers (those who are looking to replace their older GM vehicle with a new one) will actually purchase has been overwhelmingly confirmed as valid. Why would I go anywhere when the effort to get proper attention about the lack of advancement is finally taking place? I couldn't care less about hurting the pride of some enthusiasts not interested in supporting something for ordinary consumers. They'll just need to face the reality that range & power did not actually equate to a "*vastly superior*" vehicle. Volt was unsuccessful. Who cares. Try again. The goal all along has been to get each automaker to deliver something that would be able to replace their own traditional offerings. GM still hasn't attempted that yet. Rather than build an Equinox or Trax using Volt technology, but with a more affordably sized motor & battery configuration, GM wasted time & credits on conquest. That "*more is better*" approach Volt took failed. Neglecting mainstream priorities was a terrible decision. So what if I was the one who pointed that out years ago and kept reminding everyone that the imbalance was too much of a sacrifice? Get over it by focusing on what much be done next, rather than shooting the messenger. Continuing to evade the issue will not fix it.
- 11-29-2018** **Closure, Repeating History.** It's getting messy. They are stirring rhetoric any way they can to control the situation. It's hopeless, of course. But that's what happens when they come to realize the fight is over. The lost... which is why attempts to rewrite history are their focus at the moment. They want to prevent onlookers from noticing the pattern. I'm not going to allow that, especially after the hell they put me through: It was about preventing mistakes from being repeated. When pointing out lessons learned from Two-Mode and the recognition of following that same pattern again, the messenger was attacked and the message obscured. Enthusiasts didn't care. They kept up at attitude of hope without any substance to actually support such a stance. Volt was vastly superior, period. We all watched that fall apart with gen-1. GM focused on size & power for Volt just like they did for Two-Mode. But this time, the "size" was range instead of vehicle bulk. That imbalance was a costly mistake for Two-Mode and quickly become a mistake repeated for Volt confirmed by soft sales. The resulting price was too high. The rollout of gen-2 for Volt didn't address the problem. Rather than strive for a better balance to draw in more customers, that potential was wasted by increasing the range and increasing the power. That turned out to be a colossal blunder too. Sales never improved. That was a terrible sign, knowing that even with the \$7,500 tax-credit, reaching a sustainable level to remain an everyday offering would not be possible. That is why Volt was cancelled mid-cycle. Waiting for the normal product-cycle to conclude would be far too costly. So now, the technology is left without a successor established. GM will basically need to start over... which is now why the enthusiasts are so angry. Their arguments claiming other automakers are years behind have completely fallen apart. There will be a few who dispute this history. They'll remain in denial. It doesn't matter, since they are not the intended reader anyway. Know your audience.

11-29-2018 **Closure, Fail.** Do everything possible to keep focus exclusively on engineering. Never let anyone draw attention to business. Ugh. It's been that way for 10 years: *"Volt was and is a fantastic car with the best US plug-in sales for any model. To this day. I don't call that a fail."* Ironically, I get attacked all the time with the reasoning that no individual can draw a conclusion, since whatever goals they identify are their own. It's that spin they do day in, day out. Don't ever let someone outside your group of enablers to sight anything related to progress. Again, ugh. I knew the end of production for Volt would turn into a fight. That's what happens when an enthusiast gets cornered. They don't surrender or admit defeat. They defend their position to the bitter end. That's how pride works. Go down with honor. What a waste. Oh well. This is when it happens. Right now. It's official. So, I humor them with bittersweet facts: Better than any model is a relative measure, not what's necessary for sustainable business. The goal was to achieve mainstream sales. That specifically is a minimum of 60,000 annual without tax-credit dependency. Setting a target like that is how profit is achieved. Your opinion is that of an early-adopter taking advantage of a \$7,500 tax-credit... not GM... not stockholders... not EPA... not CARB... and certainly not ordinary GM customers. So, it doesn't matter. Know your audience.

11-30-2018 **Closure, Real.** Their reality is crashing down. Mine is simply the stage call closure. I get this: *"Let's be real."* They get this: GM wasn't able to face the true competition... traditional vehicles ...so you want to spin a narrative that Toyota won't be able to either. Who are you trying to convince? Know your audience. In this case here in the United States, a majority of the country has absolutely no idea what Prime is. That's because Toyota waited. As of the first of this month, they still had 109,301 tax-credits left. Allowing GM to use up the few they have left, while in the meantime reinforcing their commitment to traditional vehicle replacement, totally makes sense. The next-gen RAV4 hybrid and introduction of Corolla hybrid are undeniable moves toward electrification. Even the most uninformed consumer will recognize Toyota's commitment to using batteries more. The addition of AWD to Prius is a new draw too, as are the mid-cycle appearance changes. The advancement forward is quite clear, even without Prime. The fact that Toyota has been burning down Prime inventory and hasn't said anything whatsoever about the 2019 model-year makes us wonder if the Detroit auto-show will bring about some mid-cycle updates... perfectly timed to take advantage of the changing market situation. That lack of advertising will finally change. Toyota will have an affordable, extremely efficient, plug-in hybrid available... that they worked out all the details of high-volume production for already. In other words, your attempt to portray Toyota's silence as a lack of interest is really the calm before the storm. They have been preparing for wide-spread acceptance. That's why distribution has been spread so thin. Toyota was observing each market to come up with the best plan for mainstream penetration. This isn't rocket-science. It's simply studying consumer behavior. GM didn't do that with Volt. Rather than trying to attract ordinary consumers, they appealed to enthusiasts... giving that group of early-adopters exactly what they wanted. It's a business mistake known as *"innovator's dilemma"*. GM built a vehicle for a limited audience. Oops! It's their loss, not Toyota's. We see that Corolla hybrid is already planned to get a PHEV upgrade. The process is simple & affordable, as clearly demonstrated by the Prime update to Prius. Camry, C-HR, Avalon, and RAV4 hybrids can all be upgraded that way too. Facing the true competition is quite real.

- 11-30-2018** **Closure, Spin.** It is getting so bad, you can see why so many were so easily manipulated during the election. There's simply no critical thinking from some people. They just brainlessly repost what they believe, rather than actually give some thought to what is actually being conveyed. They have no idea. The words don't have any substance. It's all primal instinct at some point, just lashing out with whatever they have available rather than considering all factors. Oh well. That is their loss, not mine: What I see is that you are so vague, you aren't actually saying anything. It's the usual rhetoric, repeated over and over to avoid addressing issues. The absence of detail is a dead giveaway. No substance.. As for projection, to what? All automakers are held to the same standard market criteria. Without the necessary quantity, price, and efficiency, the necessary profit will not be achieved. That's how a business functions. GM failed to achieve that. So, they are moving on because they have run out of time (tax-credit phaseout triggered). As each of the other automakers reach the same point, they will be faced with a decision as well.
- 12-01-2018** **Closure, Attacks.** Once they've run out of things to retaliate with, you get attacked personally. The enthusiast transforms to an enraged antagonist. Lack of substance to their claims and evidence being presented as proof of their oversight makes that course of action quite predictable. I've seen the behavior routinely. At some point, they just give up and laugh. Sometimes it becomes so cynical laugh, the word smug is too kind. It borders on evil. That's quite bizarre to see in writing. This is how it starts: *"I see john is still spewing his filth... Some things never change. Happy I was able to add the 10th neg vote to several of his posts. LOL."* Disbelief is always my reaction to that. How bizarre to be so clueless: That stick-your-head-in-the-sand response to posts is what keeps me coming back. Hiding what you don't want to see isn't constructive. And in this case, it has been destructive. Volt gen-1 failed to address purchase priorities of mainstream consumers. It had a number of shortcomings the group of enthusiasts here worked hard to assure everyone the needs of the changing market would be met by the next-generation offering. Volt gen-2 failed too, by not even addressing the issues resulting in sales struggle. Rather than GM striving to meet its own pricing target and making the interior larger, the design was enhanced to further appeal to enthusiasts. That didn't work though. Sales remained flat. The significant growth required to persist beyond the expiration of tax-credits was not achieved. The fact that you use *"filth"* to describe essential business is the type of closure needed here to declare Volt dead. The *"too little, too slowly"* concern was quite correct. GM didn't spread the technology in time. Accounting is something enthusiasts always despise. I saw the trophy-mentality problem emerge on this blogging site right from the very beginning, over 11 years ago. Recognition of mistakes being made were dismissed and the messenger attacked by some, but most just left from disenchantment. Look at how many abandoned Volt and the growing resentment for GM being so slow to take a next step with plug-in hybrids... to the point where some wonder if GM will just give up and only offer EV choices. It's a disastrous outcome you contributed to, not me. I certainly wasn't any part of the enabling that took place to encourage GM to continue down a path that would not led to acceptance by ordinary consumers. No label or negative voting will change that.

12-01-2018 Closure, Know Your Audience. They don't... still... after all this time:

I repeat that mantra on a very regular basis. It has taken place for the "*Who is the for Volt?*" question I asked relentlessly in the past. Enthusiasts simply didn't care about the wants & needs of mainstream consumers. They had convinced themselves that Volt has "*vastly superior*" attributes ordinary showroom shoppers would be willing to pay a premium for. Even with the \$7,500 tax-credit, that approach failed to stir interest.

All these years later, the heavily promoted "*EREV*" campaign only served to confuse & deter. GM didn't understand. Enthusiasts didn't understand. It was only Prius owners who did. They understood. They knew their audience... which is why so much resentment has come about. Prius owners recognized how to reach out and capture the hearts of random consumers.

Potential buyers are customers wandering the showroom floor. They are looking for a vehicle with set attributes at a good price. This is where plug-in hybrids show great opportunity. Hybrids have become so well established, most all of the misconceptions are just a faint memory now. In fact, there is an expectation of the technology having improved over the years. That's why the addition of a plug is looked upon as a natural next step.

It would be incredible for every car to already have access to overnight 240-volt charging. Unfortunately, many consumers face the challenge & expense of just that for one of their vehicles in the household. Access to public rapid chargers (level-3) are pretty much non-existent still. Only a small number of initial locations have been built and connection-type is not standard yet. Sadly, most people don't even know what most of that means.

We know it signifies is overnight having to charge with a 120-volt connection, some with just an 8-amp rate. That very much limits battery-capacity; however, it does offer a very smooth and intimidating approach to mainstream acceptance. It simplifies the transition away from traditional vehicles. During ownership, many owners will likely consider a 240-volt upgrade for their overnight charging.

This information is what enthusiasts have refused to accept... hence the negative votes. They don't want to face the reality of change. It is monumentally complex and pushback intense.

12-01-2018 Closure, Stupid Decisions. The mess coming to light is an outcome far worse than they ever imagined. Their own "*behind*" claims are being revealed as reflection. Focusing on the wrong thing for too long has dire consequences. I certainly tried to get them to pay attention to what was important. They didn't care, until now. Of course, it's only denial at this point. But change has to start somewhere. Seeing the mistake is progress, though it could take a very long time before the next step is taken. I keep pointing out facts until then: Resentment for Toyota is understandable. The upcoming next-gen RAV4 hybrid (available in March) will deliver a combined city/highway rating of 39 MPG starting at \$28,745. With 118 horsepower output from the electric motors (AWD system), the combined output with the engine comes to 219 horsepower. That totally outclasses GM where it hurts the most, their premiere SUV. Why GM never bothered to put Volt technology in Equinox remains a mystery. Most likely, it came down to cost. There simply was no way to offer such a configuration affordability. Trax is a new, smaller SUV offered by GM. That could be a nice candidate as a plug-in hybrid choice. But that could seriously impact sales of Equinox. Whatever the case, this is GM's own doing. They focused on offering an expensive Cadillac plug-in hybrid and a Malibu hybrid instead. Both are sedans, a market GM clearly has little interest in. To make matters worse, GM just rolled out diesel models of both Cruze & Equinox. What in the world were they thinking? Stupid decisions like that is why GM is falling behind. It is why I get personally attacked, since there is simply no way to deliver such bad news without sounding bias. Those are the facts though... like them or not.

12-01-2018 Closure, Fake News. It's nice to finally have a term to identify the behavior. Naturally, it will be misused. We see that often the "*troll*" label, but the point of drawing attention still takes place. So, it's ok. Going unnoticed is the problem, which I continue having to deal with: That is a common "*fake news*" technique. They state a position, but provide supporting evidence for something else. Both make sense. They aren't actually associated though. The hope is people aren't paying close enough attention to notice. That's the case here. It's easy to prove too. Since the description doesn't contain any detail, there's no association to anything at all. That's the nonsense our president pulls. Vague is a dead giveaway of rhetoric. The nonsense about Toyota being behind is rather ironic. Because when you point out facts, GM is the one coming up short. With respect to electrification, we see Toyota offering a hybrid model for each of their popular passenger vehicles in various markets... Camry, Corolla, Avalon, C-HR, Highlander, RAV4. All are plug-ready. Increase battery-pack capacity, then add a one-way clutch. That's it. The approach sets a clear path forward with very little resistance, due to the approach being so inexpensive. In fact, the upgrade to hybrid for RAV4 provides such a significant MPG improvement, the price difference is trivial. And with such a strong reliability reputation already established, there is a strong possibility of drawing interest on the showroom floor. That sets the stage for easy plug offerings with the next round of upgrades. There's no rationale for the "*innovator dilemma*" claim. It's a clear path forward, advancement with significant return. Toyota will be able to discontinue production of traditional models at some point. Their plan is well underway already. GM literally has nothing yet for product-line advancement. It's all a big mystery, leaving both dealer & customer with no green choice available... which is the "*stuck*" situation described by innovator's dilemma. Notice how the definition focuses on sales & profit as the measure of success, not perceived superiority?

12-02-2018 Closure, Mistake. I'm hearing more and more comments like this, finally: "*GM's big mistake was not getting Voltec into a larger car, SUV, and truck.*" Imagined if they would have just listened in the first place. Sharing of experience was intended to help; instead, they felt their pride was in jeopardy. What a waste. Oh well. I share the observations regardless of how they will be received:

Do a search for Equinox & Two-Mode on this site. You'll find countless posts over the years of me saying exactly that... hence the "*too little, too slowly*" mantra. I kept pushing for diversification; the enthusiasts here kept pushing back.

For a Toyota owner to endorse GM's technology, sounding off favor for spreading it to vehicles across the fleet was too much. They absolutely refused even just the spirit of cooperation. Someone with over a decade of prior experience in the market couldn't possibly understand mainstream consumer better than a bunch of unrealistically optimistic early-adopters. Ugh.

Of course, they understood that the transfer of the same battery-capacity to a much less aerodynamic vehicle that weighed significantly more would compromise their principles. The result would be a lowering of range & power, making far too similar to the supposed competition... which exposed their underlying problem.

The enthusiasts didn't want to recognize the market as a whole, to acknowledge GM's own product-line. They forced a scope of "*plug-in owners*" instead. That was incredibly foolish, focusing on those who supported electrification anyway. It was only low-hanging fruit getting any attention. That far more difficult objection of appealing to SUV buyers was being neglected.

Now, we see the price of their choice to disregard homework the teacher assigned. Rather than turning in what was required, they put emphasis on other deliverables... many of which didn't contribute to the necessity of ending traditional vehicle production. They gambled that "*it's worth it*" promotion would result in high-volume profitable sales.

That effort failed miserably, hence attacking the very person would was heavily pushing the course that should have been taken years ago. They screwed up. They didn't listen to the voice of experience. They are coming trying to come to grips with how much opportunity had been missed.

Ironically, the claim of desperation to catch up are now true for GM. The tables have turned. Honda rolled out Clarity. Chrysler rolled out Pacifica. Mitsubishi rolled out Outlander. Subaru is about to roll out Crosstrek. Ford is working on an Escape. All are larger plug-in vehicles that are not Toyota. The enthusiast obsession was wrong, very wrong. Each automaker is working hard to appeal to their own customers. GM's focus on conquest instead was a terrible mistake.

That brings us to the catch-up effort. Will an Equinox or Trax with Voltec actually be endorsed by this group of enthusiasts? To do that, they will be falling back on their own words. It's an admission of error, a rather hypocritical one at that too. Swallowing pride to overcome such a mistake shows strength though... and will be welcomed. GM joining

the team to help quickly deliver affordable plug-in offers requires compromise, so that will definitely be useful.

I'm quite curious how such a big mistake will finally be reconciled.

12-02-2018 **Closure, Vision.** This quote from an article published today sums up the situation well: *"While it's not too late for GM to change course, companies are so often obsessed with short-term profit that they usually find it nearly impossible to sustain long-term vision."* I posted that, followed by: Your own assessment of the situation just now reflects that too. Rather than acknowledge what has happened over the years and how much resistance there has been to change, you took a snapshot of the situation at the moment. Of course the enthusiasts have been asking for GM to expand, but that's only as of setting gen-2 fail to grow sales and every single one of them has evaded the provision of any detail. Notice how they fight back when you mention price or range? They like the idea as a concept, but absolutely refuse to actually take a stance. That lack of commitment to a clear purpose, target, or goal tells the real story. As for you stating the situation as *"your magical 5,000/month"*, it shows a denial of business objective. Automakers have a purpose of making sustainable profit. They set production quantity levels to achieve a return. Falling short means losing money. Third-Party suppliers have contracts that must be paid in full, whether or not the vehicle is sold at full price or not. As for Prime itself, that 5,000/month (60,000 annual) level should be met. That should be close to what Toyota produced & sold worldwide in 2018, which would result in the return they had anticipated. Of course, it doesn't yet anyway. Each automaker's target for mainstream sales is for just prior to triggering tax-credit phaseout. For GM, that is this month. For Toyota, it will be sometime in 2020. In other words, I'm calling out your lack of long-term vision. Toyota is setting the stage for widescale plug-in hybrid rollout, offering Prius Prime initially, then adding Corolla PHEV. Following that could be any of the other hybrids, most likely either C-HR or RAV4. That transition from guzzler to plug-in for the entire fleet has a smooth & clear path being set, without disruption to dealer, consumer, or employee. What is GM's vision?

- 12-02-2018** **Closure, Ready.** The banter continued: Battery cost & density simply were not realistic until very recently. Infrastructure still requires a painful wait, for both commercial & home setup. Production capacity is obviously a major issue currently too. We're getting there though. Plug-In Hybrids help to bring that about somewhat faster. Buying one right away doesn't require upgrades at home or even much of a behavior change. You just plug in at night. Even with just a 110-volt connection, it works fine. Of course, there's the complexity of needing to charge multiple cars in the same household. Those plug-in hybrids at home will help encourage people to explore the EV charging & driving experience. Remember, most people will resist change by simply dismissing the new tech as "*not ready yet*". There's little to do in response to that when they just plain are not interested. Fortunately, the step from traditional guzzler to plug-in hybrid isn't intimidating and doesn't require much of any education for either customer or salesperson. The hope from automakers is it will become a no-brainer decision for everyone, including dealers stocking inventory. Put it this way. Ordinary consumers will see the tech as "*ready*" when they notice old plug-in vehicle still on the road, confirming they work just fine despite years of service. That is at minimum a decade from now. Do your part as an early-adopter by purchasing any type of vehicle with a plug, then making sure friends, family, and coworkers see you using it routinely.
- 12-03-2018** **Closure, Smug.** Loss of type of reason is a sign of an end approaching. This was the epitome of that: "*Hahaha!*" How does one respond to what is essentially a caricature of an evil villain laughing at your efforts? Did he know how stupid that appeared? It's somewhat bizarre to encounter something so extreme. I was rather taken aback. So, it was just a simple reply in return: What a great way to sum up a thread about what should have been done to prevent the losses of so many jobs... pretend its all a joke and do nothing whatsoever to address the next step.
- 12-04-2018** **Closure, The Point.** Some people never get it. They won't acknowledge what you are trying to convey, regardless of how obvious it may be to others. There's always a twist to get you to humor there obsession. "*What size is their biggest battery pack? How much torque is their biggest production electric motor?*" That seems reasonable, until you notice the pattern. I did, but responded anyway: I'll bite your trolling bait, a rather blatant diversion from the topic of GM... Battery-Packs are just stacks of cells. Increasing either increases capacity, as well as resulting power. With respect to electric-motors, Toyota's fuel-cell buses are rather substantial. But if you want personal, rather than commercial, look up Highlander hybrid (next-gen will be built in Texas, btw). GM produced Two-Mode for years. Heck, they even showed off a prototype plug-in model prior to Volt rollout. What became of those electric motors... you know, used in Tahoe... a large SUV. See the point?

- 12-04-2018** **Closure, Platform.** I deal with the engineer-focused routinely. They are the ones so blinded by the hope of technological solutions, they dismiss the realities of business. There's another type of antagonist I also must deal with. They are the one that are either clueless or careless. How do you interpret this: "*Why do you insist that the decades-old Prius platform is current technology?*" It's difficult to recognize the perspective. My guess is they have no idea how Prius actually works or how any of the upgrades have been implemented. Never having a good grasp of the technology would explain a lot of their behavior. It's hard to know for sure. Today, I responded with: Electric vehicles have been around for over a century. That's an old platform. Attempting to convince people upgrades are impossible is greenwash. I drive to work every day in my Prime using only electricity. All those EV miles from an affordable platform... It's what GM has yet to deliver. Volt had a terrible dependency on the \$7,500 tax-credit that GM didn't consider a priority to overcome. It's an example of what's possible for GM. Take what they learned from Volt, removing the enthusiast overkill to make a product for their own ordinary showroom shoppers. The system does not need to be that robust or that large. Sacrifices for power & range were too much. It traded efficiency & cost for early-adopter appeal. That lack of balance doesn't work for mainstream consumers.
- 12-05-2018** **Closure, Fake News.** Sometimes, they simply don't care: For years, GM would provide ambiguous press-releases and this site would spin them into blind hope. There wasn't substance to support what enthusiasts took away from them. Merit was lacking, but they didn't care. It built up excitement. Anyone who brought up a concern about lack of detail would get the "*troll*" label and their credibility attacked. There wasn't a term like "*fake news*" back then, nor was there an understanding of how influential the loss of objectivity could be. Critical thinking was lost. Rhetoric became the norm. Fallout was inevitable at some point. We have arrived at that time of reckoning. Volt will be discontinued without a successor established. There isn't even certainty about what direction GM will be taking for a next step. That concern in the past has been validated. Whether or not lessons were learned from the mistakes made are uncertain though. Most here are pushing back, unwilling to acknowledge what happened.
- 12-06-2018** **Closure, So What?** Good thing the end of this chapter is near: I never imagined all those years ago, collecting information to document events as they happened, that I would become the Jon Stewart of this news category. Of course, no one imagined the fall of Volt to be so "*vastly superior*" either. Here we are though. There's spin, denial, and outright lies all attempting to distort & mislead about really happened. The history is well documented. Two-Mode, Volt-1, and Volt-2 all failed to achieve sales growth needed to remain a viable product. That approach didn't work. So what? GM will just try something else instead. True, there's disenchantment to deal with and a history of false starts, but we are only now about to progress beyond the early-adopter stage. Lighten up and enjoy the market emerging for plug-in vehicles. GM can still be a player among the wide variety of choices that will be offered. No more claims of vastly superior though. Enthusiasts will have to play friendly with the rest of the team now.

12-06-2018 Closure, Hatred. Like I said, this is finally wrapping up: *"While Prime wins for the year, it has been declining as overall sales increase, indicating that Toyota enthusiast purchases have come a lot closer to being satisfied; and that the overall virtues of the superior Volt remained a major factor in Plug-In sales."* That's called not really understanding what has taken place and recognizing what will next: Speaking of hatred, there's no excuse for such misrepresentation of supply. Prime has never been offered in a large portion of the United States. Rollout has been limited to CARB states and special-order for a small number of dealers. That means there's no possible way to measure demand yet, especially since we have observed inventory burndown this year... which is usually indicative of change coming. As for the superiority claim, those "virtues" are very much that of early-adopters, who in no way are representative of mainstream consumers. That's a real-world example of innovator's dilemma playing out. GM focused on feedback from enthusiasts, making that fundamental mistake of not delivering something with the "virtues" of ordinary shoppers... the very thing Toyota has strived to avoid with Prime. To sight a specific, consider MSRP. Toyota delivered on GM's own target of *"nicely under \$30,000"*. GM did not, hence the vaporware assessment. That affordable choice was never delivered, which was an essential component of Volt being able to meet business sales & profit without dependency on tax-credits.

12-06-2018 Closure, Mainstream. Refusing to acknowledge the basics of business: *"So you made up a number that is close to doable for Prius Prime worldwide for this year - good to know."* Ugh. How else do you respond to such close-minded individuals. I keep trying: Posting that indicates you aren't familiar with this site. Each month I would post numbers with respect to GM's own fleet. Toyota never came into play. The enablers here were the ones to do that, as an obvious effort to distract from GM's own internal problem. 234,379 = Equinox. 109,662 = Cruze. 107,458 = Malibu. 13,243 = Volt. It was that reality (numbers above are from 2018 thru Q3) which made enthusiasts absolutely crazy. They knew Volt's true competition was traditional vehicles, not other plug-in choices from other automakers. Yet, they kept posting their own perspective, downvoting facts as a head-in-sand tactic to ensure their own narrative would persist. Reading through those old posts, you'll notice the rise of Equinox. That SUV became the sales leader. It became Volt's ultimate foe. Popularity grew so much, even the well-being of Cruze came into jeopardy. Trax coming into the picture spelled the end of Volt though. At 67,538 thru Q3, the writing was on the wall for Volt. Even with the \$7,500 assistance, sales couldn't even remotely compete. In short, say whatever you about *"mainstream"* measure. GM's own choices on GM's own showroom floors tell the story about profit for the non-giant (large SUV & Pickup) offerings. This is why the shuttering of plants for the smaller cars is taking place for GM. No amount of rhetoric can hide that.

- 12-06-2018 Closure, Saying Nothing.** The worst of the antagonists don't. It becomes meaningless gibberish. There's no substance. How is nothing of any type of measure is helpful? They somehow convince themselves that despite not having any evidence, nothing more than "*facts*" based on hearsay, that they are absolutely correct. It's so strange to see someone so dead set on a stance which there is no support for. All you can do is point out their fallacy: That literally says nothing... an excellent example of rhetoric. Setting an expectation without any detail is an attempt to feed hype. We all know words like "*leapfrog*" and "*forward*" are meaningless. Vague is a dead giveaway of greenwash. You're doing everything possible to avoid accountability... again. GM must achieve high-volume profitable sales, period. That means something matching sales of their profitable vehicles, which is where the 60,000 minimum counts into play... specific detail. Add to that a timeline, like 2 years from rollout, there's accountability.
- 12-07-2018 Closure, Selective Omission.** I especially liked reading a post that intentionally tried to divert focus and went out of the way to exclude the vital bit of information I was trying to emphasize: "*the non-giant (large SUV & Pickup) offerings*". So, I posted it again by quoting myself, then adding: You went out of your way to disregard that part of my information. Those offerings have never been part of the discussion. It simply makes no sense to compare Volt to a Silverado or Traverse. No one takes such extreme vehicle type & size differences as a consideration to a compact hatchback seriously. Your choice to include them is obvious greenwash. As for RAV4, haven't you been paying attention? 219 horsepower from a vehicle delivering a combined city/highway rating of 39 MPG is the new focus. As the market shifts to SUV choices as the norm, that is naturally what efficiency offerings should target. Its hybrid platform is an excellent next step for a plug upgrade. Keep doing whatever you need to for the sake of drawing attention away from Equinox inefficiency. The lack of any type of electrification is quite a GM shortcoming, undeniable evidence of how far behind they are. Remember Two-Mode? Unwillingness to address that confirms you are painfully aware of the problem. This is the history that repeats. I saw that pattern in the past and knew it would be followed again. And, it was.
- 12-07-2018 Closure, Repeating.** This was interesting: "*History is repeating itself.*" It came from a troublemaker who really didn't have any idea what had happened in the past. His naive nature made him gullible to hype... which I witnessed firsthand. It transformed him into a true believer of the propaganda being pushed. It's when rhetoric gets so out of hand, the person has no idea they have been misled. In this case, it was a matter of thinking he knew all the relevant information. Missing key points will cause you to draw incorrect conclusions... which is exactly what he did. Being poorly informed is one thing. He chose to dismiss the warnings and pretend the detail offered about omitted facts never happened. Choosing to remain poorly informed is just plain stupid. But when you see an end coming to what you had fought & lost so much for, convincing yourself it was a good cause is a typical outcome. I get my closure from seeing him get his. It's a strange situation. I provided this: Are you aware of Toyota's history, how much of a different path to success they took? Many here don't, hence the never-ending conflicts. Know your audience. Forcing a paradigm of GM to fit into the same approach makes no sense, hence the objectivity about engineering being lost. Understanding that fundamental difference is vital.

12-08-2018 **Closure, Confirm.** Repeating the same old false information based on misleading facts is how I confirm you are worried. Adding to that is the continued effort to send a message of no progress. That could be recognition of the fundamental mistake you made about mainstream buyers. Toyota has been painfully quiet about their plug-in and isolated rollout. Last time they did that, it was because they had an upgrade on the way. Evading that topic, as well as the EV drive, the newly introduced AWD-e, and the upcoming RAV4 offering tells an interesting story of understanding their customers. GM's failure to set a path for electrification of their product-line should have you worried. Their dealers keep on selling the same old guzzlers without any expectation for improvement. Ignoring the all-electric drive experience you now get from Prius, while at the same time turning a blind-eye to the lack of anything beyond a discontinued plug-in hybrid and a tax-credit dependent electric-only vehicle, is all I really need for that confirm. The rest was a bonus.

12-08-2018 **Closure, Change.** It's happening. We are witnessing another chapter in history coming to a close. I'm enjoying the opportunity now to remind people of what took place and how important this moment in time truly is: With Volt disappearing from the media and Tesla consuming what's left of low-hanging fruit (final full tax-credit purchases from those with high disposable-income), we can see change coming. The most obvious sign is witnessing outright lies being posted without challenge. The other is red-herring being followed on a regular basis. Since none of that audience represented mainstream consumers, the problem should be obvious. To them though, it is not. That's how misconceptions and narratives take hold. The industry has seen this before. It's the stage when leaders lose their lead. In other words, the moment when the tortoise passed the hare. This is very familiar. It reminds me a lot about the death of Two-Mode. The supposed advantage GM had completely fell apart when the early-adopter pool of buyers had become entirely saturated. They had no one else to sell those monster SUVs to. GM failed to address the needs of ordinary people, those who could not justify a high sticker-price regardless of how the vehicle performed. It all comes down to reaching buyers on the showroom floor. They couldn't care less about efficiency. That's a bonus if the vehicle is already affordably price, not by any means a priority. Gas is only \$2.29 per gallon here. The obsession with large vehicles has become such a norm now, it is an expectation. Cars are now lumped into the categories of "*economy*" and "*sport*". That's why Prius Prime dropped the middle seat and took on an aggressive look. It was the economic recovery of GM that made me realize years ago that they would fall into the same profit trap. Rather than actually invest in Volt to spread the technology, it would become a trophy and the pursuit of money from guzzlers would resume. That temptation to follow the money, rather than invest in the future is very difficult to resist. Change can be painful. I suspect more and more rhetoric to stir as the reality of the situation becomes apparent. Toyota didn't focus on short-term gain. Toyota followed their own approach to success again. Study that history. You'll recognize the pattern.

12-09-2018 Closure, Reality. That painfully long, drawn out online battle is coming to an end. Antagonist posts have become nothing but mindless rhetoric: "...because you make no attempts to educate yourself about reality." Seeing that with literally nothing in reference was the closure I was looking for. Post after post from me with detail showing the research I did to educate was outright dismissed by an act of looking away. He chose to ignore those posts. That's bizarre. Everyone can see what I shared. How could he expect anyone to pretend that never happened? It's in plain sight for all to read, right there in the discussion thread. Ugh. Oh well, that's his choice. Mine was to post this: That's how you are going for closure, claiming I'm the one that's uninformed? Well, here's a dose of reality you're especially not going to like then. It's from Autoweek's article titled "*What killed the Chevrolet Volt?*" The statement in their final point says it best: "*Finally, we can cite the demise of sedans as a popular segment during the Volt's two generations, especially the second one, and the concurrent and rapid growth in the popularity of crossovers and SUVs of all sizes. Simply put, the Volt was not a crossover, but it should have been.*" That fact is how my question of "*Who is the market for Volt?*" came about, long before any of the enthusiasts here changed their tune and endorsed some points I had been saying. They read the writing in the wall, coming to understand why dealers were so resistant to selling Volt. You foolishly focused only on the engineering aspect of the vehicle, choosing to dismiss the obvious trend away from small car offerings. That's why you get so angry with me now about RAV4 hybrid and do everything possible to belittle & discredit Toyota for recognizing that trend and responding accordingly. GM failed to. There should have been an Equinox with Voltec years ago. In fact, that's what gen-2 Volt (which we all know is actually gen-3 Two-Mode) should have been rolled out as. The answer to the "*Who?*" question was clearly not GM's own customers... who undeniably prefer SUV choices. Now, GM is scrambling to make up for missed opportunity and complaining about the tax-credits they squandered on conquest. That's reality.

12-09-2018 Closure, Economics. The nature of that previous post seems to have stirred things in a poignant manner. That was the hope. For someone to have so passionately fought for EREV, then to have abruptly abandoned ship in favor of EV, there's a reasonable aspect of regret to watch out for. This is where I come in as a scapegoat. The enthusiast who lost everything will seek out a source to blame, rather than accept the outcome he created for himself. In this case, it came across as: "*Same old broken record from...*" I was in turn delighted to response with yet another reminder of priorities: Economics is your enemy, not me. Refusing to accept the reality, that GM is a for-profit business which will be compelled to follow money rather than technology, is your problem. I'm simply just a reminder of it. RAV4 hybrid happens to be an excellent example of that reality. It is projected to be 20 to 25% of sales (which is extra impressive when there's an expectation for it to be a top-seller for the brand), due to its low premium for a high return. So what if it doesn't offer a plug yet. The next version likely will and it will be affordable by reusing the same platform. The design inherently already supports the upgrade. Swapping in a 12 kWh pack and adding one-way clutch is all it takes. That EV drive is what scares the heck out of you, as the childish name-calling clearly shows. You know it puts GM in a difficult position. While Toyota is building reputation and a customer base to offer plug-in upgrades to, GM is stuck selling SUVs that don't even get 30 MPG. Too bad if you hate getting the reminders of business reality.

12-09-2018 **Closure, Foolish.** It has been attack after attack. The writing on the tombstone has made a few so irrational, they'll say anything: "...because you make no attempts to educate yourself about reality." That particular quote stood out. I provided a lengthy analysis packed with detail. He attempted to dismiss it with a vague reply. My nightmare of dealing with illogical banter coming to an end means a start of accepting failure for them. I get my closure by pointing out the foolish choices: That's how you are going for closure, claiming I'm the one that's uninformed? Well, here's a dose of reality you're especially not going to like then. It's from Autoweek's article titled: "*What killed the Chevrolet Volt?*" The statement in their final point says it best: "*Finally, we can cite the demise of sedans as a popular segment during the Volt's two generations, especially the second one, and the concurrent and rapid growth in the popularity of crossovers and SUVs of all sizes. Simply put, the Volt was not a crossover, but it should have been.*" That fact is how my question of "*Who is the market for Volt?*" came about, long before any of the enthusiasts here changed their tune and endorsed some points I had been saying. They read the writing in the wall, coming to understand why dealers were so resistant to selling Volt. You foolishly focused only on the engineering aspect of the vehicle, choosing to dismiss the obvious trend away from small car offerings. That's why you get so angry with me now about RAV4 hybrid and do everything possible to belittle & discredit Toyota for recognizing that trend and responding accordingly. GM failed to. There should have been an Equinox with Voltec years ago. In fact, that's what gen-2 Volt (which we all know is actually gen-3 Two-Mode) should have been rolled out as. The answer to the "*Who?*" question was clearly not GM's own customers... who undeniably prefer SUV choices. Now, GM is scrambling to make up for missed opportunity and complaining about the tax-credits they squandered on conquest. That's reality.

12-10-2018 **Closure, Long Overdue.** I knew all along the attitude of those enthusiasts would bring about their own doom. With my BS degree having a minor in business, I was well aware of the common mistake people make when judging the market... because I made them too, taught to see beyond assumption by professors. Some of those exercises were really fun too, especially the team projects lasting several weeks. One in particular was fascinating. We had to compete against several other teams, making decisions about how much to spend on a variety of resources... the same type of decisions executives routinely have to make. You choose budgets for research, production, marketing, distribution, support, investment, etc. Then the professor would run software to collect & impact each team based on economic decisions he sets for that cycle. It was an intense game of analysis & prediction. You had to really be observant to strike the right balance. Anywho, stuff like that in college taught me what to look for. 20 years of closely watching the automotive market gave me the experience to properly understand how this outcome with Volt would come about. I share much of that though. I try to avoid self-promoting. I do though point out the mistakes of others with candor: Conquest sales are only good if it grows market, adding to sales from loyal customers. GM did not achieve that; instead, it was a flurry of pricing bargains combined with tax-credits. That's an unsustainable approach. High-Volume profitable sales are required to compete with the true competition, other vehicles sharing the showroom floor. The next step of integrating Volt's tech into something like an Equinox is long overdue.

12-10-2018 Closure, Ouch. It burns and they it especially stings that I'm the one deliver that news of failure. It didn't have to be that way. The outcome could have been a series of adjustments instead, course corrections to target properly. Pride got in the way though. It prevented them from being open-minded. They chose to hold true to their original goals, even though they were growing less and less viable. The outcome of high-volume profitable sales from Volt were futile. It was too expensive and did not appeal to a wide audience. It was a niche with a major subsidy about to expire. That inevitable doom was reason to attack me personally, as a scapegoat to help relieve the pain. All I can do is respond with a reflective "ouch". So, that's exactly what I'm doing:

Toyota is rolling out a plug-ready platform that directly targets the changing market. That's the affordable, high-volume approach GM should have also taken. Instead, all GM customers have to choose from is a diesel model of Equinox, nothing green in the SUV category. Heck, the smaller Trax doesn't even deliver 30 MPG.

Being profitable is a something this group of enthusiasts clearly does not understand. Fortunately, MotorTrend gets it:

"Toyota's new hybrid SUV is powered by a 2.5-liter four-cylinder unit producing 176 hp and 163 lb-ft of torque. That engine is mated to an electric motor sending 118 hp and 149 lb-ft of torque to the front wheels and 54 hp and 89 lb-ft to the rear wheels for a combined system output of 219 hp, more than the last-gen hybrid's 194 hp and the 2019 non-hybrid's 203 hp."

"Although the new RAV4 Hybrid makes more power, it also saves more gas. Toyota estimates the 2019 model will deliver 41/37 mpg in city/highway; that's much better than the 2018 model, which got 34/30."

That's an amazing platform to build upon for a plug offering later. Just like the upgrade from Prius to Prius Prime, it's just a simple process. Swapping in a larger battery-pack and adding a one-way clutch is all it takes.

So what if it isn't a full EV for awhile still? The market clearly isn't ready for that anyway. Even with the generous tax-credits, demand simply isn't there yet. It will be. But by then, Toyota will have a large base of plug-in hybrid owners looking to go full EV. Delivering a large vehicle with power that customers want, but without a huge price. That's key, a lesson GM still hasn't learned... despite finding that out firsthand with Two-Mode all those years ago.

12-10-2018 **Closure, Prime.** The spin to make downplay of Toyota's correct assessment of the market is ramping up. Having taken a stance on the expectation of rapid price drops, to the level of battery being directly competitive with gasoline, was absurd. How could the technology advance so quickly that the market itself would be able to embrace change on that scale? Anyone studying consumer & retailer behavior knows that's unrealistic. Rapid adoption simply never made sense in this place of cheap gas and little environmental concern. That's what Toyota's references try to draw attention to. There are many aspects to a technology being competitive. I stated the situation this way, this time: You must first learn what "*prime*" refers to, as the mentions above help to point out. BEV most definitely is not ready for competing directly with traditional vehicles. Disregarding all the technological hurdles related to misconceptions and lack of enough real-world data yet, there's the reality of cost. Even with the \$7,500 discount, pricing is far too high. Why would anyone consider a compact hatchback with a cramped rear and a MSRP starting at \$33,520 when you can get a larger interior compact SUV with a MSRP starting at \$21,300? That's the pricing difference between Volt and Trax, both Chevy vehicles. Trying to convince anyone that paying the extra \$12,000 is worth it would be a fool's errand. There is obviously a great deal of potential, following a few more battery generations. But that is not the situation yet. They are not ready. VW's assertion of their upcoming gas-engine being their last makes sense, validating exactly what Toyota has been saying for quite awhile now. Too bad if you don't like the reality of automotive business, that profit is a stronger motivator than helping make the world a better place. That's the reality we must find a way to deal with... like trying to get electrified vehicles into the mainstream as quickly as possible. Having a small battery-pack now is far better than waiting for "*someday*" to finally arrive.

12-11-2018 **Closure, Forward Thinking.** The irony with some of the enthusiast dealing is intriguing: "*Forward-thinking companies are willing to plant a seed which will grow into profit in future years.*" They sometimes convey the very message you have been spreading without recognizing it applies to them. That was the very thing I was telling them about Volt for years. GM seeded, then didn't do anything. They rested on their laurels, exactly what they claimed Toyota had done. Progress with Toyota never ceased. Camry hybrid was an amazing advancement with the hybrid system and soon RAV4 will take it even further. The larger vehicles offering more power while still delivering a significant efficiency gain is progress. When you have need to use a gas-engine, it should use as little fuel as possible and be as clean as possible. How is that not forward thinking? Profit will grow later when that established platform is taken advantage of by increasing battery-capacity and adding a plug. That's exactly what Toyota is doing by electrifying the fleet with a variety of hybrids. Their production & sales of vehicles utilizing those motors & controllers is what they will build upon... growth from the seeds being planted now.

12-11-2018 Closure, Online Discovery. The online fighting with enthusiasts turned antagonist took an interesting twist today. My research revealed a key detail everyone else has simply just glossed over. That's quite common. Rhetoric is usually so vague, there's nothing of any substance to actually consider. That's how the loss of critical thinking became such a problem. If there's nothing to discuss in the first place, you don't stand any chance of constructive posts to follow. It all falls apart when enablers simply congratulate attackers on their clever spin. I notice the pattern after awhile though, which makes seeing beyond hype & greenwash easier. You look for subtle clues. Lack of any interest in detail made be curious what there could be to avoid. Sure enough, when I started to dig, I actually found something. In this case, it was the on-going effort to discredit Toyota by claiming they were wasting effort on fuel-cell vehicles. That's easy to see as untrue when you recognize market diversity... location and commercial use are significant differences where hydrogen could be practical, especially when you consider an automaker branching out beyond just selling vehicles. There's a massive potential business for stand-alone power, you know... generators. Anywho, on vehicles themselves there's diversification opportunity too. In this case, reuse of the propulsion source. I put it this way: You're forgetting the full electric drive already used for Mirai. That synchronous AC motor delivers 152 horsepower and 247 lb-ft of torque.

12-11-2018 Closure, Vague. Seeing desperation is perplexity. What do you do at that point? When the person is no longer making any rational points, when all they are doing is spewing rhetoric, how should your response be formulated? I chose to draw attention to their absence of substance. Merit is earned by presenting data for readers to draw their own conclusions with. They can see you are making an attempt to avoid a narrative by providing detail for analysis. Simply claiming Toyota is "*behind*" but not explaining why is an act of the desperate. They hope others will take the statement at face value... because they have nothing to actually argue with. Vague is their tool. It happens again and again and again. I recognize the pattern all too well. In this case those, I welcome it. Confirmation of the exchanges now being regarded as closure is great. Volt's demise was foreseen. GM clearly didn't want to do anything with the technology. What a waste. Oh well. It's not like the warning signs were hidden. Ugh. Here's my continued shoveling of soil on the coffin: Again with the vague, a blatant attempt to mislead by excluding detail. Looking at that actual detail, none of the legacy automakers are producing anything more than token quantities. They face the same issue, cost. Profit is not realistic when competing against traditional vehicles yet... hence GM whining about having squandered their tax-credits and now needing more. 60,000 annual (mainstream minimum you will never here the end of) is specified for that very reason. It's a line in the sand indicating roughly what automakers target for supplier contracts and the setting of dealer supply expectations. You can't make sustainable profit selling on niche counts.

12-12-2018 **Closure, Group Think.** One of the most common problems online is that of venue... hence the "*know your audience*" advice. Are you on a website that is open to diverse participation or one which caters to specific opinion? That daily blog most definitely was the latter. It attracted enthusiasts and drove away those who didn't agree. From within, most members don't see that. If you watch other websites, you'll discover they typically don't participate anyway else. The issue that comes about from that limited scope is often referred to as "*group think*". Everywhere there tends to agree with everyone else. They make anyone who stirs a difference unwelcome. For example: "*That number has been brought up countless times BY YOU. No one else...*" That response about the mainstream minimum I have been pointing out about the realities of business get labeled as my own opinion, even though I just pointing them out. That count was most definitely not of my origin. I'm simply the messenger passing along that information. But since no one there ever encounters that detail from any source other than me, they draw that incorrect conclusion. I kept my reply to that brief: Through the lens of just this blog, that impression of only me is valid. Elsewhere on other green sites, the view & expectation of sales is quite different. Know your audience.

12-12-2018 Closure, Failure. This is what I plan to be my final post on that nasty daily blog, in response to: *"Sales in the USA are what we in the USA care about. Prime has been out long enough for it to have had a nationwide rollout. Your refusal to admit it is a design failure obviously is not shared by the dealerships around the country and by Toyota itself."* That venue served as a valuable resource in the past, providing ample opportunity to learn about denial and the efforts to impede. Their claim of green was shrouding with problems. I pushed and pushed and pushed to make them understand, while at the same time figuring out why they didn't over the course of an entire decade:

WHO IS THE MARKET FOR VOLT ?

That question was asked over and over again as sales of gen-1 Volt became a struggle. It was obvious GM had focused on appealing to a niche and the impression was they'd repeat that with gen-2. It was also obvious that those posting here couldn't care less about the global market. That meant they would force that perspective on others, even though it only applied to GM.

Toyota's focus has always been on the global market, targeting ordinary consumers, and not having a financial time-constraint like GM. So, waiting until year-3 of Prime for rollout to the rest of the United States and not really advertising until then was perfectly fine... no loss, especially with the state of the EV market and the timing opportunity for mid-cycle updates.

As for the impression of *"unbridled hatred"* being portrayed, that should be obvious. I was correct about GM doing too little, too slowly with Volt. Certain individuals will always resent the fact that I called out concern, seeing the financial risk growing as sales continued to struggle. GM didn't diversify in time. Volt died as a result.

There's extra resentment due to the fact that Toyota did diversify. From Prius came several other hybrids in several markets. Now from Prime, we see the same potential. And I most definitely do not *"lambaste GM"* for not having electrified everything yet. I get on them about not having set any clear expectation. There's nothing still. Their own loyal customers have no idea what step GM will take next. It's that uncertainty that makes investors and dealers uncomfortable. Know your audience.

12-13-2018 **Closure, Bad Business.** Outside of that terrible daily blog, there are some efforts to discredit Toyota. They aren't as blind or desperate though. Somewhat objective discussion does take place. Sadly, most posts are just abandoned without any follow up. I suspect this will be one of them: *"What I would say is, this effort by Toyota will probably deserve an entire chapter in: The Book of Bad Business Decisions."* It originated from an attack against hydrogen. Unfortunately, there are quite a few EV supporters who don't like fuel-cell use in any form. They think it is a waste in every regard. The thought that it serves as a means of storage for electricity when large banks of batteries are not practical doesn't ever get addressed. Think of some commercial applications. That absolute doesn't make sense. We need capture as much energy as possible. So what if that isn't the most efficient means? Our goal is to be carbon-neutral. Don't forget purpose. It's far too easy to fall into that trap. Many do. Again, we don't want to add carbon to the air. If conversion from hydrogen to electricity isn't the best use of energy, but it doesn't result in any type of pollution, why is it still considered bad? Think about that for the big picture and end goal. In the meantime, consider what is good & bad business, as I did: 152 horsepower, 247 lb-ft torque from the AC traction motor used in Mirai. That's a component essential for a future EV that is already in real-world use. Imagine that transferred over to a Corolla with a plug. Toyota is clearly planning ahead for widespread reuse of their developing technology. Nothing bad about that.

12-13-2018 Closure, Rushing. The entire development-cycle of Volt was rushed. GM had fallen far behind and was struggling to recover from that, as well as bankruptcy. You could see the temptation to take shortcuts was overwhelming. Rather than study their own customer priorities to draw appeal from them, they would pursue sales any way they could. 200,000 tax-credits seemed like a massive quantity, especially when no other automaker was offering a plug-in hybrid yet. It was only a matter of stirring interest from early-adopters, getting sales from that low-hanging fruit. Turns out, there weren't that many actually interested. Price cuts and incredible lease deals were required to keep demand alive. Supply was piling up. GM rushed a product to market that didn't appeal to anyone beyond those just looking for the best opportunity at the moment. Nothing related to loyal was done to retain those buyers. When leases expired or the next best deal came along, they abandoned GM. The story repeats relentlessly throughout recent years in these blogs. Those enthusiasts didn't care. They just moved along. So much wasted opportunity... I always stated the situation of rushing as not bothering to make the choice affordable. GM hoped for a miracle that would drop battery-cost so low, it would make Volt an obvious choice. I wonder for who. If batteries became cheap, why not just purchase an EV instead? A large-capacity pack would be the better choice if the point was to avoid using the gas-engine as much as possible. Notice how many Volt owners took great pride in going extremely long durations without refilling the tank? With charger availability increasing, the EREV concept made less and less sense. They became their own worst enemy. That's what happens when you rush. Enthusiasts didn't think things through and their own push on GM for their beliefs ended up contributing heavily to Volt's demise. This is why I kept repeating the message of purpose. I could see their obsession was preventing the recognition of priorities, as I again repeated today: Why don't you consider the priority of being affordable for the masses serious? Sacrificing price for the sake of more range & power was a gamble which clearly didn't pay off for GM. Keep in mind that a fuel-cell vehicle is an EV with a small battery-pack to supplement the stack. All the necessary components are used for electric-only propulsion. So, the technical expertise & experience provides a dual benefit. Heck, even the platform itself can be shared as Honda has demonstrated with Clarity. Toyota is refining design while waiting for the uncertainty from Tesla and the mess with GM to settle down. There is simply no reason to rush to a market still in the early-adopter stage.

12-14-2018 Closure, Looking Back. It has been a wild ride over the past 3 weeks. The worst of those antagonists attacked relentlessly. He feared the day would come when Volt would die and I'd be there to deliver the eulogy. Pointing out that engineering was a victim of imbalance, where neglect of business need was the problem, made it too much to accept. I'm not supposed to say anything good about the technology. I was spun as an enemy to defeat, a competitor seen as squashed by an ironic twist of fate. "*Know your audience*" held true though. It became overwhelmingly obvious the real competitor was indeed traditional vehicles, that I was correct from day 1... well over a decade ago, back when Volt was first revealed. That left him cornered. He literally had nothing else to try. All the tactics & excuses had been exhausted. It was just like when Two-Mode died. I still remember that well. The analogy then was the antagonists were trapped in a corner, like prey about to be killed. In a surprising ironic twist, his very last post to me even sounded like that. It was: "*Hisssssss...*" He was attempting to call me out by identifying me a snake; you know, I was supposedly trying to sell snake oil. That fact that he was actually reflecting and made such a specific sound was truly remarkable. It was him, not me. Snakes are indeed predators. So, he thought he was safe, despite being in a corner. He didn't realize snakes can also be prey. I have proven to be an eagle (note always seeing the bigger picture). Oops! He went silent. Thank goodness that's over now. It wasn't a waste of time either. I had always wondered if that was the best use of resources. Turns out, much was learned from the experience of attempting to have constructive discussions with those who do not want to. Rather than a friendly venue, I chose foe. The fights there revealed much about what must be done to appeal to ordinary people. Those mainstream consumers couldn't care less about the opinion of enthusiasts; however, they do want to know which offerings have a reach beyond just being a niche. My effort was to research & confirm. The technology in Prius is a clear winner for the middle-market. That's the target, not early-adopters. In that regard, Toyota's effort is paying off. They worked hard to strike a balance. The needs of business were not neglected in favor of trophies. They know their audience.

12-15-2018 **Closure, Promises.** The biggest problem I had with Volt was it came from GM, who had a very well established position of *"over promise, under deliver"*. Most people don't remember any of the *"stop gap"* campaign from GM. It was a smear effort when Prius was first rolled out from GM. The greenwashing message conveyed was that hybrids were a waste of resources, since fuel-cell technology was the future. That's what GM was to deliver by 2010. We all know how well that turned out. GM embraced hybrids, delivering Two-Mode and BAS... neither of which worked well. In fact, they were failures almost immediately. Price was high and efficiency gain low. Both were discounted, rolling out next-gen offering with new names to disguise the previous attempts. Volt gen-1 and eAssist, both of which found struggle right away. Volt was especially bad. It had so many shortcomings, enthusiasts diverted attention to gen-2 early on. The rhetoric got nasty. Lies about the plug-in Prius were rampant... hence the problem. Volt got in the way. Promises of *"leapfrog Prius"* were broken. The sales never materialized, despite heavy discounting and irresistible lease offers. Conquest obscured actual progress. That created a barrier for Prius. The effort to advance forward on the affordable front stalled. Volt was in the way. With its abrupt death though and Toyota well thought out timing, we are suddenly seeing a surge of Prius interest. The move to deliver a more aesthetics more appealing to a wide audience and offering AWD seems to be a winner already, even before rollout. 50 MPG from a better looking, more capable Prius with a highly competitive price is a winning formula. It's a nice complementary offering at the side of RAV4 hybrid too. Meanwhile, GM has nothing... but is no longer blocking with an empty promise. I was so tired of always hearing about Volt whenever Prius was mentioned without any substance to actually support the comment.

12-16-2018 **Closure, Dead.** A blogging topic was posted yesterday on the big EV website. It was about GM having hit the tax-credit limit and how difficult it will soon be for GM to compete. Naturally, the distortion element of "EV market" was what it had been based upon. Rather than actually addressing the reality of Volt & Bolt having to face traditional vehicle competition, we got the usual slant of other automakers. Fortunately, the tone of that was lighter than in the past. GM's failure to capitalize on the timing opportunity for getting Volt technology spread to other offerings long before this is finally getting attention. It's still not much of a priority though. Most people are just writing off GM entirely, giving up on their hope about the legacy giant. This is precisely what the *"too little, too slowly"* concern was all about. It came about from the automotive task-force assigned to help GM with bankruptcy recovery. That's a scope far bigger than Volt, something the enthusiasts absolutely refused to accept. Now, they are dealing with a dead Volt. Few care anymore, as the lack of response to my post on that topic confirmed: *"GM's choice to concentrate on conquest sales, rather than focus on their own loyal customers, will be confirmed as a terrible decision for tax-credit use. What suggestion is best for their next step, knowing that generous subsidy won't be available?"* No one had anything to contribute. That's because there is nothing whatsoever coming from GM. The silence is deafening. Not a peep, from an automaker who usually brags about industry leadership, it a sure sign of it being over. This race was lost. The hare failed to beat the tortoise.

12-16-2018 Closure, S-Curve. I'm really surprised to see the market-spin taking on such a deceptive approach. More and more articles are being published about the boom of EV sales. True, we are seeing a genuinely impressive ramp-up of Tesla production... which is why so many have given up on GM, especially since their own ramp-up had been promised. But vital information about tax-credit phaseout isn't included. That intentional omission is very, very misleading. There's a huge interest in Model 3 purchases right now simply due to the fact that tax-credit phaseout has already been triggered. In just 15 days, that \$7,500 subsidy will be cut to \$3,750 and you won't be able to collect it for an entire year. That's a potent reason to rush purchases. A reasonable expectation is that demand will drop noticeably next month as a result. That isn't mentioned though, nor is all the promoting of fossil-fuel sources by the current administration. It's a greenwash effort from an unexpected source. They are feeding a narrative that will ultimately present barriers, very much like Volt did. Good intentions created a problem extremely difficult to overcome. That's bad enough when there aren't many challenges to deal with anyway. This is denial on a dangerous scale, since it promotes an effort to ignore signs of trouble. It's really unfortunate people don't use critical thinking anymore. Rhetoric has far more of a hold on attention than what we were taught to do. The brainless terms, like "*big oil*" and "*global warming*", are trouble. Call out for detail. Push those refusing to provide it to step aside. You're in for disappointment otherwise. We must set realistic expectations. Tesla Model 3 sales will drop soon. That's ok. It's part of the normalization process, if you plan accordingly. If not, expect damage-control to get out of hand... just like we saw with Two-Mode, Volt-1, and Volt-2.

12-17-2018 Closure, Plans? It was like dealing with a black-hole. You know at some point there will be a collapse and everything near will get sucked in. That's been the situation with GM. You knew they'd screw up and harm efforts the industry have been striving for. It became obvious early on. Volt was losing money. Enthusiasts would lie about that, claiming the design was profitable despite an overwhelming amount of proof to the contrary. The recent layoff announcements provided confirmation. All doubt has been removed. Of course, there shouldn't been any in the first place. Seeing how hard Toyota struggled to squeeze out razor-thin profit from Prius is all it took to understand the difficult challenge of making money from new technology. Anywho, that brings us to the collapse. If we are about to witness GM placing all its bets on Bolt instead, abandoning EREV in favor of EV only, how will that profit be made? Hyundai is about to rollout their own EV, one that very much takes on Bolt directly. Their plans to penetrate deep into this emerging market include taking advantage of tax-credits GM no longer has. How exactly will GM compete with that, especially knowing Hyundai's offering will be a SUV rather than a wagon? This is why I kept redirecting discussion back to GM's plans. It made no difference whatsoever how Toyota approached the market. That was clearly just a red-herring. Toyota is focusing on their own customers anyway, not making a conquest play like Hyundai. Think about the differences between the well-established Japanese automaker and the up-and-coming Korean automaker. Hyundai seeks growth. Toyota retains loyalty. That leaves GM without much hope... hence the collapse. What will an automaker dependent upon large guzzlers do without any type of affordable green technology?

12-18-2018 Closure, Mixed Messages. The fundamental problem which hampered progress of Volt was never really knowing what it was for. This reaches beyond even the "*Who?*" question. What was GM attempting to accomplish with the technology? No one ever really knew. It wasn't like with Toyota. Their hybrid technology had a blatantly obvious purpose... to reduce emissions & consumption. With the technology from GM, answers differed depending upon who you asked... hence all the reminders of audience. Enthusiasts pushed the angle of all-electric driving. That primarily came about as a differentiating factor from Prius PHV. They wanted the goal of Volt to not have those same blending operations known. They did everything in their power to suppress mention of it at every stage, especially when GM tried to promote it more as a gen-2 refinement. That message of purity ended up drawing the most attention, drowning out mentions from GM, like the "*1,000 miles or more per tank*" advertising. Never using the gas-engine was a direct contradiction to the purpose of Volt. It repurposed the device, portraying it as nothing but an emergency backup... a very, very expensive rarely ever used backup. Why bother with such an expensive & complexity when increasing battery-capacity would serve the same purpose so much better? That's how Bolt came about. Enthusiasts claim that was the plan all along. Abruptly shuttering the factory where Volt was built and laying off those employees proves otherwise. That most definitely wasn't what GM intended. Of course, no one knows what GM intends now. The outcome is already disastrous. Could GM make it any worse?

12-18-2018 Closure, Support. Those mixed messages certainly have confused our clueless president. He took the "*all-electric*" reference to mean exactly that... all GM vehicles being totally electric. Ugh. This is what happens when you send out press-release material that's ambiguous to feed hype with. Enthusiasts were always delighted to spin the message to whatever suited them best for Volt promotion. I'd call them out on it. They'd attack the messenger. That lack of substance set a precedent of claims not requiring merit. They didn't need to be supported by facts. All that was needed was a sense of hope. Ugh. That's how we got into this mess now... the one that makes it very easy to see why Toyota kept its distance. Why would you want to be associated in any way (pulled into the black-hole) with GM's efforts? Prius would always be recognized as different for good reason. Ironically, the increase in battery-capacity from the next-gen upgrade brought about more power, giving Prius Prime electric-only traits similar to Volt. But at that point, enthusiasts were sending a new message of purpose for Volt... which brings us to support. Who will be providing it now? Enthusiasts are gone. GM seems to have abandoned the "*EREV*" approach. And the president is angry toward any type of electrification, choosing to support the coal industry instead. That's good reason for the automakers with interest for plug-in hybrids to stay quiet while refining their offerings. I'm expecting some from Toyota at the Detroit autoshow. That venue and the timing seem ideal for taking the next step toward mainstream appeal. New packaging for the battery-pack to make it fit better is a nature choice. Increasing charge-rate from the plug would too. It's little refinements like that which make mid-cycle updates a big deal. You don't need fundamental changes along the way to demonstrate continued investment. You do need to do that with next-gen upgrades though. Big things are expected then. Volt-2 didn't deliver. There was no other vehicle here rolled out using Volt technology either. Where's the support?

12-18-2018 Demand Spin. Much of the ado about the "closure" related to Volt (yes, an intentional dual-meaning play on words) went from dealing with GM's failure to actually do anything with the technology to bring it mainstream to spinning the situation as preparatory actions to introduce full-electric choices instead. We know that isn't the case. People don't abruptly lose jobs in the normal steps of technology progress. Vehicles established as having high-volume intent are not halted during the effort to increase sales. Tax-Credits do end predictably though. Other automakers continue with their plans as well. Demand for green choices will not cease; however, reading the spin makes you wonder. The latest attempt to mislead and provide damage-control is claiming: "*While many Volt owners got fairly disrupted at Volt production finalizing, what this really means is that the OEM's know that people are holding off for affordable EV's.*" There's simply no evidence to support that; however, there is an enormous amount of material facts proving people are holding off for affordable plug-in choices. Notice the spin? Since GM failed to make Volt affordable, enthusiasts will protect reputation by implying the plan all along was to deliver EV choices. The history of all that "*range-anxiety*" campaigning is just a misunderstanding of intent, not seeing the big picture. That's a load of garbage. People would jump on plug-in hybrid choices if they were both affordable and readily available... a condition which Toyota is strongly positioning them business to deliver, to take advantage of demand when the time comes as we see with the hybrid progress. Apparently, GM will be doing the same with EV choices, but there is nothing to actually support the hype.

12-18-2018 Hybrid Progress. Speaking of that topic, it sure is getting attention today. I see several new articles about the AWD Prius coming next month. My favorite quote is: "*If Toyota is great at engineering, it's a long-distance military sniper when it comes to targeting a feature's cost-benefit sweet spot.*" Like I said, that magic affordability target is how demand will grow. People will see the AWD design delivering 50 MPG for additional cost of \$1,400 and want to know more. That's a compelling draw. No parasitic drag by using an induction motor rather than a permanent-magnet type makes the approach quite sensible. It's just like any other package decision. You want the AWD feature? It's like asking if you want the upgrade that includes dynamic-cruise control... of was in the past, now that it too has become standard. Perhaps AWD will someday too. For now, Toyota is in the introductory stage. We always said such a minimum approach could deliver a huge return. 7.1 horsepower and 40.6 lb-ft torque doesn't sound like a lot. But with so little tradeoff, you get a second set of wheels providing additional traction. That's exactly what compelled many to choose Crossover offerings. They wanted improved control in snowy conditions... which is precisely what this new features delivers. That's progress. Ironically, it should see an immediate draw too. Normally, rolling out a new vehicle in the dead of winter is a terrible idea. But with the AWD being the central focus of the mid-cycle update, it's the ideal timing. That's genius.

- 12-18-2018 Sales Struggle.** Looking at the bigger picture, this comment in an editorial summed it up well: *"The truth is that Japanese auto makers can sell sedans at a profit, and GM can't. And GM is struggling to compete on its home turf in SUVs too."* Quite a bit of attention is now focused on Toyota's amazing improvement they'll be delivering for RAV4 hybrid. For such a large & powerful vehicle, that's an impressive hybrid system. It's an especially painful blow to consumers who may be interested in Equinox... which looks like a terrible guzzler in comparison. So with respect to market retention, GM is in a world of hurt. Simply shifting to more SUV production won't actually solve their financial issues. Making matters worse is the overlooked efforts of the other automakers to deliver plug-in hybrid SUV choices. Even shorter range offerings, like Mitsubishi & Subaru, provide reason for GM worry. There's a very real threat of customer loss to Hyundai/Kia, in regard to both plug-in hybrid and full-electric. All that adds up to the concern about *"too little, too slowly"* becoming a death notice. What comes next after closing 5 assembly plants and laying off 15,000 workers? This is why I pushed. Others chose not to acknowledge what I was witnessing.
- 12-19-2018 The Real Story.** How many years did it take for someone to finally just post this: *"You mean dealers are not ready to kill their cash cow."* The proper response to that, of course, is the face-palm emoji. Ugh. To think that the most basic of economic principles in the automotive market could be dismissed as important for so long blows the mind. If the reseller isn't interested in selling the producers product there will be a much more difficult path to success. Knowing how challenging profit has been, that point of easy revenue should have been obvious. Duh! That brings, yet again, back to the *"Who?"* question. Why would a dealer stock a vehicle their own showroom shoppers wouldn't be interested in, especially if the return for the sales effort is marginal at best. Selling a large guzzler is quick & easy and there's a substantial payback for both the dealership owner as well as the salesperson. That's the real story. This is why Volt was doomed to fail. Cards were stacked against it from the very beginning. Enthusiasts refused to acknowledge that reality though. It took worker layoffs and shuttering plants for that message to finally be accepted. That's really unfortunate. So much time & opportunity was wasted.
- 12-19-2018 True Customers.** It is interesting to witness the turn. GM's announcement has really stirred the early-adopter discussions. This is making my experience & observations something to really leverage now. Patience, tolerance, and documenting really pay off. It will be interesting to see where the posts take us. This is my contribution at the moment: Toyota studied the mainstream market carefully, rather than listening to enthusiasts. They know that the bottom-line is a challenge anyway. Dealers taking on inventory that requires extra effort to sell and provides only a razor-thin profit in return wouldn't be appealing. Volt enthusiasts hated me for pointing out that dealers were the true customers, not those who end up owning the vehicle after purchase. It's a cold, hard reality GM learned the difficult way. We see how that worked out. Know your audience.

12-19-2018 GM's Collapse. In the past, it was quiet abandonment. Disenchanted enthusiasts would simply disappear. So many of those who had turned antagonist and attacked me relentlessly have faded away into the past. I look back at those discussion threads from years ago and see many names who have vanished without a trace. And since countless of those individuals were anonymous, hiding behind a made up login name, there is basically no record of who they ever were. They were cowards from the start, unwilling to share even the most basic aspect of their identity. That's why blogs of the past thrived. There was never any accountability. This is why the reputable services forced traceable accounts. You had to yourself, not hide behind an avatar. In fact, this is the very reason the last of the troublemakers fought so hard to make me feel unwelcome. He was protecting one of the last venues of that old era to survive. It was that daily blog for Volt... which is no more. Suddenly, I'm no longer alone. Scores of former GM supporters, enthusiasts, and even some antagonists have turned... angry about having been let down. GM squandered its lead, wasting opportunity exactly as I had expressed concerned about over the years. That warning of "*too little, too slowly*" has been so overwhelmingly confirmed as a genuine problem, there's nothing else to say... except, goodbye. They have turned on GM, voicing disappointment. It's even worse than the abrupt fall of diesel. This is a failure where the potential for success was enormous. In just a few months, I went from having to deal with "*behind*" claims to watching those same people post about GM having lost its way. The reality of the situation was that GM never had proper aim. The direction they were headed was always a dead-end. Remember those observations of turning in work that wasn't assigned? They thought the teacher would be impressed by going above & beyond, even though it had little to do with the expectation of what was to be delivered. It's all about that want verses need problem. GM never learned that lesson Two-Mode taught. GM continued to repeat the same mistake over and over again. Volt-1 was a disaster. Volt-2 was so bad, many don't even want to talk about it anymore. Sales never grew. Volt remained an expensive niche. What a waste.

12-20-2018 **Worth It.** There is much to be learned on the EV blog. Many have no sense of history. Their naive nature of never having been part of the automotive market prior to an interest in plug-in vehicles makes for a troublesome crowd. They are doomed to repeat mistakes if they are unaware of how they played out in the past. I'm seeing quite a bit of that recently. The collapse of GM in this market has pushed Volt into the "*don't talk about*" category now with an expectation of the same soon for Bolt. Remember how so much hope had been placed on GM's plan to increase Bolt production this Fall? They milked that anticipation for an entire year. Hype never emerged though. Tesla's obvious success combined with growing expectations from Nissan overshadowed all that. GM press-release narratives fell apart. No one cares anymore. VW learned well about how to manipulate with announcements. They are building a future with no accountability... something Toyota strives to avoid. Not saying much of anything and simply just quietly deliver is Toyota's approach, one I really appreciate, as I state on a regular basis. They understand their customers: Know your audience. We witnessed the "*it's worth it*" argument fail for 8 years with Volt. That premium justification was never enough to draw mainstream buyer interest, who have very different priorities than enthusiasts. That's why there are different categories of vehicles. It's something early-adopters either don't recognize or don't want to. Try selling the acceleration benefit to my mom. That's a futile endeavor. She's happy to purchase a new vehicle, but going fast simply isn't of any interest. A good balance for a good price is the goal. A common affordable choice is fine. This is why a \$28,000 RAV4 hybrid delivering 39 MPG will be a popular choice. We'd all really want to see the plug option added soon, but that just isn't on the profit-for-dealer radar yet. So, don't expect it to be something ordinary shoppers will be drawn to in the near future.

12-21-2018 **Purpose?** Doomed to repeat the same mistakes again? It's hard to tell. I'm certainly seeing signs of that emerge already. I'll be keeping a close eye on the apparent trend, as I pointed out today: Over the past few weeks, I have witnessed a pattern emerging... a familiar one. It is a focus on concept, rather than addressing the actual business at the moment. Volt ended up in an identity crisis as a result of this, twice. Mixed messages made it very difficult to sell. What was Volt's purpose? Some believed it was designed to seamlessly transition to the gas-engine, delivering outstanding overall MPG. Others believed the goal was to drive EV almost exclusively, only having a gas-engine as a backup for "*range anxiety*" just in case. Why not just make battery-capacity just a little larger and not bother with a gas-engine at all? This is how Bolt came about. In fact, many enthusiasts claim that was the plan all along, that the EREV concept has served its purpose and GM simply plans to let Volt fade into history. In other words, if GM was to deliver a Voltec based vehicle, what specifically would it be? How many kWh capacity? How much HP output? How large should it be? How should it be priced? With so many unanswered questions of purpose, it is no surprise GM is waiting for the dust to settle before hitting the reset button.

12-21-2018 Leadership. The potential discussion fell apart almost immediately. Many online posters don't pay attention to the messages other share. That makes dealing with their lack of history awareness even more difficult. In this case, the following that I posted was just outright dismissed. He clearly didn't comprehend the difference, which was intentionally subtle. GM didn't want people to notice. All that 40-mile promoting feel apart as soon as the first Winter arrived. What I had been saying about heater power-consumption finally got some attention... not proper attention... but at least acknowledgement. GM recognized the lack of understanding about how plug-in vehicles utilize electricity. People expect "40" to actually mean "40". The lessons learned by the hybrid market were dismissed as relevant by their plug-in effort. That was a terrible mistake. People don't read the fine print. People don't understand engineering. People don't have the background. Know your audience! Needless to say, GM bumped battery-capacity for the next-gen rollout. Had they stuck to the 40-mile delivery expectation, that would have worked fine. Taking heater use into account would have been really smart; instead, they hyped increased range. Ugh. All that work to stress the importance of "40" was wasted by the obsession for more. GM is its own worst enemy. True, we can say that of other automakers... including Toyota in some regards... but that's more in a general sense. The very specific trait of delivering 40 miles was changed without explanation. Prompting awareness of heater consumption and how GM dealt with it would have been an entirely different matter. But GM chose not to. It was an executive choice which confused potential customers. Leadership didn't lead. Rather than stating clear purpose and sticking to it, there continues to be an ever-changing story. Remember way back when Two-Mode was being developed? Same problem! They don't learn from prior mistakes. Since I'm just repeating myself at this point and there's little hope of change, I kept the response today short: GM leadership changed their message, from "*40 miles all electric*" to 53 miles AER. That in itself derailed the understanding of purpose. They made it worse by not keeping it clear what Volt was competing against.

12-22-2018 **End of Prius.** A newbie started a new thread on the big Prius forum drawing this conclusion: *"...I made this prediction a while back. Toyota has said for quite some time that they want hybrid models for all vehicles in their line up. I've said that once the Corolla gets a hybrid model - the Prius is dead."* He then provided some links to support the narrative of Toyota's advancement. I could see how such an impression could be made. But that requires looking backward with the assumption of no market change. It shouldn't take much to see how "cars" are no longer the dominant force. In fact, the automotive market has shifted in such a profound way to the support of guzzlers, it should be obvious. Apparently, some don't see that though. Perhaps this helped: Prius will continue to evolve. It's a hatchback morphing into the higher end of mainstream. We've seen the large screen and more comfortable seating in back introduced, in addition to leading the plug-in hybrid choices. Corolla will be a complimentary offering, staying in the very affordable category for those still seeking a sedan. I have witnessed all of the generational offerings over the years... 1997, 2000, 2003, 2009, 2012, 2015, 2017... and have owned 5 of those Prius models over the past 18 years. Each upgrade delivered continued improvement to the hybrid system, while staying true to the mission of decreased emissions & consumption, keeping the design affordable, and adapting to the changing market. Seeing Toyota diversify Prius into more models and spreading the technology to all of their common vehicles is what everyone (customers, dealers, stockholders, employees, and executives) all want. That's what keeps the profit coming without major disruption to the business flow... which now, is more critical than ever with such political & economic risk growing. Getting people to abandon traditional vehicles is key. We see how common it is for owners to have an expectation of continuous improvement once they've taken that initial step. Problem is, there must be variety and it must be affordable. This is basic economics many early-adopters fail to recognize, especially with respect to tax-credit dependency and infrastructure shortcomings. In other words, Prius will remain viable for years to come, leading the way for the rest of the fleet.

12-22-2018 **Clueless Comments.** Stuff like this getting posted on a regular basis makes me sigh: *"They increased it since gen 1 volt owners were desirous of a car that would go 50 miles without using gas. It was one of the rare times GM allowed User Feedback to aid in design."* I really don't know how such naive can purists on a venue dedicated to educating. We get information on a regular basis pointing out the necessity of understanding the larger market. Seeing beyond just early-adopters is absolutely essential and stressed to make that point. Some just plain don't get it though. I responded to that nonsense with: That is exactly what not to do when you are trying to adapt a niche to appeal to mainstream buyers. There were many warnings about not taking advice from early-adopters too. Knowing that's how many have fallen into the innovator's dilemma trap, GM followed through anyway. GM should have retained the "40 mile" capacity, allowing the battery-pack to shrink to provide size, weight, and cost improvement. At the same time, focus on making the interior more common of a fit and less of an emphasis on performance. The results of not doing that have been disastrous. Sales didn't increase and now Volt is being discontinued without a successor established. The technology should have been spread to other choices by not. That was key to hybrid success. GM's failure to focus on the correct audience was a terrible choice.

- 12-22-2018** **Losing Credibility.** The website looked upon as *"that"* resource to get any & all information related to EV news is really facing a struggle now. Years ago, they just ignored both the plug-in hybrid market and focused solely on EV sales. That set the stage for giving preference, since so much focus was placed on such a narrow audience. Lack of balance is always a warning sign to seriously concern. What are you risking by allowing a barrier to be formed? In this case, it is the encouragement of smug. Whoa! We are really starting to see it now. There's so much short-sightedness, it's troubling. The blatant disregard for how much dependency had been placed on the tax-credits is really bad. It's just shrugged off though as rhetoric. They see high demand now and refuse to recognize its just a stage, that sales will fall afterward. How much they'll fall is a big mystery. But with gas here just \$2.18 per gallon now, there's not much hope for continued growth... especially as the choices expand... which is how credibility becomes a problem. Outright dismissal of those choices and they pursue isn't how you build credibility as an information resource. Then, there's this: *"Can't wait for the laggards, shills, shorters, and haters to gnash their teeth and once again try and spin this negatively as they contort their feeble minds trying to counter Tesla's success and customer satisfaction numbers!"* Notice the pattern? We saw the same defensiveness get worse and worse with Volt. No matter what you ended up posting, they would fight back. They end up calling you a *"troll"* and try their best to drown out anything you post. How is that constructive? How is that a way to allow a venue to evolve? Turning into a website that refuses to accept critical thought is a very, very back sign.
- 12-23-2018** **Big Oil.** We're seeing the outcome of *"Drill Baby Drill"* reveal itself as a financial mistake on a monumental scale. There's way too much supply now. Flooding the system with far more inventory than what's needed should have recognized as a horrible decision. All of us striving for green choices saw the imbalance. So, even if there was sound reason for more drilling, there wasn't much of any renewable investment taking place. Heavy emphasis on a resource with a finite quantity available is foolish. That's without even taking the pollution aspect into account. Knowing those fossil fuels are responsible for serious damage to our health and environment is no reason to turn a blind-eye. Just ignoring the problem won't make it go away; unfortunately, those in the *"Big Oil"* industry are taking it a step further. They are encouraging consumption because there isn't any reason to worry about getting oil from unfriendly sources. Encouraging such waste with such an uncaring attitude is sickening... but no surprise. We knew there would be a backlash at some point. Waiting until Tesla ramps up production, then abruptly hits tax-credit expiration without any hope of political support for renewal, is timing that was very easy to predict. The fact that GM's fall is happening within the same timespan is a happenstance they won't let slip by. Those loses will be used to fuel rage and stir fear of change. A lengthy article published 2 weeks ago by the New York Times spelled out this administration's plan to allow cars to emit more pollution. Adding to that was last week's presentations in favor of coal at the Climate-Change summit, a sickening display of denial from this administration. Even though we have the technology for renewable electricity and the use of it in electrified transportation, there are some who just plain don't care.

12-24-2018 **Newbie Vague.** Things can turn ugly quickly when a newbie (new forum member) makes such a vague claim: "*a BEV is significantly more efficient than an ICE*". My guess was the person was quite clueless about how many different ways that comment could be interpreted. I made sure that was brought to the attention of everyone quickly. Awareness is very helpful in touchy situations. Hopefully, this helped:

Being new here, it's best to pay close attention to advice intended to help prevent misunderstandings. In this case, posting an absolute like that could be interpreted as an attempt to greenwash. The reason is you posted an extreme as if to present that as the only choice available. Misleading by omission or being vague is a common problem we have to deal with.

There are a wide variety of choices available, far more than just "BEV" or "ICE" as presented. In fact, that is how Prius came about... and the misconceptions we had to deal with for years following rollout. People didn't understand just how profound of an efficiency improvement a system designed to exploit the efficiencies of both technologies could be. A poorly informed audience can easily be manipulated, intentional or not.

A prime example of this (pun intended) is when you read through this article published just a week ago titled "*Toyota struggles to save breakthrough Prius hybrid*". It seems innocent enough, until you take a closer look. The source is from Detroit. That in itself gives reason for pause with so much anti-hybrid history. A few writers from there still have a deep hatred for hybrids, so the point of verifying claims is important. Of course, it's best to not take unfamiliar sources at face value anyway.

Notice what barely got a mention? Prime got only this: "*including a plug-in hybrid version*". We've seen other sources intentionally mislead by downplay. The information presented portrays Prius as a dead-end technology with no opportunity for advancement or that consumers have shown no interest when the option was readily available. We all know Prius Prime is only at the early stages still, not even rolled out yet to a large portion of the country. The complete absence of any data is a dead giveaway. Watch for vague references like that.

The fact in the opening related to "*demand*" is misleading too. That claim of "*Demand exploded when it reached the U.S. three years later.*" tells us what? How do you measure demand when supply is limited to dealer-order only? No supply being available on dealers lots until 4.5 years later reveals the writer's claim was inaccurate, at best. Prius rolled out in Dec 1997. Dealer inventory in the U.S. wasn't made available until May 2002, and even then it was very limited. True demand explosion was in Oct 2003, as clearly indicated by a simple Wiki lookup of Prius history.

If you are trying to make a safe assumption about an article, giving the writer benefit of doubt, assume they are totally clueless about the plug-in market. Most people have no idea that world has any potential beyond being a niche any time soon. Reality is though, that is how Toyota will save Prius. The twist is, that won't be a struggle. It won't take long either. Toyota simply had the patience and foresight to rollout based on affordability and market understanding.

Upon studying Prius history, you'll see that Toyota intentionally held back certain design features. They downplay with the intent to target & research. That's how their upgrades have been so well received. Most people never notice those subtle clues though. It's far too easy to just accept what others have conveyed. So, use care with the words you choose. We welcome new input. Those perspectives are priceless, if well informed.

12-24-2018 **Asking Questions.** The newbie took it well, by asking a question: *"I still question why we continue developing hybrid technology when there should be a bigger push for longer range lower cost EVs and wider spread charging infrastructure..."* I answered with: What you mean by *"hybrid technology"* is another example of vague references. We have no idea. Clarification is necessary. After 20 years of variation, it should understandable how assumptions come into play. There's a wide variety of designs all sharing the same label. I suggest taking a close look at Prius Prime. The advanced heat-pump and the extremely efficient traction motor & controller should be a clue as to how PHEV tech contributes to BEV progress... and that's without even considering the related investment in the battery-pack. As to charging infrastructure, you've totally overlooked how much influence plug-in hybrids have toward home upgrades. For many, it is extremely complex & expensive. That reduces favor significantly for BEV purchase consideration. It doesn't for PHEV though. In fact, many buyers will take the plunge with PHEV and not upgrade until ownership after a year or two. That's key. Being able to charge a PHEV entirely using nothing but a shared 120-volt connection at just 8 AMPs is a very important factor for market potential. Many households cannot support more than just a single plug-in vehicle at the same time. There's much fear & uncertainty related to plugging in too. So, this phased approach is a means of quickly reaching a very wide audience. Think about the likelihood of the purchase of a second plug-in vehicle. Without tax-credit help and the early-adopter market saturated, an approach like Toyota's with heavy emphasis on PHEV penetration is a large opportunity to exploit... a means of carrying over developed technology at lower cost and attracting loyal customer interest. In other words, what is there to question knowing that additional information?

- 12-25-2018** **Market Shift.** More questions are getting asked. That's a good sign. This was caught my attention *"With the lack of any real enthusiasm shown by Toyota in marketing the Prime ever since 2017 till date (even with solid sales), do you think the Prime was nothing more than a compliance car for Toyota?"* I'm always drawn in to questions of a polarizing nature, when they present facts as an either/or situation. I'm always happy to point out what they overlooked, that other choice they weren't even aware of. In this case, that was: It's not lack of enthusiasm or compliance. It's studying the market while waiting to get past the early-adopter stage, and refining design & production along the way. Prius Prime/PHV directly targets mainstream buyers, those who may otherwise consider the purchase of a traditional vehicle. That's quite different from Tesla, GM, or Nissan appealing to enthusiasts. Attracting showroom shoppers is much more difficult. The benefit of patience should be obvious now with challenges related to tax-credit dependency becoming evident. Look at the mess GM is having to deal with for Volt. So much more expensive of an MSRP was good reason to avoid getting pulled into that fallout mess. Keep in mind that Prius Prime/PHV is a worldwide product too. United States inventory will benefit later from a production ramp-up, especially with the potential for mid-cycle updates. Like all things Prius related, there is always waiting required.
- 12-25-2018** **\$2.06 per Gallon.** It is rather surreal to see the price of gas so low. This outcome was inevitable. You cannot just *"Drill Baby Drill"* without consequences. In this case we pumped oil to flood the market (I know, bad puns) with supply there was no demand for. This is basic economics. Too much will force providers to accept a reduced price. How the industry figured this would someone just work to provide profit for everyone is a big mystery. Supposedly, growth of the market (both in vehicle quantity and gas consumption) would keep the balance. That, of course, assumed the failure of plug-in vehicles. If guzzling was promoted enough, no one would care... right? Turns out though, the proof of climate-change is becoming so obvious, attempts to deny or make excuses are starting to become absurd. Even the blatant avoidance is now called out. You can't get away from the evidence. Cheap gas only makes the situation worse. It's a losing battle no matter what they do. Resisting change has consequences.
- 12-26-2018** **Summary.** This brings about an undeniable confirmation of the *"too little, too slowly"* concern being genuine: *"Billed as an emblem of GM's engineering prowess and pivot toward alternative propulsion vehicles, this vehicle essentially invented the concept of the plug-in hybrid. It was critically acclaimed and generated a loyal base of enthusiasts. But sales never reached initial expectations, and GM is turning its attention to battery-powered cars that don't have a backup gas generator like the Volt."* All those years of enthusiasts fighting me, only to later find out the information I was sharing was indeed constructive. There was a suspicion that I was somehow trying to undermine GM in favor of Toyota. The idea of cooperation across automakers to build a bridge to the future was too far fetched; so unbelievable, they easily dismissed it as trolling. Their naive & smug attitudes contributed to this painful ending. Rather than usher in a successor to Volt prior to subsidy phaseout being triggered, they wasted the opportunity by endorsing a dead-end. It was such a closed-minded approach built on meritless hope and vague intention, there was no possible way to succeed... simply due to there no even being an agreement of what the goals were. Ugh.

12-26-2018 **Emotion.** To the surprise of no one, we're seeing reports like this now: "*The workers are also angry that GM, helped by the \$1tn corporate tax enacted last year, has spent nearly \$14bn on stock buybacks since 2015, money that could have been invested in developing next-generation vehicles.*" They say their loyalty being outright dismissed as a "*kick in the stomach*". Sadly, they didn't participate in the online battles I did, where facts of why fighting was necessary were outright dismissed. The supporters turned enthusiasts turned antagonist made up an endless not to accept evidence being presented. I'd point out how GM's choices to favor power & range of Volt reflected a corporate direction of seeking praise & profit, rather than investing in the future. All those warnings about "*too little, too slowly*" were provided to expose that lack of forward direction. GM got off on a tangent of enjoying the moment. That kept those employees gainfully employed for years. Falling from a position of sustainability was inevitable though. GM wasn't working on a means of stirring interest from their dealers. Ironically, that is exactly what the antagonists mocked Toyota about with Prius. Only problem, I kept pointing out the progress with Camry hybrid and the upcoming rollout of RAV4 hybrid. Now, we are just a week or two away from the next-gen RAV4 hybrid being delivered. An affordable SUV providing a 39 MPG combined rating. There's no way GM can compete with that... or the reality of how easy plug augmentation could be. It's just a matter of following the Prime formula, adding more battery and a one-way clutch. It's sad about so many jobs being lost, especially when it could have been prevented. But it wasn't... and supporters are still unwilling to address the reasons why. That's especially sad.

12-27-2018 **4 Steps.** Do this process sound familiar? 1) Deny. 2) Attack. 3) Play the Victim. 4) Change the Subject. That is the strategy our president has been following for years. I would elaborate on the first, adding comment about the denial being a list of excuses too, not just spinning goals that were stated actually meant something different. We see each of the stages every time a major topic comes up. It's the tactic for never having to deal with the problem. This is why enthusiasts always got so angry when I'd bring up accountability. Having a specific quantitative measure forced them off track, disrupting the regular cycle of greenwash. Volt discussions provided countless examples of that over the years. It was an effort to do everything possible to avoid addressing problems. This is why I pushed back on supposed solutions. I could see the pattern. That indicated lack of substance. They were just stepping around the mess, never making any effort to deal with it. Having witnessed this all firsthand and now seeing the consequences about to play out is fascinating.

12-27-2018 New Tech. Things are getting really messy. I had no idea the situation would be approached with such ignorance. It makes me feel naive, despite being so well informed about audience. This one certainly doesn't have a clue: *"It's not just about hybrid tech. It's about new tech. that is where Prius is losing ground. Tesla is the new Prius. Prius is following, not leading."* That's just rhetoric being spread without any thought behind it. Where's the merit to support claims? Something... anything... to show how progress is measured. What ground? Leading who? Ugh. I started fresh with this particular new thread veering so far off track so quickly...

The definition of leadership doesn't say or even infer anything about "new" being criteria:

- 1) the position or function of a leader, a person who guides or directs a group.
- 2) ability to lead.
- 3) an act or instance of leading; guidance; direction.

Knowing your audience is vital. Who are you trying to lead?

This is all about getting ordinary people to actually change. Tesla has done a wonderful job of fulfilling the desire of early-adopters, but their reach to mainstream buyers without the \$7,500 tax-credit is far from certain. Toyota's ability to draw interest from the common consumer is well proven with Prius, but their history is loaded with disappointment from enthusiasts. Understand that difference?

We are embarking on a time when the market overwhelmingly prefers vehicles larger than Prius and have very little interest in new tech. That means delivering a well-rounded choice. An affordable offering with a wide-array of conveniences complimented by a modest EV drive has the potential to appeal to a large audience of everyday shoppers.

That's the type of leadership we need. Notice how that's the opposite of what GM did. Their attempt to deliver a choice with the *"it's worth it"* approach failed on a tragic level. Sales never reached beyond enthusiasts. It was an expensive niche without an mainstream successor... the very thing Toyota is striving to avoid with Prius evolving into Prime... an extremely difficult challenge of leadership.

In short, the belief that range or power equates to being a leader of mainstream change doesn't have merit. It is leadership, but not with the audience which changes the status quo.

12-28-2018 **Dashcam Purchase.** Talking to anyone who drives on a regular basis, you'll get comments about wanting one when mention of dashcam is made. The topic is clearly one that's been on everyone's mind. We all see the accident footage. So, we know you can be witness to incredible acts of stupidity. I finally got one, but that wasn't the purpose, nor would it be a replacement to the high-quality equipment I used for the Prius videos. This was just for everyday use, to have a camera effortlessly recording when I drive. You never know what you'll encounter that you would like to retain. On our trips, we see a beautiful sunset or scenery rather predictably... yet, never have something to capture it readily available. Regular cameras don't work for that purpose either. Dependent upon batteries, you cannot run them non-stop for hours. Then get hot. A dashcam using a tiny super-capacitor doesn't. They are finally starting to deliver 4K resolution now too. I got one yesterday that's really just 2K, but up-converts to 4K. That means it has enough resources to deliver 2K well. I'll be able to capture video and occasionally snap a photo at the same time. I might be able to stream what I see too. Reviews of the Wi-Fi are very encouraging. You don't know until you try. So, that's what I'm doing. The plan is to share some video too. Stay tuned.

12-29-2018 **Setting Expectations.** A big dose of reality was warranted. It's like watching an accident about to happen, which viewing in slow-motion. You know it isn't going to be pretty. You also know it could have been prevented. No matter how much you try to share information, certain people will refuse to accept it. The advice is wasted on someone hell bent on supporting a hopeless risk. Oh well, it makes them feel better for now. Later, they'll just pretend what they said never happened anyway:

Know your audience. Those comments are very much from the perspective of an early-adopter. The way mainstream buyers of new vehicles shop is quite different. First, they won't have the influence of a \$7,500 tax-credit. Second, they will primarily stick to their favorite brand and rarely consider another automaker. Third, they will immediately dismiss a BEV if they haven't ever been exposed to one yet, and even then it will be a challenging sales. In other words, make sure a realistic timing expectation is stated.

Far too many here don't recognize being in the low-hanging-fruit stage still. We haven't even seen sales begin directly against the true competition yet, traditional vehicles. Enthusiasts have no concept of how intimidating the idea of wiring up their garage for 240-volt charging can be. Besides the possibility of their service-panel being poorly located or underpowered, there's the uncertainty of equipment & installation cost. That's just for support of a single vehicle. Think about how many households have at least 2. And none of that takes into account those who won't have a plug available at their apartment or the extreme expense of super-high-speed charger locations.

It will be a rude awakening for many who enjoy the well-proven technology everyday but see their own peers not showing any interest. This is why PHEV choices will play such a large role in the transition away from traditional vehicles. The plug-in hybrid provides opportunity charging, to allow the technology to be exploited beyond just covering daily commutes, without ever bringing up depletion concerns.

Again, I can't stress this enough... Know your audience. Given another generational-cycle, things will be much improved. Until then, we are still very much in the spread-the-knowledge stage. Introduction to the technology from the well-informed is what must take place over the next few years for the stage of purchase consideration to be realistic for the masses.

Ordinary consumers have much to learn prior to those next-gen offerings they could potentially purchase. Remember, what we have now is very much restrained by cost & production limitations anyway. Prepare that future audience.

12-29-2018 **Renewed Battles.** Former antagonists try to stir new trouble on new websites. It doesn't work well though. The older venues served as a steady source for fake news by publishing ambiguous information using an interface which contributed to misleading. Most don't do that anymore. They desire integrity over popularity. I find it intriguing to participate in renewed battles knowing the tables have turned, in both respect to the posting and market change. Today, I fought back with: Yes, know your audience. 8 years later, Volt is still just a 4-seater with limited leg & head room. Prius Prime offers more leg & head room, but didn't bother offering a narrow middle seat since the market (audience) has shifted to RAV4 for that. You want the comfortable 5th position, you buy a larger vehicle. Currently, the hybrid model of RAV4 offers 39 MPG at a competitive price with traditional vehicles. In a few years, a plug could be added to make it an affordable PHEV. Right now, we see that Honda is testing that potential with Clarity. Why GM never implemented Voltec in Equinox or Trax is obvious, the technology was too expensive. So, abandoning Volt is no surprise to anyone. As for what I stated about Volt on every story, it was not as you claim. I mentioned TOO LITTLE, TOO SLOWLY on a regular basis. That's because GM did not spread their technology. It should have been done prior to tax-credit expiration. Lack of diversification is what harmed their business investment, becoming a costly liability... hence ending production. This is why many would like to see a CRV or Pilot from Honda and a RAV4 from Toyota as plug-in hybrids within the next few years. We know the audience has changed. They now prefer small SUV choices. That's why allowing Prius to morph into less of a family hauler is just fine. Parents with older children need choices too.

12-30-2018 **2019 Expectations.** Speculation is growing, without substance... of course. Most is based upon anecdotal observations, claiming a pattern in history, but failing to actually see the bigger picture. It's an easy trap to fall into. When change is coming remains a total mystery. Something could be announced within the next 2 weeks for the Detroit auto show. But even if that does happen, it doesn't mean availability soon. There could be an abbreviated 2019 model year, just a brief carry over, then a 2020 model rolled out early. We saw that with the gen-3. I got mine in May of 2009, even though it was a 2010 model. So, when is anyone's guess. What is a little easier to guess about with some degree of confidence though: Larger capacity shouldn't have been an expectation. Toyota wasn't about to make the same mistake as GM by increasing capacity based on enthusiast feedback. They set the 40 km (25 mile) target for good reason. Focus has been to make the plug-in hybrid offerings as well-balanced of a choice as possible. That meant placing attention elsewhere, like packaging. We were very specifically told by Toyota that the choice of the physical size & shape of the rollout battery-pack was to keep it affordable and to retain its robust longevity design. That set an implicit expectation of a possible mid-cycle update... like 2 years later, the 2019 model. It is realistic that cell & stack arrangement has been altered to provide more cargo room. We know it will happen someday. Patience. Another something we can surmise is a bump in charging rate. The maximum pull currently from a 240-volt connection is 3.6 kW. When you use an aftermarket device to measure Charge-Mode rate, there's an interesting reveal... as documented in the video I compiled to share for a future discussion, just like this. The gas-engine provides a rate of 7.2 kW to the battery-pack. We could potentially see that in a mid-cycle update for connecting with a plug. It builds upon opportunity charging, something quite advantageous for vehicles with smaller capacities. Lastly, keep in mind that hardware & software refinements could contribute to increased range, even without changing the kW capacity of the battery-pack itself.

12-30-2018 **Best Selling.** There has been a struggle on the big plug-in website. It's experiencing an identity crisis. Just like with Volt, purpose is uncertain. They want to promote anything with a plug, but their history was to disregard plug-in hybrids. It was all about providing information & support for EV choices. The rise of PHEV offering combined with GM's struggle has drawn in a new and unexpected audience. So, they are trying their best to find a balance to please everyone. So far, that isn't working. I pounced on this: "*The best selling plug-in hybrids since 2010 are...*" It was basically greenwash material from the perspective of attempting to avoid presenting a narrative. Volt = 152,486. Prius PHV/Prime = 88,117. You can't just omit vital information components and present numbers like that without detail. Ugh! I called them out on that:

That's so vague of a statement, it doesn't serve a constructive purpose.

First, the numbers presented should emphasize they are United States only. If you considers numbers from the rest of the world through the end of 2017 for Prius PHV/Prime, there another 63,197 sales unaccounted for. Add to that another roughly 25,000 to account for 2018 sales outside the United States. All those most definitely should be counted, since they are very much part of the economy-of-scale benefit. That overall volume is how production-cost is reduced. Knowing that, we see Prius PHV/Prime far outsold Volt, even when you add in the Opel (European) model.

Second, Prius PHV (gen-1) was only a mid-cycle update rolled out to 15 states. Never being offered in 35 states means you get a very distorted representation of actual demand. Further, Prius Prime (gen-2) still isn't available outside of most of the coastal states. The middle of the United States only has special-order availability and only for select dealers. That too contributes to a misrepresentation of demand. Without supply, how can that be accurately measured?

Third, production of Prius PHV was halted in June 2015. That left a major inventory void from then until January 2017. That's 1.5 years of sales implied by the "*since 2010*" that should be counted. Again, there's no supply to indicate demand. Additionally, rollout of Prius PHV didn't start until January 2012. So, there's the entire 2011 year not accounted for either.

Fourth, the measure of true demand cannot be measured properly until subsidies are no longer skewing price. When a plug-in vehicle is faced with the true competition... traditional vehicles ...and must directly compete on the showroom floor without early-adopter tax-credit influence, then we will know what mainstream consumers really think of the offerings.

In short, that indication of "*best selling*" doesn't really tell us anything meaningful with respect to change of the status quo.

12-31-2018 **\$1.99 per Gallon.** What an unexpected surprise! I didn't think I would ever see the price of gas so low, especially during a holiday. How do you sell anything green when it's so affordable to guzzle? It's the worst nightmare for promoting EV interest based on saving money from gas purchases. Refilling the tank is so cheap (relatively speaking), there's no incentive to change. Why bother taking on any risk when a SUV is waiting for you to own? This is how cars started to fall out of favor. Now, the situation is exacerbated with so much of an over-supply of oil. People simply aren't going to care. This is why it was vital for Toyota to make the RAV4 hybrid such an affordable option. When such a small premium is required, it becomes trivial math. That uncaring person will recognize the gas saving and call it good enough. Whether or not the numbers actually work out doesn't matter. They will accept a small contribution toward the cause, as long as it truly is small and there's no inconvenience. The fact that Toyota was smart enough to make the best package for RAV4 one of the hybrid configurations could be called a brilliant move. Why not? It's the second step in traditional vehicle phaseout. After making a hybrid option available, you begin to replace the popular traditional choices with more hybrids... especially when gas is so cheap.

1-01-2019 **Tesla Killed Prius.** The article spelling out the end of the hybrid era. Naturally, there's was barely a mention of Prime. I find that the dead giveaway. Avoidance is a major clue most of the time. Why wasn't it more than just a vague reference? Inventory is almost never addressed. I did some online searches. There are only a few dozen available on the West Coast. Within 500 miles of Minnesota, I found just 17. Concentration was on the East Coast, favoring the north. Along that stretch, there were about 700. That's it. All are 2018 models too. The burndown of supply and painful silence of Toyota leads me to believe there will be news coming soon. My expectation is it will come with the press showcase in less than 2 weeks at Detroit. A nice compliment to the next-gen RAV4 hybrid and Prius AWD e rollouts would be something new for Prime. It would explain the availability holdout. This isn't anything new. Toyota did that with debuts of both Prime and with Prius itself. Anywho, I sounded off with: The focus of this article takes too narrow of a view. Had it been "*How EV killed the Hybrid*" instead, that would have been a constructive look of the entire market. The reach of 2018 was only to early-adopters with the benefit of a \$7,500 tax-credit. 2019 is the true measure of progress and it won't be focused on just Prius. The next-gen RAV4 hybrid will take the "*conventional*" buyers by storm. It's quite obvious when you read an article from a GM source and they omit mention of Toyota's newest offering entirely. 39 MPG from a 219 horsepower system for only \$28,000 will definitely draw in SUV shoppers. Tesla has a great deal of potential, but the mainstream market is far more fickle than early-adopters.

1-01-2019

Dead. I wondered when the topic would be stirred on the big Prius forum. It was the afternoon of the first day of the next tax year by a Volt-1 owner. He never upgraded to a Volt-2 and has shown interest elsewhere. So, coming from him was sensible: *"The name Volt will be dead, but it doesn't mean the concept will. I'm sure GM will continue on with it in some form or another."* It was obvious damage control... which is an opportunity for me to jump into the discussion, and I did without hesitation: That *"concept"* was never clear. In fact, that contributed to the demise of Volt. Enthusiasts tried prompting the *"EREV"* identifier, but kept changing the definition each time another plug-in hybrid rolled out. Basically, GM had no idea what direction to take. It was obvious 12 years ago, when Volt was first revealed. Almost immediately, we got mixed messages of purpose. Goals were unrealistic and the target market uncertain. The true death part though is the simple fact that there is no successor. Tax-Credits were intended to help push a product into the mainstream; instead, GM decided to abandon the technology just as phaseout approached. In other words, GM wasted a massive amount of opportunity. Someday when a realistic offering debuts, GM will have to start all over. Sadly, we knew back when Volt-1 was rolled out that the market was gravitating toward SUV choices and that GM had little interest in promoting a compact hatchback. Yet, we saw a Volt-2 without anyone beyond those taking advantage of the \$7,500 discount wanting to purchase it. Those owners did what they could to promote, but SUV shoppers couldn't care less. It was an ideal example of what not to do. GM took praise for a subsidized niche and let their minions spin Toyota as an automaker *"kicking & screaming"* in resistance to mainstream offerings. The hope was that GM's silence would go unnoticed, that their reluctance to actually address change of the status quo would be overlooked due to Volt. Two-Mode failed to reach ordinary consumers. So did Volt-1 and Volt-2. Now, they only have an awkward Bolt that doesn't appeal to even their own dealers to stock as inventory. Needless to say, GM isn't taking the situation seriously. Making fun of Toyota for their seemingly timid approach will be their downfall. The potential for Toyota's fleet of everyday hybrids... Corolla, RAV4, Camry, C-HR ...to later offer a plug is enormous. So what if none are standout vehicles? The point is for the technology to become common. In short, ugh. What a waste.

1-01-2019 **Let It Go!** Ugh. This just never ends: "*there'll be no major changes to prime. maybe a fifth seat. maybe.*" He throws out comments about the middle seating daily. It makes me crazy that he refuses to see the car market has changed. People wanting family movers are switching to SUV choices. Denying that is futile. Yet, he still wants Prius to remain like it was imagined 3 generations ago. Seeing it adapt to become more like a luxury offering and less like an economy vehicle is unacceptable. He doesn't want Prius to change, period. I'm not going to allow him to pollute the discussions anymore, continuously interjecting comments like that without any constructive acknowledgement of the rest of Toyota's fleet. That dismissal of information is as bad as the antagonists. In fact, that is basically what he is becoming by refusing to recognize the bigger picture. Oh well, he had this coming: You're obsession is such a wasted effort. Prime is morphing into a more than just an "*economy*" offering, so the idea of forcing back to something it was +15 years ago is pointless. Toyota has moved on. Camry delivers 52 MPG and the potential for a plug. RAV4 with its 39 MPG will be exploring that as well. Both are larger vehicles targeting the family audience. Put another way, I find it absurd for you to expend so much effort hoping for a squished middle spot. It's not comfortable sitting there in a regular Prius. Anyone who's taken the time to consider options for a people mover would simply purchase a larger vehicle. So even if the convenience of trading the comfortable & handy center armrest with storage for a seat, that won't be a draw anyway. Know your audience. The market has shifted.

1-01-2019 **Who's Schedule?** I see comments like this on a regular basis: "*There should be a fully electric successor to the Prius by now. Toyota failed us all.*" It comes from those focused only on the EV market. That niche distorts their reality. They don't understand how difficult it is to reach ordinary people. The everyday person couldn't care less about plugging in, since they have no background. Think about how misconceptions there are to overcome too. All I can do is point out their lack of insight: Fully electric by now? No. Cost is clearly not there yet for mass-market acceptance. The entire industry is still showing dependence upon tax-credit subsidies, investment capital, and the support of early-adopters. We thank all those who contribute to the cause, but the death of plug-in hybrids is grossly exaggerated. Automakers are a for-profit business. Dumping new product on dealers with poorly informed customers, no infrastructure, and an appetite for guzzling cheap gas makes no sense whatsoever. How well did Nissan or BMW's exploration into that approach work? Tesla's advantage is not having that legacy to address, but that makes reaching loyal legacy buyers a challenge. To say "*Toyota failed us all*" means turning a blind-eye to ordinary consumers. We see that Prime delivers all-electric commutes for many owners. Keep in mind, the small battery-capacity makes it an affordable choice, delivering a MSRP so low it can compete directly with traditional vehicles. How many fully electric vehicles can do that? Think about how my vehicles per year are required. Not understanding cost & volume makes constructive discussion basically impossible. 200,000 tax-credits is less than a single top-selling vehicle in this market. To be both popular & profitable, it takes far more than just a large battery-pack.

1-01-2019 **Top Story.** It's amazing to see how many positive votes the post with this got: "*Prius was always an unassuming very conservative styled car.*" It came from an article published claiming how Tesla killed Prius, and was labeled as the "*Top EV Story Of 2018*". That website caters heavily to early-adopters and very much thrives on attention from the low-hanging fruit. To think that anyone would spin Prius as "*unassuming*" is remarkable. This is why fake news was able to get such a grip on our society. Cheering the crowd rather than noticing what everyone not at the event is saying allows such misleading. They don't critical think. It's become mindless. Evidence all around goes unnoticed. I fired back though, stirring the post to get noticed: Attempting to push that narrative is what I would call the "*Top EV Story Of 2018*". You can't be serious. Prius was mocked from way back even before the word "*smug*" was coined and the South Park episode aired. 15 years ago Prius was labeled as "*fugly*" and mocked relentlessly for being a standout vehicle, that the only reason people purchased one was to make a statement about being green. This is why so many mainstream consumers turn their back on EV advancements. Prius was the only midsize hatchback available back then and it delivered 50 MPG for a competitive price. Years later when the next-generation was rolled out, it had established a strong reputation for reliability & resale... and the look was anything but conservative styled. RAV4 hybrid is what really turned the table. For only \$800 more than the traditional model, you could get Prius technology in a SUV. The market lost interest in all types of cars, as sales of the entire segment confirm.

1-01-2019 **Disappointment.** For 2 years, we've had a Prius enthusiast who owns a Prius PHV express disappointment about Prime. He had unrealistic expectations. And after 2 more years of the same, with complaints on a regular basis, it's getting quite annoying. He just plain does not want to accept results different from what he anticipated: "*lets face it, prime has been a disappointment, as have gen4 sales. this isn't about camry or rav4, it is about prius losing sales to tesla, and that is a fact. if toyota knew their audience, they wouldn't have to give up to \$8,000 off to sell them.*" More than anything, it's the diversification coming from Toyota that makes him crazy. Prius no longer being the premiere family mover is too difficult to accept. I let him have it: You clearly don't understand Toyota's strategy... probably by having focused so much on seating. That red-herring has wasted so much of your time. Now, please read closely. I'll take the time to explain. First is to recognize audience: TOYOTA IS NOT COMPETING WITH TELSA. Got it? They are working to establish plug-in hybrid technology by transforming their own fleet. That push away from legacy offerings is a major undertaking, well worth putting some money on the hood in select markets. The real-world data they get in return is priceless. So what if early-adopters seeking a new experience and taking advantage of the \$7,500 discount experience Tesla? That in no way guarantees future purchases anyway. Just look at how many conquest sales GM gained with Volt only to lose later to Tesla. It's all about changing the status quo, not scoring praise by pursuing low-hanging fruit. Keep in mind that 200,000 tax-credits is a drop in the bucket. Through November of last year, Toyota sold 298,991 Camry; 257,093 Corolla; 224,128 Tacoma; 221,386 Highlander; and 159,189 RAV4 in the United States alone. That perspective is very important to knowing why focus on Tesla isn't important. Toyota must appeal to their dealers. That means the new technology offerings must deliver a nice profit and be easy to sell. Aggressive rollout of TNGA and the spread of hybrid choices is so important for that reason. In the meantime, PHV/Prime likely came close to 60,000 purchases globally in 2018. Knowing all that above, now explain how it is disappointing.

- 1-01-2019 Tradeoffs.** Discussion of how we got to this situation has been interesting. With Volt dead and Tesla tax-credits now in phaseout status, the problem of cheap gas and fossil undermining has been pushed aside. More and more attention is being put on Toyota. I find that quite peculiar. Why? The source makes you wonder too, especially with comments like this: *"I'm a big fan of PHEVs, especially as only cars... but one needs to be realistic about the tradeoffs."* That's the want verses need issue so convoluted, nobody can reply... which may be the point. After all, that is exactly what our president does to push his agenda. I don't put up with that though, as I pushed back with: Ironically, not seeing that a 5th is rarely ever needed and not acknowledging the large cargo area from folding down seats are great examples of being unrealistic. Both are excellent tradeoffs. It's weak arguments of claimed necessity that discredit sources like this as anything beyond group think. That is what killed Volt. Few saw the pattern then (a clear repeat of Two-Mode history), so it is no surprise the same mistakes playing out again. Balance for an affordable price is what mainstreams shoppers seek. That is why Prius was so successful. Rather than delivering more capacity & power, Toyota carefully weighed tradeoffs to find a pleasing middle... a concept clearly not embraced by many of the posters here.
- 1-01-2019 Not Happy.** Today's post was supposed to be an attack on Prius. I kept that from happening by forcing the bigger picture. Some were not happy, especially this person: *"Finish the sentence: I have changed the subject from Prius to RAV Hybrid, because..."* Of course, I took that as an invitation to stress the point: ...because the market has shifted interest to SUV choices and the AWD model of Prius won't be available for a few weeks still. I find it intriguing to see topic spin as an attempt to polarize. Rather than seeing Toyota's effort to diversify, it's a one-size-fits-all perspective being pushed. That's the very thing that killed Volt. GM failed to spread the technology. In other words, I didn't actually change the subject. I drew attention to the fact that the single-mindedness was creating a false narrative of what's really happening. The goal is to end the production of traditional vehicles with electrified choices. That's exactly what Toyota is aggressively pursuing. What other automaker is addressing their entire fleet of Cars & SUVs like that?
- 1-01-2019 Same Dance.** How times have we heard a different song for the same dance? This time, it was: *"The hybrid rose on the rise in price in gasoline, and now falls with the fall in gas prices. And yet fully electric vehicles continue to rise. How could that be?"* I wasn't pleased: That narrative has a fundamental flaw. From Jan. 2000 to Dec. 2005, there was no tax-credit available for hybrids. All you'd get for purchasing a green vehicle was a \$2K deduction, which worked out to between \$300 and \$400 for most people. Despite that, sales of Prius grew to exceed the 100,000 annual milestone. EV purchases have yet to prove their ability to reach mainstream volume without tax-credit help, which is quite generous at \$7,500. As for the narrow-minded view that a plug-in hybrid cannot have a huge impact to being green, you're fighting people on the same team. Those are really messed up priorities that the oil industry will appreciate. Even with a small battery-pack in Prius Prime, owners commute can dramatically reduce oil consumption... to the point where some are entirely electric. Also, keep in mind that hybrid choices were very limited then and some automakers were fighting fiercely against electrification, most notably GM and VW. There was no sense of electrification being the future like it is now.

- 1-02-2019** **Median.** I get quite annoyed by those who don't understand what averages actually tell us. The assume middle, which is often quite incorrect when looking at the actual data. That's why detail is always requested. Statistics can be used to mislead. Intentional or not, that is the outcome. I made sure that was clear: Average is a misleading indicator. Since it is not weighted in any way, the value is distorted by an extreme. In this case, that extreme is Model 3. To accurately build a true representation of the market, a straight average must be avoided. Otherwise, the number will end up feeding a narrative. Median is the more informative value, as this real-world example points out: *"The average U.S. worker today earns roughly \$46,641 a year, according to data from the Social Security Administration. The median salary in the country; however, is only \$30,533, which tells us that a greater number of people earn less than the average than more."* On a regular basis, that same problem comes up with vehicle pricing. The value is distorted without any context to tell us what it really represents.
- 1-03-2019** **Lesson Learned.** The verdict of this is what made antagonists suddenly vanish: *"I guess they've learned a lot from the two generations of Volt and from the Bolt, but they sure have failed to use the tax credits to move into the mass market. Very disappointing."* Looking back at discussion threads just a few months ago, you would have never expected such an abrupt change. They were dishonest, offensive, and sometimes even hostile. Why they held on to the bitter end, while watching so many of their peers abandon ship, seems to be a matter of pride. Too proud to admit defeat is unfortunate. That's how the history repeats again later. Not learning from mistakes is a painful outcome easily avoided. But then again... Two-Mode, Volt-1, Volt-2, Bolt... how many times could they be fooled into believing an *"it's worth it"* approach would result in a large number of people willing to pay a premium? Each of those failed attempts had the *"leap frog"* hope. Their technology advance would outsell Prius. None did. The struggle to draw customers from within (not conquest from outside) never bore any fruit. I knew it was futile, simply because you cannot out Prius a Prius without understanding its formula for success. It comes down to appealing to mainstream consumers. If you do, enthusiasts will feel let down. A vehicle without emphasis on size & power isn't worth consideration, as far as they are concerned... which is now why I haven't heard from certain individuals now. They seem to have recognized their mistake.

1-04-2019 **Balance.** A few old foes are still posting, but the nature of what gets put in their message is changing: *"If sales was the criterion for pulling the plug on the Volt as the author asserts, then the Corvette would have to go before the Volt. For all of 2018 GM sold 9680 Corvettes, but 18,306 Volts..."* That is obviously a damage control effort, but at least it is somewhat constructive. In the past, I couldn't even get those enthusiasts to discuss GM's own fleet. They always made it into a pissing match about Toyota. That childish rhetoric turn greenwash became a very big problem. They put up such a massive offense, there wasn't any defense to speak of. That puts Toyota in a position to score a lot of points when they aren't paying close enough attention. We're seen that play out now too. For now though, I'm happy to actually get a little somewhat constructive discussion about our biggest legacy automaker here continuing to make mistake after mistake about serving the future. It's really hard to tell if the executives don't understand or just don't care. My reply was: Sales are a criterion. Balance is the overall measure. Corvette has a carefully planned supply/demand balance and is priced accordingly. Just the right amount of people are willing to pay a high-premium for a low-volume vehicle. Dealers are willing to stock as inventory accordingly. That's what specialty offerings are all about. Volt was promoted from reveal back in 2007 as a mainstream vehicle. That meant a much lower price with a much lower profit. But since it would be sold in high-volume (60,000 minimum annual), that would be acceptable for dealers. Volt failed to meet its supply/demand balance.

1-04-2019 **Patience.** Not having any is what most problems emerge from. Wanting quick gratification and only simple steps to achieve goals is what we have grown to expect... here, anyway. Our mindset in the United States is quite different from that in Japan, where they have a culture promoting patience. That translates to resting on laurels here and gets you the *"laggard"* label. There's little merit to support the claim, but the online community of early-adopters don't care. They don't see the *"EV market"* as a first step, one that is mostly low-hanging-fruit. The whole idea that \$7,500 of tax-credit money having a major influence in demand would get shunned. For years, I had to endure the claim that GM would lower MSRP in sync with subsidy phaseout. Somehow, GM was already making so much profit, it wouldn't matter. Really? Even with the \$7,500 discount in the tax-filing return format, sales were still well below what is necessary for a vehicle intended for the masses to be sustainable. These blog entries document their terrible expectations based on greed & pride. It's really sad. But at least not all the legacy automakers share that need for a quick & easy return, as I stated: No sense of patience, eh? Toyota has been focusing on global distribution, refining production along the way. Rushing to sell more in the United States would have been pointless. It's very difficult to argue that it wasn't sensible waiting until dust had settled from the inevitable GM fallout. In the meantime, real-world data from owners is being shared. In my case, I'm averaging 125 MPG despite several 80 mph trips from Minnesota through South Dakota to Wyoming and back. My entire commute is EV, so the spin about range being bad is a load of greenwash.

1-05-2019 **Did Wrong.** An article drawing attention to the situation GM put itself in stirred this: *"No one in this thread stated that."* It came from a frequent poster on the big Prius forum who refuses to look at the bigger picture, a problem common with discussions online. I was annoyed, but it did provide a nice chance to provide summarization:

Don't turn a blind-eye to the hundreds of times someone else has said that somewhere else. You know all too well the *"Tesla lowered the prices of their cars to ease the pain of the phaseout, so who says GM won't do the same thing."* was an expectation scores of die-hard enthusiasts claimed on a regular basis.

We had to deal with never-ending attacks on Prius PHV & Prime from allegations that Volt was already making a large enough profit to absorb the loss of the tax-credit without interruption. Those *"in this thread"* knew it was a red herring, since the goal was to grow sales significantly, not just to maintain the niche level. So, even with the discount, it wouldn't be enough. Regardless, that was stated.

Now that we are in a hindsight situation, it is clear the GM disaster called Volt wasted opportunity... a point I made hundreds of times as a counter-measure. Conquest sales did nothing to achieve change within GM's own customer base. As a result, there is no successor establish... or even announced... for their dealers to embrace. Showroom shoppers are flocking to the Trax, Blazer, and Equinox offerings instead... all without a plug or even a hybrid option.

As for GM's choice to squander what they learned from Volt-1 to make an even less appealing-to-mainstream Volt-2, it explains the abrupt shift to Bolt instead. Competing with Toyota was a big mistake. Profit was totally unrealistic. Seeing initial sales disappointment of Bolt should have made the need to promote their solution change for *"range anxiety"* by a plug-in hybrid to now instead an electric-only obvious. They didn't bother competing with either Nissan or Tesla though. That opportunity was wasted too.

This is why the *"Who is the market for Volt?"* question got asked so often. GM started with a frustration to beat Toyota, but could not deliver something affordable. Switching targets didn't make any difference. Affordability would be key regardless of who. A compelling reason to draw interest from guzzlers to plugs must be an appealing stick-price... as the tax-credit loss clearly confirmed.

Whether or not you want to accept that big-picture analysis doesn't change the outcome. Exactly as this thread topic states, GM *"did wrong"* with their approach. The question now is how Toyota will handle the spotlight. They carefully preserved tax-credits, a move often criticized prior to Volt's demise. It already sheds new light on the market opportunity Toyota patiently waited for.

1-05-2019 Global Distribution. The smug coming from certain EV owners feeling "*vastly superior*" is annoying to have to deal with. They mock plug-in hybrids and have no interest in seeing the big picture. Their focus on the EV market is detrimental. Whether they recognize that or simply don't care remains a mystery. I just keep providing information regardless: Toyota focused on their global distribution, sending a small number of supply to each of their markets. The first year there were 51,000 available in total. That's quite good for a production including new tech, specifically the carbon-fiber hatch and the aero-glass rear. Last year was likely around 60,000 available. This is how you establish a foothold, working out details of how to approach mass distribution by testing out each of the customer bases ahead of time. Again, it made no sense whatsoever rushing to our particular market knowing the GM fallout could be rather intense. We all saw how GM wasted tax-credits on Volt for conquest sales. They should have been focused on changing their own status quo instead, so they would be able have momentum built to take advantage of the phaseout period, much like Tesla did. Toyota is clearly using their tax-credit allocation carefully, with the hope of doing the same thing. This is why Prime inventory was low in many places and non-existent in others. Being able to grow sales to a sustainable & profitable level takes careful planning. Toyota now has a market to tap that won't constantly face competition with Volt. In fact, the wait with Prime has provided a wide-open field to play in.

1-05-2019 December Sales. The year-end rush to take advantage of tax-credits in the current filing-year was favorable to Honda. Clarity took the top spot for December, though only by 11 more sales than Prime. That provided discussion opportunity online. I asked: What is the availability of Clarity? Supply of Prime is at just 800 models for the entire country and limited to specific markets. Toyota has been burning down inventory and holding out rollout to many of the central states. Waiting for the inevitable Volt fallout GM had to deal with and the unique Tesla situation (loss of tax-credits combined with virtually no competition) was good reason to lay low in the meantime. It also raises speculation of possible mid-cycle updates to increase appeal of the current approach. That could be recognition of Honda's market potential. Clarity is a compelling balance of what the market may embrace... which is good news for Toyota. Seeing a RAV4 plug-in hybrid would help endorse large scale abandonment of traditional vehicles. We only need to prove a few very recognizable choices sell well without tax-credits... which means there's still a few years wait. Honda's current success is very encouraging for the entire market. There is strong potential to build upon.

1-05-2019 **2019 Perspective.** Asking this question came about from an article titled that: "*Does Toyota See the Future?*" It was published as a 2018 summary. Knowing most people don't have much foresight, I wanted to make sure to capitalize on the opportunity. What could I convey that would break them of their hold of last year's perspective. This year will be very, very different. Seeing that right away may be a challenge though. We'll find out, hopefully with some feedback from this:

This biggest problem with that question is most people see it from the perspective of 2018. Recognition of how different the market will be in 2019 is key.

Tesla scrambled to get ahead of tax-credit phaseout, building production capacity to dramatically reduce impact. With investor capital and an unusually large early-adopter audience, their effort seems to have established opportunity for sustainability. That's great, but doesn't really apply to anything the legacy automakers must do.

GM is finding out the hard way what that actually means. Even though it should have been obvious that dealers were GM's true customer (know your audience), that fact was clearly not understood. GM's message of conquest conveyed a feeling of disinterest to change the status quo. Dealers could continue to focus on the push of high-profit guzzlers.

What did that mean for Toyota? It meant a mess to deal with. Legacy automaker push to abandon cars in favor of SUVs and Trucks meant an especially hard push from Toyota to get their dealers to embrace change... which sent a message of "*no interest*" toward plugging in. Toyota's push to deliver an extremely efficient Camry hybrid and RAV4 hybrid meant delay for Prius Prime promotion.

That left Prius hybrid in a very awkward position. The decision to give it a standout look didn't help in a market with rapidly declining gas prices. Fortunately, timing of mid-cycle updates provided an opportunity to change that look and introduce AWD. Transforming Prius to deal with market change is confirmation of Toyota seeing and responding. Holding off on full rollout of Prime further confirms recognition of the need to adapt.

Long story short, the answer is "yes".

1-05-2019 **Demise.** What more can be added to this: "*The demise of the Volt shows the lack of leadership at GM.*" Turns out, there's quite a bit: Who knew the "*over promise, under deliver*" would become even worse. GM has turned into an "*all bark, no bite*" automaker. They just sat on the Volt-1 approach, delivering a Volt-2 which appealed even more to enthusiasts. GM leadership simply wasn't interested in leading mainstream change. Enjoying praise from conquest sales become the downfall, a dangerous trap to fall into when profitability is at stake. As we can now plainly see, Toyota was well aware of this problem... and even nailed the timing. Producing just 60,000 Prius PHV/Prime to prepare for higher volume rollout later while refining hybrid design in the meantime (most notably, the next-gen RAV4 hybrid) is looking to be a well played business move. MSRP of their plug-in hybrid system is low enough to compete directly with traditional vehicles. Ironically, the 2-year anniversary of Prime ownership for me will be on the very day GM's tax-credit phaseout becomes a cold-hard reality... April 1. The heavy dependence on that \$7,500 subsidy will be halved, making those challenging sales so difficult Volt won't come up as a recommendation anymore. Toyota delivered a well-balance offering, one that seems to have too short of a range until you actually drive it for awhile. You can enjoy commutes & errands in EV and get remarkable MPG following depletion. It has been quite interesting to hear comments from early-adopters who really didn't understand the larger market or what it really takes to change the status quo. 2019 is definitely going to be a year to remember.

1-06-2019 **Old Enemies.** They have returned. Seeing Prime go from barely a mention most days to drawing attention routinely has stirred some emotion from long ago. They don't like Prius or Toyota. That sentiment is quite easy to see too. From pushing a narrative to outright lies, they are spreading the greenwash quite a bit now. The quote I chose to reply to, within the long string of obvious hate posts, was one comparing Tesla to Toyota. There's no way to constructively do that. They have completely different business models and time lines. It makes no sense putting them side-by-side for analysis. With so little in common, that should be obvious. But many of these names now stirring trouble were antagonists of the past. So, being constructive was not their goal. It was to undermine in any way they could. I kept my response to that brief: \$44,000 for the base price of Model 3 overwhelmingly confirmed it appealed to early-adopters taking advantage of the remaining \$7,500 tax-credit. Comparing that low-hanging-fruit to ordinary consumers is an apple/orange situation, telling us virtually nothing about the upcoming market when more choices are available and the subsidies are used up.

1-06-2019 **Investing.** The frequency of smug posting is on the rise: "*The best? That's a laugh. They stopped innovating a long time ago, and it's catching up with them.*" We're getting attack after attack on Prius Prime. That's a very good sign. No attention means they don't feel there's any kind of competitive threat. Getting sense attitude on a regular basis is confirmation of worry. I watch for downplay. Comments starting with stuff like this are key: "*No serious offering...*" It's simple to understand why too. Simply look for substance. If there isn't any detail to actually back up the claim, it's just rhetoric being stirred to undermine progress. In this case, they see Toyota advancing forward. Most people don't recognize how though. That's the problem with most consumers. They simply purchase a mature product. How it got to that stage is something they'll never bother to find out. It's not a priority. That naive is what antagonists hope to exploit. I mess up those plans by provided information. This particular nugget of detail was quite pleasing to share: Toyota is investing 1.5 trillion yen (\$13.9 billion) in its battery business. So what if the hare is ahead early in the race? We're still very much in the early-adopter stage.

1-07-2019

Apologists. We didn't often get discussion on the Volt blog about Volt. That feel apart years ago. The final Friday last October was different though. A discussion thread was started about GM taking a stand related to upcoming loss of tax-credits. It was what many of us had been waiting for. This was the beginning of the inevitable fallout. There was indeed a lot of apology posts as a result, enthusiasts making excuses to justify the fate of Volt. It's another way of stating they were in full "*damage control*" mode. Belief was that it would become a battle, building up as year-end approached. Refusal to accept the reality that GM hadn't diversified, that they had rested on their laurels, was too difficult to accept. Hypocritical callouts was something they wanted to avoid at all costs. So, the battle fizzled. Posts ended a few days later from all but one apologist working hard to preserve some pride. That continued for another 2 weeks without any progress. I let him exhaust himself trying to find ways to excuse GM's lack of progress. His own "*laggard*" insults applied more and more to his own position. It was quite intriguing to witness. We all knew it was over. To our surprise though, it wasn't a soft fade into history. A week after he finally gave up and all posts on that blog ended, there came the announcement of closures & layoffs. Suddenly, there was a declaration of defeat. Exactly 1 month after the big apology thread, a true end had come. It was over. Commitment they had all long hoped for never happened. I called them out on their short-sightedness summarizing with: "*MSRP of \$36,620 for a compact wagon selling at a rate of 1400 per month, despite a \$7,500 tax-credit, is not high-volume product for sustained profitable sales.*" It was followed by a long series of attacks denying I had ever called out anything constructive. This is why I documented that history as it was unfolding. I knew a day of reckoning would come and they feared it. Every post was quickly negative-voted to hide the contents. It was fascinating to watch. There was no more apologizing at that point. They were angry. I made sure they understand how their group-think allows the website to become a source of fake news. An attempt to misquote me by attaching someone else's words wasn't even too low for them to try. I saw it all and reminded them how their personal attacks failed miserably. Posts turned to a state of panic. That's when you know they have finally recognized the end had come. Phew! Rewriting history is what follows... the last resort for an apologist... admitting defeat but spinning it to be ok... like that was planned all along. Ugh. Rereading that long thread today certainly was interesting. It comes down to the reality that GM didn't target its own customers with Volt. There was never a sincere effort to change the status quo. Sales of SUVs and Pickups would continue as usual with Volt providing a "*halo effect*" for the automaker. It ended with the needs of business far outweighing technical praise. As I said from the very beginning, great engineering is not enough.

1-07-2019 **LOL Toyota.** Exactly as anticipated, without Volt getting in the way of progress anymore, there's a surge of interest toward Toyota. Much of it is negative, but that's still better than being ignored. It gives me a great opportunity to climb up on the soapbox... which I was especially happy to do upon reading "**LOL Toyota**" as the title of a new thread posted on the big Prius forum. It was from a well known antagonist. I followed the link to the article he had made that comment about, then posted:

The writer is just another one of those supposed experts who is really just an observer looking through the lens of the "*EV market*". It's quite obvious there's little understanding of how to make true change happen for the masses, especially when Tesla is used as a basis of comparison.

These articles all follow the same format. They make assumptions based upon early-adopter behavior and figure ordinary shoppers will just naturally follow suit. Complete disregard for tax-credit influence, family budgets, basic knowledge of charging people lack is common. They just focus on the technology and believe dealers will magically embrace change quickly. The writers also naively think there aren't forces working against status quo disruption.

Watch for the lack of a bigger picture. When there's no reference to the rest of the industry, it's likely just an attack piece targeting a specific vehicle or automaker. That's actually a clear sign of worry, in this case, that Prius Prime is stirring concern. The smug title of this topic reinforces that rhetoric of the past too. When enthusiasts doesn't like the direction genuine change is taking, we see articles like this.

What I specifically look for is the lack of understanding of how the hybrid system actually works. Antagonists will reveal they are clueless about how Prius Prime operates if you give them the chance to make a fool of themselves. They end up stepping in their own poo. Then you can just blow them off as another obsessive enthusiast not actually interested in change for the masses.

Remember, publications will publish articles to draw attention to themselves. So, seeing an article that stirs primal emotion based on misleading information is, sadly, a common practice. The hope is the misdirection will result in lots of comments being posted and repeat visits.

1-07-2019 **Observation.** I know he'll regret saying this: "*the way it looks at the present.*" He did, so I replied back with that context he chose: Basing progress on anecdotal observation of what's happening at the moment will give that impression. But if you do some digging behind the scenes, looking for stuff that won't be easy to see, you'll find Toyota is investing 1.5 trillion yen (\$13.9 billion) in its battery business. So what if fruit of their hidden effort doesn't show up for a few more years still? Toyota's focus has always been on ordinary shoppers, not those who have lots of disposal income to buy the latest & greatest. Toyota doesn't seek glory or praise from enthusiasts. They sell a lot of vehicles each year, over 10 million. Most are just affordable choices that are so common, not much attention is given. Selling to the masses is far more difficult than just appealing to a niche, especially when there's a tax-credit to exploit. We can still have high hopes for Tesla, but we need to be realistic about audience. Their buyers are profoundly different from those Toyota is targeting.

1-07-2019 **Niche.** Yup, he regretted the observation comment. We continued on though: "*As for selling to the masses, you can't sell to the masses until you first sell to the niche.*" Keeping it constructive, I added:

What does that actually mean? How do you view the technology implemented in Prime and Mirai? Aren't they helping to shake out details of how to produce for the masses?

Dealers won't suddenly embrace a long-range EV offering. We understand that reality all too well. That's why Toyota is flushing out traditional vehicles by introducing a wide array of hybrid choices. They are setting the stage without major disruption to the business. Why do so many believe the shift to EV must be dramatic?

Think about where Toyota will be 2 to 3 years from now. When cost has finally come down to being realistically affordable (priced competitively with traditional choices), Toyota will start dropping traditional production. Going all hybrid is a clear & painless next step in electrification that carries along the entire fleet. Heck, Prius could even go plug-in only at that point. It's an endorsement that sends a powerful message of commitment to change.

Look at how terrible that has gone so far for GM and Nissan; for that matter, consider Ford & BMW too. VW is still nothing but talk. And Honda is very small. None of those large legacy automakers share resemblance to Tesla, so comparisons make no sense. They will require a different approach. That's why articles like this are pointless, just hype to draw readers to a publication.

Think about the big picture. How will each automaker get beyond a single first offering? Mainstream consumers could easily look at just one choice as a niche. Keep in mind how GM was never able to successfully spread the technology from Volt into another vehicle in their product-line. Getting beyond niche is very difficult. This is why Toyota figured out how to make a variety of compelling hybrid choices prior to tackling the challenge of adding plugs.

1-08-2019 **Challenges.** You should wonder how closely people pay attention, especially upon reading this: "*Tesla set the bar higher this year, but what do they plan for next year, will they stick with 5,000 M3 a week or will they surpass that? By how much and how fast?*" I suspect the circumstances of what's actually taking place and the factors involved are being overlooked. Most people never mention the possible impact the loss of subsidies could have. It's as though they assume that financial boost really didn't make any difference, despite overwhelming evidence to the contrary. Oh well. All you can do is point out the challenges that still remain: Tesla had a \$7,500 tax-credit and pretty much zero competition. At some point, all the low hanging fruit will be gone. Getting MSRP down without profit loss is the most urgent concern. That's why Model Y is on the way. Market saturation is a problem, even the other factors aren't an influence. This is why Toyota is steering clear of such issues, choosing to deal with those challenges prior to exposure.

1-08-2019 **Progress.** Sometimes, I slip some exposition into a discussion: Not understanding how easily adapted Toyota's hybrid system is to include a plug is why so many posts here are filled with supposed conspiracy & doom. That's really unfortunate. Know your audience. To make Prius into Prius Prime, a one-way clutch was added. That allowed the gas-engine to disengage entirely and the secondary motor to switch from being a generator to providing extra propulsion power. It's an elegantly simple (and cost effective) approach that will be implemented for Corolla hybrid later this year for the market in China. Perhaps following that, we'll get the same upgrade here for RAV4 hybrid. This approach is an effective means of drawing dealer interest, an easy option to stock with small risk and decent margins. What other automaker has such a wide-reaching plan set for phasing out traditional vehicles very quickly with little disruption to both employees & customers? Meanwhile, do we really want to turn a blind-eye toward other automakers who offer just token quantities and limited choices? Think about 2018 sales for Toyota. How many of those 10.4 million worldwide were hybrids? Think about the 9% penetration in North America climbing to 15% in just 2 years. How many more is that? Preventing that many new traditional vehicles from being purchased is a major step forward. It makes including a plug on the next purchase much easier too. So basically, customers won't ever see the conspiracy & doom stirred here by enthusiasts. It will just be a natural progression away from guzzlers.

1-08-2019 **Staging.** Read through discussions. Many threads will reveal the same pattern: lack of foresight. That's a real problem. Not setting expectations is like building a house in the middle of nowhere. Will there be others nearby later? Will there be a park and stores? Will there be water, natural gas, electricity, and sewage? What about roads connecting it to the road of the area? Its purpose remains a complete mystery without some type of context like that. Heck, just breaking ground doesn't even inform you about what the house itself will be like. That's the way we see much of the industry now. GM is obviously a major problem still. But so is VW. How is a series of detail-less vehicle announcements telling us anything useful? They certainly aren't setting any real expectations that way. It just feeds hype. Thankfully, Toyota isn't doing the same, as I routinely point out: No one knows where the market will go. In fact, Toyota seems to be the only legacy automaker preparing for the only part that can be predicted... demand surge. When word gets out that EV have finally hit a price parity with traditional vehicles, a supply problem will emerge. Dealers without enough EV inventory will have to sell something else. Since Toyota will have a variety of hybrids and plug-in hybrids to choose from, it won't be too impactful for the dealer. For legacy automakers attempting to skip those offerings entirely, nothing but traditional vehicles will be available. What would you rather buy? Think about resell value. Think about the price of gas. Toyota will have already built up a strong reputation for the reliability of their electric drive. Range plays no role in the assessment of quality. Those hybrids offer a powerful means of staging the transition to plugs.

1-09-2019

Silence. That old daily blog for Volt has grown silent. The parent website keeps publishing new topics, but there are no comments being posted anymore. Quite literally everyone has abandoned it... even those nasty few antagonists who hung on to the bitter end. Volt is dead. They all knew it was in a death spiral 11 months ago when things horribly fell apart. There just wasn't a new daily topic anymore. The moderators had vanished and the homepage wasn't automatically updating correctly anymore. Yet, there was a futile effort to spread hope. Even though GM had abandoned everything that Volt was meant to represent as a "*range anxiety*" solution by choosing to deliver Bolt instead, they pushed on. It made no sense. With the end of tax-credits approaching anyway, what was the point? Volt was far too expensive to compete with anything, especially with the limited head & leg room. Having a fake middle seat doesn't matter when the other dimensions come up short. Who were they expecting to fool? They kept on with their attacks though. It was bizarre to witness. I was collecting a treasure trove of information about innovator's dilemma, watching mistake upon mistake compound the situation. It was a failure on an unbelievable scale. They just didn't want to give up under any circumstance. Pride kept making it worse and worse. Sound familiar? It was this incredible real-world drama playing out. How would it end? Would they see it coming? Or was it a situation of suddenly realizing your all alone. Every single person who had fought the good battles with you disappeared, one by one, until they were all gone. The last sentence in the last blog entry mentioning the doomed plug-in hybrid was this: "*Tax credit goes away and so does Volt.*" That sums up what happened, in addition to pointing out what had been predicted many, many years ago. Unless Volt was able to achieve a MSRP that was nicely under \$30,000 prior to the tax-credit hitting phaseout, there was no chance at all of it being able to survive. \$33,520 after 2 generations and 8 years of availability is far too expensive to compete directly with traditional vehicles. It should have been \$5,000 less by now to stand a chance. That's why Toyota set their price-point for Prime even lower. It was absolutely critical to deliver something affordable. Enthusiast opinions didn't matter. It was interest from mainstream consumers. They would play a vital role in effort to change the status quo. No token vehicle can achieve that. Only high-volume sales bring about true change. Those nasty trouble makers are well aware of that not too. Their silence says it all.

1-10-2019 **Unintended Consequences.** Sometimes, even the most sincere of efforts can result in unforeseen outcomes... which unfortunately, can be really bad. That is what we are witnessing now with that collapse of enthusiasm here. January 1st brought a naive sense of celebration. People were absolutely delighted with the success Tesla had ushered in... until they started to notice that was only the first major milestone of what is looking to be a very long & difficult race. Losing the tax-credits is a very problem to have to deal with. The lowest priced Model 3 is now \$44,000 and that's not all that well loaded. It's still really nice, but that's far too expensive to even remotely be considered competition with anything middle-market would be purchasing in high-volume. Looking at the legacy automaker who was supposedly the great leader of the new age of electrification, we find Volt... a plug-in that became such a subtle symbol of smug, it is only now that the consequences promoting the "*it's worth it*" approach are getting attention... very negative attention. That emphasis on range & power being absolutely necessary has soured our market. Automakers simply aren't seeing it as worth it, ironically, to try to sell here. Why bother when the bar has been set so high? The markets in China & Europe are far more receptive to balance choices than the audience here in the United States. We get giant guzzlers, while the rest of the world is getting targeted for realistic plug-ins. Fortunately, the model of Prius Prime here is basically the same as Prius PHV everywhere else. So, we'll still get shipments of limited inventory. But for now, there really isn't anyone knocking. It's sad. That obsession for more is pushing growth opportunity to other places. We are no longer the premiere market. They were horribly wrong about the "too little, too slowly" concern raised 10 years ago. Very close to an entire decade passed without them figuring out how to adapt. Their choice to stay true, absolute refusing to change under any circumstances, had dire consequences. The enthusiasts certainly didn't intend to kill the very thing they most wanted to succeed, but's exactly what they did. Ugh.

- 1-11-2019** **Goodbye.** There was an article just published as an epitaph for Volt. It was an interesting history... a narrative... since it excluded so many important details. I found the title ironically fitting: "*The perfect car for a future that never was.*" Due to the fact that so many vital bits of information were omitted, the "*never*" part was quite fitting. Their version of history started in 2006, back when Prius was king and its purpose was all about saving gas. Huh? No mention whatsoever was made about the primary goal of Prius: significant reduction of emissions. Excluding that entirely meant the rest of the article had no merit. Purpose was either not understood or the writer simply didn't care. I continued reading despite that. Sure enough, Volt was presented as a clean-slate solution. It was supposed built as a "*hack*" by adding a "*complex motor-generator*" and a "*big hole for the battery was cut from the middle of an existing compact car platform*". No mention whatsoever was made about how GM was already aggressively attempting to compete with Prius by rolling out their Two-Mode system. They pretended none of that took place and Voltec emerged at that moment from scratch, rather than the true history of it being the next step in Two-Mode evolution. So, of course, the plug-in prototype wasn't included. They just pretended that never existed. That gave the impression GM did more in a shorter amount of time and there were no other projects that failed along the way. Ugh. From there, comparisons focused on Tesla. That, of course, completely ignored both Model S and Model X. The writer portrayed the situation as if Volt's only competition was the Roadster. And you guessed it, there wasn't a peep about Leaf. The pressure put on GM by Nissan was never part of this narrative. For that matter, neither was the plug-in hybrid model of Prius. It was very much a greenwash article. To exclude so much information, there's no possible way to consider that journalism. It was basically just a fluff piece to make mourners feel better. Stuff like that how history repeats. Some people choose to rewrite history to make them feel better. That choice to ignore certain realities is why mistakes get repeated. Ugh.
- 1-11-2019** **In Other Words.** Changes for GM in terms of electrification go well beyond just Volt. That's quite apparent now. It really looks like they have completely given up on the idea of any plug-in hybrid here in this market. In China, that's an entirely different situation. That market isn't anywhere near as demanding. It's far easier to appeal to that audience, especially with their driving conditions. They don't have vast open roads to routinely travel as we typically do for many here. They will likely have less challenges to deal with in terms of infrastructure too. Setting up public chargers here is a nightmare. Using them afterward isn't any better. Expensive, confusing, and inconvenient isn't a good way to promote plugging in. That's why Toyota focusing heavily on building an audience for the not-so-distant future makes so much business sense. Convincing a RAV4 hybrid owner to get a plug-in hybrid for their next purchase is far easier, especially with Prius Prime establishing reputation for reliability now, than GM trying to draw interest from someone who purchased a 2019 Chevy Blazer. Heavy emphasis on highly-profitable SUV guzzlers is not the way to promote electrification. It is yet another example of how GM gets in the way, creating a major impediment for the market, without actually advancing it much... or any. I stated what I see now as the dust settles from the latest fallout this way: Basically, GM never found a way to out Prius any model of Prius... especially the plug-in. That design was far too expensive to actually work as a choice for the masses. And after 8 years of struggle to draw mainstream interest, GM is giving up. Blending engine & motor failed 3 times.... Two-Mode.... Volt-1.... Volt-2.

1-12-2019

The Fight. It was brutal. Prius was challenged by a platform clearly not designed to compete with Prius. Looking back at my own blog entries from 12 years ago, I see the reveal of Volt was nasty right from the start. There was immediate criticism about cost. How could GM possibly deliver something affordable? We knew little about how rollout of Two-Mode later that year would interest the market. There's was the BAS offering too. With so much hype and so little substance, adding to that with an announcement of plug-in intentions made it a time of uncertainty... for GM. On the Toyota side, Prius was standing strong... hence the never-ending attacks. Remember, Toyota did indeed reach their annual worldwide goal of 300,000 sales early. So, considering that whole mix along with GM's bizarre "*Live Green, Go Yellow*" ethanol push the previous year, it was an odd time for the automotive market. Needless to say, things feel apart quickly. Lack of clarity will do that. 11 years and 11 months ago (that's just 5 weeks after the reveal), Volt had been escalated to GM savior. With gas at \$2.09 per gallon and the extreme expense it would take to deliver a "40 mile" plug-in hybrid, all logic had been lost. It turned into a fight fueled by greenwash & hype. It was a nightmare with a new marketing term: *E-Flex*. Remember that original label for the Volt concept revealed at Detroit all those years ago? It's long forgotten history now... about to be squashed by a future with less fighting, we hope. Seeing efforts from Hyundai/Kia and Honda enjoy success with their plug-in hybrid offerings, there is an expectation of Toyota helping to lead those efforts into the minds of ordinary consumers. My hope is a mid-cycle update being revealed in a few days for Prius Prime. Seeing a new cell/stack arrangement to fit the battery-pack better into the cargo area would help bump interest. With engineering as my background, it would have been a fun project to reconfigure such a vital component. Timing is always the problem though. What if Detroit isn't the best venue for a reveal like that? What if something closer to Earth Day were used instead? After all, Toyota is already busy with RAV4 hybrid and Prius AWDe rollouts, along with the 2020 Supra reveal. Nonetheless, my hope is for it to happen soon, since the death of Volt has ended fighting. Blogs have been dead. There is literally no rhetoric anymore. It's bizarre. To have that the attention of such a relatively calm audience would be remarkable. An increase in range isn't necessary. An increase in power isn't necessary. Finding a way to appeal more to the "*Next-Gen Prius*" buyer is key. For the regular model, that's comes in the form of offering all-wheel-drive. For the plug-in model, it seems likely that an emphasis on cargo convenience would be beneficial. After all, we know a Corolla hybrid and Corolla PHEV are both on the way. Prius must complement the fleet, not compete with other offerings. That's why Volt had problems from the start. It didn't have a target. No audience from within GM's own customer base meant an endless struggle to appeal to an unknown shopper. Who was the market for Volt?

1-13-2019 Understanding, Risk. I saw this as an opportunity to start another blog series: "*That is still the norm for most manufacturers.*" It was a comment made in response to a friend pointing out that Toyota includes their advanced safety features on all models, standard. We ask why the rest of the industry isn't doing the same. What makes them hesitant to promote technology advancements related to safety? That's a risk. With all the emphasis on "*risk*" taking, that aspect was completely overlooked. The enthusiasts only regard "*risk*" as a measure of pushing EV range. That's quite narrow-minding and I intend to draw attention to their limited perspective. It's far too easy to fall into that trap. So, I suspect some of it is just a group-think issue. Some simply aren't aware that more than one type of risk exists. Unfortunately, being fed a specific perspective is how narratives come about... hence this effort to raise understanding. Hopefully, I'll get a few to see the bigger picture, starting with the ask of: Why? It makes no sense giving GM credit for taking risk when they don't even do that. It's bad enough calling them a leader when they don't take the risk spreading their technology to a vehicle their own loyal customers would actually buy. No SUV choice with Voltec after how many years of waiting? I remember a Two-Mode plug-in... the Saturn Vue SUV... being promoted for 2009.

1-13-2019 Understanding, Operation. It never ceases to amaze me how times a new thread about hybrid type is started and the participants don't have any idea how Volt actually works. Some have been members of the forum for years. Some even own a Volt. GM did such a terrible job of promoting their technology, it's no wonder there's confusion among ordinary consumers. But when an enthusiast goes out on a rant and attacks you with the label of "*troll*", you get rather annoyed finding out they didn't understand. Their own lack of knowledge stemming from the horribly vague posts we continually have to deal with makes constructive discussion very difficult. They argue without merit. That's why I push for detail. Even without an understanding of how the hybrid actually operates, you can judge the approach based on actual outcome. Far too often, on-paper calculations don't translate to realistic expectations. That usually comes about from the over-simplification of what the vehicle must deal with as you drive. Anywho, I encountered this again today with a discussion about Nissan's e-Power hybrid. It is the SERIES type, the same approach GM had originally promoted Volt to be, but without a plug. GM never delivered that. BMW did though. The absence of detail obscured logic. No one bothered to ask for specs or even bother to search for real-world data. It quickly became an argument of principle. Ugh.

1-13-2019 Understanding, Stages. The difference between American and Japanese business approach is so vast, it's surprising sales don't appear more polarized. My guess is people have grown numb to the signs, choosing to dismiss the obvious in favor of whatever makes them feel good. A new discussion raised on the big Prius forum about GM's choice to focus EV efforts on Cadillac brought out the usual crowd, many of which I have on ignore due to their close-mindedness. They don't want to understand. They like the online debate. That is their feed good. So, you get a lot of troll bait from them. The replies are clearly worded in a vague & provocative manner to stimulate emotional response. I usually ignore them. This was an opportunity to spread a little understanding though, for those lurkers reading the thread. This was the start of the provoke: "*Toyota's goal does not seem to be...*" I read the rest, but saw no point in repeated what has already been posted countless times to him in the past. Instead, he got:

It's a waste of time explaining to how important of a step Toyota is taking with their delivery of a 39 MPG hybrid. Not understanding the value of how that \$28,000 offering will appeal to the common consumer obsessed with the idea owning a SUV means not understanding change. These are carefully thought out constructive stages targeting the uninformed & uninterested. So what if there is no plug yet?

I'm certainly not going to be an enabler making excuses for EV offerings that are clearly not able to compete with traditional vehicles yet. I'm going to encourage the abandonment of traditional vehicles immediately. Purchase the hybrid that fits your needs. Its ownership will make the taking the next step with a plug simple, as well as get a much cleaner vehicle on the road immediately. Plug will follow later.

There's a long wait for affordable EV choices still. Dependency on subsidies overwhelmingly confirms that. Toyota's newest hybrid platform now provides a quick & easy means of getting the transition moving in high-volume. What other legacy automaker offers side a wide array of cleaner choices already? Turning a blind-eye to why people resist change is what that "*seems to be*" tells me about this audience here.

You know I dealt with the vastly superior rhetoric from Volt enthusiasts from the very beginning. So when I say I recognize the same attitude in these discussions, there's no denying recognition of that pattern. It's the same "*if you don't change the way I want you to, it doesn't count*" nonsense. Change is difficult. Change takes time. Change will not take the path you want it to.

Don't let actions necessary to encourage change get dismissed as unimportant.

1-13-2019 Understanding, Emissions. When an antagonist asks an "If" question, but alert. That's a tactic often used to stir discussion they enjoy being part of. In other words, they already know the answer and just want a repeat opportunity to state their position again. It's really annoying when you spot the pattern, knowing it's really a stall. This is the equivalent of a "*need more info*" request when an overwhelming amount of evidence has already been collected... for example, the "*global warming*" issue. In my youth, it was questioning whether or not smoking was harmful. Everyone knows; yet, the revert back to still asking keeps happening. Ugh. Today, it was: "*If the goal is to replace traditional vehicles with electrified choices, and that means full hybrid or better, and that does not require a plug, how do we measure that Toyota is a leader? Shouldn't fleet or segment mpg averages tell the story?*" That was clearly an attempt stir discussion, since we already all know the measure is vehicle counts. Fighting back directly rarely works though, especially if the question becomes a learning moment for newbies. So, I answered this way: You completely missed the point. That goal is one of many stages leading away from vehicles of the past, replacing them with *CLEAN* and efficient choices right away. The reduction of smog-related emissions has nothing to do with MPG either. Don't forget that much of our electricity is derived from dirty sources. That's why getting everyone to switch to a vehicle with at least a SULEV emission rating provides so much of an impact to the air-quality problems we face. The benefit of carbon emissions also being greatly reduced doesn't require an EV. Achieving that goal can be from a plug-in hybrid. My driving is 80% electricity. The rest is with SULEV rated emissions. That's a dramatic improvement from an affordable offering. It starts with that first goal, getting people to abandon traditional vehicles.

1-13-2019 Understanding, Attacks. When the answer to a question is disliked, they'll ask again but interject a personal twist: "*But apparently it will take the path you want it to?*" Those obvious attempts to distract & discredit are troll bait. The intent is to ultimately undermine discussion. Hope for any chance for objectively is remote. It's worth trying. I did this time: I now have 6-Sigma certification, adding to my many years of learning of how the automotive market works. So, it's not my want, it's what my research tells me about change. Like it or not, mainstream consumers are fickle, poorly informed, and often rank emotion higher than logic. So, no matter how you present engineering marvel, they just plain will not care. That's what the overall failure of Volt taught us. EVs surpassing the hybrid market this year doesn't tell us anything about true demand. Appealing to early-adopters with tax-credits is just low-hanging fruit. The far more difficult challenge is what comes following that stage. You can't actually measure hybrid demand anyway. There were not any competitive offerings until very recently. With the market shifting heavily in favor of SUV purchases, measure against the appeal of a hatchback or sedan doesn't make any sense. You will be continue to be disappointed with Toyota's approach. Get over it already! How many times must you be told their formula to success is very different from what you want? The business of change for them is to move the masses with a slow unrelenting push. The drama you hope for won't happen. That's not the way they operate.

- 1-14-2019 Understanding, Hypocrites.** The death of Volt is quite undeniable that this point... to the degree that all hope is lost for any type of successor. Many former enthusiasts are sighting reasons for disappointment which echo exactly what I stated years ago. Their former position is swept under the rug, hoping no one will notice their opposition in the past. The fact that some are saying what I said, word for word, is so hypocritical I'm not sure what to do. It wouldn't be that bad if it was just a matter of recognition their error. They don't even have to admit to having made a mistake. It's the attempts to rewrite history to conceal that activity which stirs emotion. This type of behavior to protect reputation is how history repeats itself. Erasing that record of the past gives others nothing to learn from. It sets the stage for failure. Ironically, we've been through this before. Each time I'd point out the repetition, sighting how well current activity matched choices of the past, they'd do everything in their power to deny a pattern... which in itself, was part of the pattern. Now, I'm reading my own comments coming from them... like how GM moved too slowly, that they should have diversified long before the tax-credits expired. Ugh. It's the denial that makes me angry. I can look up statements from those same individuals showing they were opposed to what they claim they supported all along. Grrr.
- 1-15-2019 Understanding, Irony.** There are so many "Ugh" moments now, it's hard to know how to respond. This was the standout statement today: *"Seems a poorly thought out strategy to burn through the tax-credit threshold without any plan to use it to help ramp up mass production."* My concern of GM doing exactly that was dismissed without any consideration. The enthusiasts labeled me as a troll and fought relentlessly in favor of GM's approach. No matter how many times I repeated *"too little, too slowly"* sighting that hard deadline as a serious upcoming problem, they dismissed those words of warning. It was blind how that somehow Volt would suddenly see a sales surge, even when GM announced Volt's antithesis would be produced. The very thing those enthusiasts campaigned against with the *"range anxiety"* solution of EREV was actually coming to fruition. All those years of fighting EV were suddenly turned upside-down. That's ironic. The very thing they feared the most... even more than Prius... was now the very thing GM had endorsed. So, of course, they needed a scapegoat. Rather than drawing attention to the undeniably ironic problem, they attempted to divert as much attention as possible elsewhere. That was fairly effective, until now. Bolt is the winner. Exactly as I predicted with the confusion involved with the naming has played out. So many still mix up Volt with Bolt, there's a save face response of *"that's what I meant"*. GM set the stage for easier discontinuation. It was so far beyond suspicious, I couldn't believe the effort expended to deny. It was dismissed a coincidence, nothing more, then attention was diverted elsewhere. Toyota is always the favorite distraction, as I had to deal with today. That will come back to bite them later too: It's ironic how Toyota was attacked relentlessly and was given the *"laggard"* label for avoiding that very situation. Whenever I pointed out that missed opportunity, GM enthusiasts did everything possible to divert attention to another topic. Funny how the table has turned. That was a valid concern not to be busy brushed aside, especially while belittling others in the process.

1-16-2019 Understanding, Messaging. A big chunk of my blogging over a decade ago involved documenting the mixed messages coming from GM. That automaker was an endless source of change. They set expectations, exploit the resulting meritless hope, then switch to something else. There was no clear direction. Purpose always remained a mystery. We saw that on a regular basis with Two-Mode. No one ever really knew what that technology was meant to accomplish or even whom it targeted. That situation of uncertainty was compounded by Volt. Right from the start, goals weren't clear. Was the engine to be a basic emergency backup, supplying emergency power in the event of unexpected battery depletion, or was it to be a full-power system complement. In other words, would it be an EV or a hybrid. No one ever really know what that HV mode was intended to deliver. Upon rollout, disagreement grew. That's why sales suffered. No one really understood the messaging. Press releases provided a mix of purposed, never really clarifying purpose. That's why the introduced of Bolt brought about so much chaos. It compound the problem of intend with the problem of audience. This is why the asking of "*Who?*" increased over time. GM was originally thought to be competing with Prius. Then it switched to Leaf. Then it switched to Model 3. No one had any idea what GM was trying to accomplish. That's why Toyota was the favorite distraction, spinning their "*traditional to hybrid*" goal as overly simplistic and not accomplishing much. Hype from GM spinners made a much bigger impression of achievement, even though very little was actually delivered. You know... "*over promise, under deliver*" ...that problem with GM starting long before even Two-Mode came about.

1-16-2019 Understanding, Trust. Fear at the beginning of Volt was that it would become a replay of EV1, that GM would rollout a product, then sight low demand as a reason to end production. Decry of such concern was intense. That would never happen, period. Now... 12 years later... we see that is exactly what happened. There's an overwhelming sentiment growing of GM having made a serious mistake of prematurely ending their efforts with plug-in hybrids. It was the lack of any effort to diversify that raised my concern. When Volt-1 sales struggle became blatant, there should have been talk of strategy change. GM abruptly dropping MSRP without any growth result, the problem should have been a major reconsider. Remember the stir to get a second model introduced, one with an affordable configuration (smaller battery & motor) to make it competitive and possibly profitable? Remember all those posts complaining about not spreading the technology to a common GM offering, like Cruze or Malibu? That rollout of ELR was a dead giveaway GM didn't care about making "*Voltec*" a common choice in their fleet. Heck, even the marketing term of "*EREV*" remained ambiguous. There was never any agreement what it actually meant. That's how trust is lost. Each failure to support a perceived purpose takes away from the hope of it ever being achieved. GM kept making steps in the wrong direction, each with proclamations of amazing progress from enthusiasts. Ordinary consumers don't accept nonsense like that. They only see the failed effort. In this case, GM tried, then gave up. Volt was showing potential, then it got cancelled. Think about how that looks when plug-in hybrid choices from Hyundai/Kai, Honda, and Toyota are all being promoted. Why did GM stop? Not knowing makes trusting their next effort very difficult.

1-17-2019 Plug-In Hybrids. Voices of reason begin to emerge over time, as we are starting to see now: *"As long as batteries remain in short supply, PHEVs are the main route to electrification."* Losing touch with how ordinary people perceive a situation is a very real problem. That's the difference between a "supporter" and an "enthusiast". The one recognized that problem. The other dismisses it as rhetoric. In this case, the situation is quite complex. There are several challenges which much be addressed. That confuses matters and makes online discussion very difficult. It's far too easy for a topic thread to lose focus. That's why those blogs with only a lifespan of a day or two are basically worthless... except how I use them, as an opportunity for learning more about argument perspectives and making discoveries. If you watch patterns and carefully read posts, you'll sometimes discover a clue about what's really taking place. There can be a subtle mention of technology or audience that most people overlook. That's online treasure for those trying to find true solutions. In this case, finding out how the potential for plug-in hybrids can be used to accelerate electrification proliferation. Put in more simple terms, I'm trying to identify what is truly preventing mainstream progress:

Combine that [short supply] with the reality that most households are barely able to support a single EV. Sharing a 120-volt connection is pushing it just for the one. But that's all some people have. Their service-box is too far away from the garage or doesn't have the capacity available. That makes the consideration of a second EV basically impossible.

Like it or not, there will be quite a market for PHEV choices until both production & infrastructure shortcomings are dealt with. We see how GM pulled out, implying no demand. It really did turn into a form of sequel to EV1, where they killed a product with lots of opportunity.

It's unfortunate EV purists created a divide, unwilling to acknowledge an affordable plug-in solution like Prime could help bridge a future to EV ubiquity. My commute in is usually 100% electric. Sometimes, I wander elsewhere after work instead of going home. So what if the engine runs then? Seeing my overall consumption at 80% electricity is a major step away from gas. It's a simple solution for the early stages of EV.

Seeing the shortcomings combined with obvious cost/subsidy hurdles to still overcome, it makes now sense not embracing what PHEV can do for speeding up market transition. Those choices target the masses, while the EV purists can lead the way for future purchases... the obvious upgrade later, an easy sell once you start plugging in routinely.

1-17-2019 **Loyalty.** I found this compelling: "*There is little brand loyalty in this transition to EVs. Toyota had better be careful.*" It was posted on a discussion thread on the EV blog about Toyota's recent comment regarding EV take over. He said the belief was overstated. The article provoked discussion by calling Toyota "*blissfully unaware and unprepared*". Being a social media site with the purpose of drawing online participation, coming across such an intentionally polarizing provoke was par for the course. It shouldn't surprise anyone. I joined in, of course. But my participation is to inform: There is no sense of loyal from early-adopters. They understand the technology and have the means of taking advantage of the generous tax-credit. So, the jump on the opportunity regardless of who is providing it. The true measure of demand doesn't emerge until the subsidy is gone and there is actual competition. This is the painful lesson learned from Volt. A large portion of sales/leases were the conquest type. When other choices came along, those owners jumped ship. Toyota was smart enough to avoid that loss GM is now having to deal with. Toyota couldn't care less about enthusiast's online comments, a teeny-tiny fraction compared to their over 10 million customers each year. In other words, what's the rush? There's very little substance, if any, to the "*knocking*" in this current market. In fact, they seem to be playing negatives, exploiting attention stirred by a hungry media by poking the "*now*" crowd with in-the-moment comments. Know your audience. In the meantime, Toyota just quietly pushes along refining their electric system in hybrid & fuel-cell vehicles, waiting for the time to offer a vehicle with a large battery-pack to the masses at a cost directly competitive to traditional vehicles.

1-17-2019 **Gamble.** It started with this: "*It is sad that Toyota is sitting on the sidelines.*" Then it ranted for a bit, and finally ended with: "*Doing nothing seems like an incredible gamble.*" I didn't even bother bringing up the aspect of risk. I just focused on the game, pointing out how Toyota was very much in the game: Toyota is rolling out their next-gen RAV4 hybrid, an ideal platform to offer a plug. That AWD system offers substantial electric-motor power yearning for a larger battery-pack. It's affordably priced (\$28K) and offers impressive hybrid efficiency (39 MPG) for such a large, comfortable vehicle. Think about what that plug-ready system has for potential, especially while building loyalty & reputation in the meantime. Claiming that is nothing takes quite a bit of denial. It's an undeniable effort to diversify offerings. Don't forget the RAV4 model of the past that was an EV. It had a cost far beyond anything realistic for mainstream sales, but it did an excellent job of confirming Toyota's preparation for the future with a plug. So what if they aren't moving as fast as enthusiasts would like? They aren't the ones who provided sustainable profit. They just test the waters... which everyone appreciates... but they don't represent ordinary consumers. In fact, most don't actually know much about the automotive business. Their technical expertise often distracts from the challenging reality of low-margin, high-volume sales. Toyota is very much in the game. They just aren't playing a position that gets much cheering.

- 1-17-2019** **Pre-Game.** A few are still attempting damage-control efforts for GM. These comments are really getting old now, not stirring much reply anymore: "*They are late to the Li-ion game, after all....*" Part of that loss of interest is having provided the insight of big picture perspective. Even the newbies (and I suspect the lurkers) online are noticing most of what has already played out has been nothing but "*pre-game*" type activity, that the true "*game*" has yet to begin. That's even better than my observation of "Tortoise and the Hare" similarities. The first race was nothing but practice before the real thing. After all, sales with subsidies don't represent how the technology will actually be received by the typical consumers. Ordinary showroom shoppers won't have a generous tax-credit helping them make their purchase decision. In fact, the very idea that an automaker who produces several million vehicles annually won't really see much of a benefit of 200,000 credit purchases spread over several years. It's too small to be meaningful with respect to sustainable profit. Strong business depends upon sales expectations being met on a continued & predictable basis. So, the nonsense still coming from a few enthusiasts is beyond annoying. It's intentionally disruptive and I don't like it. So, a callout to draw attention to their efforts to undermine is necessary from time to time... as it was today: Like I said, spreading FUD. As for claiming "*late*", that's just rhetoric. No one cares about the pregame except those actually watching it. Subsidized sales are warm-ups prior to the actual game starting. Having that generous tax-credit available obscures true demand. We saw that with the way GM exploited theirs, wasting them on conquest sales for Volt rather than establishing something capable of sustained profitable sales. The game starts when showroom shoppers get involved. That's after government incentives have ended and early-adopters moved on. It's not rocket science. It's business. When just an ordinary person considers a plug-in purchase the same way 10's of millions of others do each year, that's when you know.
- 1-18-2019** **Insults.** Gotta like this: "*Hybrids can only be a stepping stone from ICE to EV for the slow and faint hearted, never anything more.*" That new spin on smug is an insight into how the dismissal becomes so easy. Hearing statements like that routinely makes resisting change the norm. It empowers the status quo... which is the very opposite of the message that comment was intended to convey. Rather than helping electrification along by endorsing any form of it, they are downplaying. That essential step is how overcoming the intimidation will take place. The scale is absolutely enormous too. Knowing that it will still take at least a decade for the foothold to take place... that's the time needed to establish a market by experiencing a full generation of a mainstream offering... is a difficult message to convey. People don't want to accept that reality. But with cars, that's a very normal expectation. The masses watch & wait. It's what we had to deal with from hybrids. Gen-2 Prius was the first mainstream offering. Gen-3 was a big hit among ordinary consumers. (Gen-1 targeted early-adopters.) That's the way things are. People have other priorities. Insulting them is a terrible mistake. I conveyed that sentiment this way: Know your audience. Calling people "*slow and faint hearted*" is turning a blind-eye to finding out why there is resistance. Those hurdles must be addressed, not dismissed as invalid.

- 1-18-2019** **Risk.** I found this ironic: "*A Kodak moment is not when a company takes a risk to stay relevant. It's when a company fails to do so.*" It came from someone pushing a smear campaign against Toyota, doing everything he can to portray the automaker as close to death. It's somewhat absurd reading his posts. The propaganda is so obvious; yet, he thinks the message is undebatable. Statement of fact using vague references and limited scope is such a waste of constructive discussion opportunity. It undermines threads by stirring rhetoric. Others chime in to repeat the same meritless claims. They feed on each other, never actually providing content of substance. Just repeat the mantra. Ugh. I found it redeeming to respond to that nonsense with: Ironically, investing in the hybrid platform to offer an affordable plug-in option later is taking a risk.
- 1-18-2019** **Audience.** You get reason for pause when a troublemaker parrots back your own catch phrase: "*Know your audience.*" He clearly doesn't understand what that actually means. In fact, he's basically turning into a troll. More and more, I'm seeing nothing but worthless post messages. They will be one sentence comments without a quote, just a general sentiment of agree or disagree. Most of the time, you know clue what he is actually responding to. He doesn't care. That behavior is to draw attention to himself, bumping his post count up as some type of badge of authority, without doing anything worthy to earn it. Ugh. That's what I have to deal with though. I've heard others grumble upon noticing that behavior too. He's not breaking any forum rules, so there's no way to stifle the activity. It's an effective means of undermining. That's why many blogs lose participants. Thankfully, most forums offer an ignore feature. Sadly, that doesn't help many newbies who aren't aware that some people are not there to help. Oh well. I just keep posting what I can to keep topics relevant. In this case, it was with: Toyota does and they are well aware of how Tesla's current draw is completely isolated from ordinary consumers. As for the cannibalizing, that's true for all legacy automakers... most of whom are afraid to even mention the issue. At least Toyota is setting the stage by phasing out traditional vehicles.

1-18-2019 **Stalemate.** Hearing from others is interesting: *"It is obvious that Toyota is stalemated with this "disadvantage" that Tesla does NOT have."* That's a perspective based primarily in anecdotal observation, I assume. Seeing Toyota's necessity to address diverse customers and the corresponding responses isn't easy. Most people focus entirely on a single effort. In most cases of the past, it was all about Prius. They wouldn't see anything else. Not seeing anything else is what contributes to my assessment of someone being an antagonist. Recently, that single-mindedness has shifted to Mirai. You have to wonder why they don't recognize the big picture. I often see *"EV market"* referred to as the entire relevance of conversation. The world outside their niche doesn't exist from their perspective. It's bizarre... but not surprising. Many like to live in their own world. It's human nature to filter. That's a survival instinct... which means, all I can do is try to get some to notice there's more to the topic than what they have noticed so far. In this case, Toyota has lots of opportunity. Tesla is just a player on the team. The game hasn't really even begun yet. When Toyota does play, it will be on the same team... not a competitor. It's that audience problem. Understanding what will be sold is very important. Only customers interested will buy. Purchases cannot be pushed. Remember those *"one size fits all"* arguments of the past? That's what inspired my reply: Some of us pointed out years ago that GM would be even worse off having chosen to push Volt, wasting tax-credits on an approach that didn't compel their own customers to switch. Addressing how to change the status quo is something Toyota is aggressively working on. Giving Prius AWD and pushing RAV4 hybrid is clear evidence of trying to get their customers to accept letting go of the past. So, the assessment of *"stalemate"* isn't accurate.

1-18-2019 **Spin.** When you corner an antagonist, proving your point, they attempt to change what you said by stating something different. In this case, he took my phaseout to mean the vehicle itself, rather than the technology it used: *"What specific "traditional vehicles" are they phasing out? They just introduced the new Supra - 100% ICE. Stupid, at least make it a hybrid like the i8."* Those reading the thread not paying close enough attention will get drawn into that diverse attempt without even realizing the topic was intentionally shifted to undermine the discussion. This isn't as easy to notice as moving the goal posts. Rather than not meeting an objective, they try to change what that objective represented. It's the usual trolling we see to keep posts active. Never allowing a conclusion to be drawn is key. I find it very frustrating how some use forums for their entertainment, rather than a venue for exchanging information. Oh well. There will always be those who waste resources. My attempt to un-spin was: Phaseout of traditional vehicle production has been mentioned so many times over the years, it's difficult to not recognize that reference. Don't you remember any of the press releases about offering a hybrid model for every vehicle? As for the Supra, there will always be niche offerings. The point is to move the fleet forward, which is exactly what the HSD system does. It standardizes motor & battery-pack while improving emissions (SULEV rating, as well as carbon reduction) across all mainstream offerings.

- 1-18-2019 Profits.** Many who participate in the forums just want to discuss basic. So even when a complex topic is brought up, the response is usually something of simplicity. The knowledge & experience needed to have an exchange of critical thinking just plain isn't there. Having some background related to accounting, marketing, or economics is absent. Lacking those essentials for understanding business choices makes everything on the big-picture perspective a challenge. For example: *"VW spent a large amount on a BEV dedicated car platform with the first model coming out this year in Europe. The profits can't be that tiny."* How exactly was that conclusion drawn? So many factors influence profit, it's an equation experts struggle with for years. Seeing someone solve word problems in just a single post is amazing! Ugh. I try to interject wisdom when I can. Pointing out history to offer a parallel to compare can be helpful. Hopefully, this was: Just like that paradigm-shift experienced by the computer industry decades ago, the automotive industry must now adjust to low-margin sales. Those who remember that history, it was quite significant. We saw major players leave the game. Approach to sales and product offerings required major change. Who would emerge as a strong player was not obvious. People turning a blind-eye now to subsidies and pretending base-price is competitive with common choices are in for quite a reality shock.
- 1-19-2019 Growth.** It gets confusing even when attempts to be constructive take place: *"As Toyota expands the number of hybrid models, we can expect these numbers to increase, which is a good thing."* This is where detail comes into play. Vague statements kill the opportunity to continue exchanges of observation & experience... preventing any hope of providing informed predictions. A somewhat effective means of overcoming that is to provide counts setting expectations. Scale is often overlooked. Stages of reach are too. That makes the increase of sales difficult to grasp. And that's without even taking into account that the market itself is a moving target. With so many factors intermingling, you have to keep any numbers shared in focus. Distractions come from too much. Misunderstandings comes from not enough. There's a delicate balance. I try to walk that line: Toyota stated they expect hybrid penetration here (North America) for their fleet to increase by 6% in the next 2 years, from 9% to 15%. That's growth of about 150,000. So, where the supposed *"hurt"* from Tesla happens is uncertain. At a time when the EV market is still just going after low-hanging fruit, it's difficult to take the doom & gloom predictions seriously. RAV4 hybrid looks like it will be a major contributor to that progress away from traditional vehicles, targeting their core buyers with a cleaner more efficient choice. What other legacy automaker will be attempting something similar within the same next 2 years? We're certainly not going to see 75,000 annual more electrified anything here from the so-called leader GM in that timespan. In other words, reality is about to set in.

1-19-2019 The Next Stage. We are starting to engage in a new level of discussion... finally, a serious step away from rhetoric of the past. Though, complex risk.... like making safety standard, rather than a package option... still are not acknowledged. It's at least some progress. This helped that sentiment along: "*Now, do you think that will actually increase the market share of hybrids in the general market?*" I had much to say about it too:

Consideration of what the computer industry did to overcome the same low-margin problem is very important at this point. Knowing that history, you wouldn't ask the question.

Their solution was divergence. Each manufacturer took a different direction, attempting to capture what they thought would be a large enough market for them to sustain profitable business in their new paradigm. That's why I keep repeating KNOW YOUR AUDIENCE over and over again.

In fact, that was the very reason I kept asking "*Who is the market for Volt?*" on a regular basis. I could see GM was making that fundamental mistake and kept getting personally attacked for questioning those actions. Turns out, I was quite correct. They were pursuing sales in a market with very few potential buyers. They didn't understand the shift. It was old-school logic failing in a changing business.

In other words, whether or not market share increases is meaningless. GM's choice to disregard their own customers in favor of conquest proved to be a terrible decision. Toyota observed that targeting mistake and has taken great risk to avoid it. Which is rather ironic, since many claimed they were not taking any risk. Toyota will focus on their own customers. That's why it doesn't matter what others do.

This is easier to see if you switch economic perspectives from micro to macro. You'd notice that variance in battery suppliers & chemistries alone are enough to confirm each automaker will take a different path. Then, of course, there's the reality that some automakers are abandoning cars entirely and others are transforming them.

Haven't you noticed the risk Toyota has taken by steering Prime in the direction of being a step-up vehicle, no longer favoring the Prius "*family mover*" image anymore? That's why they risked elimination of the middle seat, to more closely mimic "*post children*" offerings. That is also why it wasn't deemed essential to maximum cargo space. Priorities have changed.

That spin & short-sightedness we have to deal with from people not recognizing necessary approach changes coming and how much more complex choices will become is unfortunate. This is why I appear to get rather terse sometimes. It needs to be stressed that reaching electrification goals won't be the same for each automaker.

To put it shortly, the formula for success in the past doesn't work anymore. So, the measure of progress and success won't be the same either.

- 1-20-2019** **Timing.** We're finally getting back to basics, a simple matter of timing: *"I was hoping for changes in 2019 and now I am hoping that 2020 will be the time for the Prime's refresh."* That equates to the effort to find solid information, for an actual sales. Those nasty days of hype & distraction are fading away. Thank goodness! Now, I can turn to posts like this: It is possible the 2020 model could have a mid-cycle update and it is possible that could be released to make the 2019 a short run. We've seen new model-year rollout take place as early as May. That would mean paying careful attention to what happens as Earth Day approaches... which is the same timeframe when GM triggers their first major tax-credit reduction... opening up the market for a Toyota blitz. The most recent hope for some plug-in update news was as anticipated the week prior... a silent unknown, the usual quiet from Toyota. In this case, that was especially fitting, because Detroit's final January auto show was all about old-school speed & power... which is why attention was focused entirely on Supra. The mindset of Earth Day is so much more fitting. It's part of the game with Prius. There is always waiting involved and green draws its own audience. We know Toyota has a major battery investment underway. We know they are pushing the spread of their technology. We know that being both affordable & profitable remains priority. We also know these things take time. So, it's a guessing game. Think about what the other automakers are struggling to deliver.
- 1-21-2019** **Reviewers.** Confirmation of how poorly informed enthusiasts are on the blogging site for all type of plug-in vehicles become obvious when a review is taken at face value. That's a sign that other connect & comments are probably not credible if there is nothing provided to support the claim. In this case, there wasn't anything more than a vague reference. There wasn't even a quote included. It was just a generalized claim of the engine starting. That turns into a belief that self-validates, simply from seeing its repetition. Having no source is common though. Spreading of rhetoric thrive on ignorance & complacency. Anywho, you can only imagine how many down-votes I got from posting the following information: Reviewers often don't notice the difference between "EV Auto" and the pure "EV" only mode. It's easy to overlook the fact that the first allows the engine to run briefly during times of high demand and the latter to prevent running unless the speed (84 mph) or temperature (14°F) thresholds exceeded.
- 1-21-2019** **Inconvenient Truth.** This is another one of those bits of information that wrecks a narrative. I have a feeling I'll be referring back to the detail I uncovered with respect to this 2 weeks ago on a regular basis: *"What an odd twist. We have been hearing all along that Toyota doesn't want to build electric vehicles now we find out the Toyota is the primary supplier of batteries for Tesla."* That message being heard is rhetoric antagonists have been spreading. Angered by the approach Toyota is taking, which varies dramatically from most others, they portray an image of disinterest & resistance. It is false to anyone who takes the time to study, but most don't. The sad reality is many just listen to those stirring trouble. I'm aware of the work Toyota has done with Panasonic. I have watched progress over the years and the effort to always deliver an affordable, robust product. When it comes to batteries, that means taking the time to do it right. Trying to discuss the situation with impatient & uninformed online posters is almost a futile endeavor. Fortunately, I stumble across a nugget of data so helpful, it speaks for itself. The following is exactly that... which I will spread again, and again, until they finally acknowledge: The recent Bloomberg information about Toyota investing 1.5 trillion yen (\$13.9 billion) in its battery business is at odds with the *"doesn't want to build"* narrative. So, many just choose to ignore that inconvenient truth.

1-21-2019 **Saving Face.** Ugh. How do you respond to this nonsense: "*This is the Japanese way to save face.*" It's ironic, so many won't recognize how well the situation applies to them. That's why hypocrisy is such a common problem. I find it vindicating. When you read between the lines to figure out what they actually want, you know a big automaker like Toyota striving to reach the ordinary consumer is the one to back. As much as the long-range electric-only vehicles convey a sense of a promising future, there is the problem of cost none of the enthusiasts want to address. Heck, even supporters trying to be constructive have become very close-minded to the reality of tax-credit expiration being a very ugly situation. Sales with that \$7,500 weren't exactly easy, despite those consumers being low hanging fruit... the easiest type. The appeal was exclusively from those known as early-adopters. They are the ones who are well informed and willing to pay a premium. The loss of that \$7,500 incentive makes even that audience shy away. That means appealing to mainstream consumers is basically impossible. With a price in the low 40's, there is simply no way to draw ordinary consumers. Sadly, most discussions don't even get that far. Most are much more generic, simply calling names and making excuses. That's what you get when there is little to no substance right from the start. It's what makes posting this response so easy: That's better than engineering by press-release and niche rollouts. Reality is, the propulsion tech is already developed and it is waiting for batteries to be exploited. Meanwhile, refinements continue. Don't pretend the PHEV and FCEV designs don't share EV components.

1-22-2019 Progress & Understanding. We have a long way to go still, but there is hope when you see this: *"Finally, we want SUVs. Why are there almost no plug in hybrid SUVs on the market? There's the Outlander PHEV..."* It is at least a hint of market recognition. Of course, not everyone notices the bigger picture at the same time or in the same way: *"Everyone else is doomed. Uh-huh."* Those two quotes from two different people on that general blog for all plug-in vehicles, has somewhat of a diverse audience... with respect to what they'll endorse. Sadly, most suffer from group-think and are very much in the enthusiast category. Representation of ordinary shoppers is quite rare. So, I have to deal with their perspective, using logic like this:

Osborne Effect alone could have such a huge impact, likely turning the already highly competitive market into a mess. Besides that stall of current sales and potential for long delivery waits later, excitement could stir ill-informed purchases. That risk of reputation from customers not really understanding what they buy can have serious negative consequences. That's where the doom comes into play. It's actually a reflection of their own support failing.

Think about how risk is perceived. A majority of posts you'll encounter identify range as the measure of progress. They see it as only a factor of kWh capacity. It's sad that miles/kWh is disregarded as important. And that's a factor of EV travel too. It makes discussion of other risk nearly impossible to address. Think about the risk Toyota has taken by not making safety an upgrade package option; instead, they made it standard even on their lowest priced models.

Doing more research into the electrification business, you discover battery chemistries & implementation vary dramatically. Those fundamental choices of approach will have a major impact to outcome. It's an exactly complicated collection of things to learn about. That's why moving ahead cautiously will limited market rollouts isn't such a bad idea. Some people will spin a narrative and spread FUD, but they are the ones who will face eating crow later.

I battled Volt enthusiasts for years, expressing concern about the business choices GM was making. They mocked, belittled, and offended as much as possible to shut me up. Now, there's a long record of my observations confirming the terrible path GM decided to take. That type of vindication isn't rewarding though. It's really a trail of disappointment about so much opportunity being missed. That's why I'm thankful about Toyota's comprehensive exploration of choices and the wisdom to not rush to market.

Waiting is painful. That's why I suggest a deep exploration into the business of electrification. It requires quite a bit of self-educating, doing lots of searching & reading. But it really is a rewarding way to fill the time. You will then be able to shrug off the exclamations of doom and understand the answer why.

- 1-23-2019** **Close-Minded.** Some people just plain don't care: "*Toyota is late to the party...*" To such close-minded individuals, I keep my replies brief. What's the point when they have already made up their mind? After all, the audience they are addressing don't represent the majority of buyers anyway. If you are a participant in an online forum during this initial stage of rollout, there's no possible way to argue otherwise. Ordinary shoppers don't do that. They are the ones who just go over to a dealer and walk around. They talk to friends & family. They do some basic internet search. They may even go to a big autoshow. But that's pretty much the extent of their research. There isn't much study or preparation. In fact, the purchase is pretty close to spontaneous sometimes. The vehicle is the right price. It appeals to variety of wants & needs. And gas is cheap. That's why the short reply is all the more bothersome should get when all they care to do is insult, rather than try to have a constructive discussion. This was mine today: Being late to pre-game activities really doesn't equate to much. Only early-adopters are at the party. That actual game doesn't start until long after the tax-credit (low-hanging fruit) stage is over.
- 1-23-2019** **Basics.** Sometimes, you can actually get someone to listen: "*technology. motors, batteries, chargers, software, and the most difficult; worldwide supercharger network*" Sadly, it doesn't mean they are well informed. But at least there is an effort. If they try, at least you stand a chance. Unfortunately, if they overlook the basics, it can be extremely challenging to get them to notice what they haven't been aware of. This typically comes about from not recognizing how small things can have a major impact. That's because the influence is subtle... which is exactly what you want. The least disruptive (noticeable) to the typical person, the better. Fear of change makes that a necessity. Most resist if they notice. That's why the basics are so important. Lots of small changes really add up. I try to point them out: You are overlooking the basics, which play a role in electrification... like steering. Think about Toyota's advancement in those terms, having phased out the traditional pump by switching to electric... a feat achieved by hybrids, essential for plug-ins. Those little steps make a big difference; yet, you don't acknowledge their importance.
- 1-23-2019** **Ugh.** "*but every day toyota tinkers, tesla advances. all carmakers are already behind the 8-ball. only tesla is prepared for the future.*" That one particular troublemaker who appears to be someone who posts frequently & continuously throughout the day at trolling volumes keeps filling up discussions with substanceless content. It's so annoying when a person just participates for the sake of participating. His "contributions" take away from the value, just cluttering up threads with words lacking any merit or even any substance. They just fill space, making content of value more difficult to find. I try to inform, but providing education without sounding condescending is really a challenge: Know your audience. Please take the time to research what it takes to actually prepare. That post clearly reveals you have not. Toyota is doing exactly what it takes to advance. High-Volume processes cannot be changed quickly. Adaptation works best by taking numerous small steps. That everyday tinkering is evidence of progress forward. Forcing the perspective of Tesla (a limited product start-up) makes absolutely no sense. Claiming otherwise confirms being out of touch with what legacy automakers must do. Only enthusiasts care about the impression of being behind. Ordinary consumers aren't even paying attention to the early-adopter market. When they finally do take notice in a few years, they'll see Toyota was well prepared from all the technology they already rolled out in their hybrids.

1-23-2019 **Trolls.** You follow forums & blogs long enough, eventually you'll notice a pattern. Today, it was: "*tesla technology is way beyond anything else on the market*" That came from a troublemaker who's been getting worse and worse... absolutely refusing to provide anything quantitative. Posts have become vague, to the point of being worthless. Heck, he often doesn't even quote what he's responding to anymore. It's basically a takeover of threads. You know, someone craving attention. For the last 2 years, he's complained about the smaller cargo area in Prime. It never ceased. He just likes to object, perhaps? Following his other posts though, to get a better idea of who I was dealing with, it was obvious he had no actual business or engineering knowledge. All those were lacking substance, closely resembling propaganda. It was really annoying to confirm. Some of it was just pure greenwash too. The complete absence of anything with merit was so frustrating. So, I did more research... know your audience... after all. That was necessary, since my confrontation was replied to with a parrot response and I didn't want to waste anymore more time. The result sounded alarms. Seeing his post count at nearly 75,000 was all it took to become very concerned. He likely turned rogue, the result of disenchantment... which means an endless stream of finding-someone-to-blame posts. Sound familiar? I looked up recent posting activity. 87 posts yesterday. 64 the day before. 153 the day before that. Yup, that was it. Constructive nature is lost when such a magnitude is reached, which was clearly evident by the lack of detail. It was becoming just spin. A troll was born. I always wondered how that attitude came about. It the same thing I've seen several times in the past. History repeats itself with such persistence. Knowing there is no satisfying someone who just plain does not care, I ended his provokes with: It's the same old "*vastly superior*" nonsense again.

1-24-2019 **Moving Parts.** Not understanding is often the root of the problem: "*I don't understand what TGNA is, except more profit for Toyota.*" It's unfortunate someone posting so heavily really doesn't have a clue how all the moving parts interact. It's like throwing a dart randomly, hoping to hit something... hence throwing lots of darts. Eventually, he gets a bite (yes, it's trolling) on something someone else is willing to exchange posts about. Anywho, I was happy to actually get something constructive this time. Hopefully, it provides something worthwhile in return:

This is that paradigm-shift I drew attention to. The industry is being forced to shift to a low-margin approach.... which means what appears to be a profit gain at the moment is really preparation to sustain business in the future. It is that "*tinkering*" you didn't see as progress forward.

Think about how difficult plug-in sales will be without subsidy help. Toyota is taking that situation very serious. They don't have the luxury of \$44,000 base prices as acceptable. Their audience expects much, much lower prices. Rollout of TGNA is to reduce production cost for support of affordably competitive design.

Economics is more important than engineering in the long run. Toyota knows this well. They carefully study how to reach dealer & consumer and plan out their product-cycles accordingly. That provides enthusiasts with lots of material to spin their own narrative... one which you have helped to feed at times. That's why I politely request more detail, pointing out that vague comments unintentionally contribute to their rhetoric.

It's all about understanding the seemingly unrelated moves that contribute to fleet advancement. With so many parts moving, it's very difficult to picture what's happening while in the middle of that plan. As we draw closer to rollout, it will become obvious how each of those steps helped progress along.

1-24-2019 **Consequences.** Rather than expressing concern warning of detrimental outcome, I am now pointing out actual consequences. Those days of arguing risk and defending position are over. Volt was leading a group of followers down a rabbit hole. Those individuals attacked me whenever I tried to get them to look at the big picture. They were convinced the path they were on was what would lead them to happiness. They were wrong, very very very wrong. Making it worse, they now recognize that my concern was sincere... which is an extremely uncomfortable position to be in after countless hostile responses claiming otherwise. No matter what they say, I can turn it on them now. So, they disappear. Quickly approaching the anniversary of their biggest counter-offensive, that defeat appears to have been taken seriously. Volt died a painful death... one of silence. It will be looked back upon as a major failure, technology without support. They were so focused on engineering, the consequences of their business neglect became overwhelming. There's no way to save such a monumental mistake. Dismissing a fundamental aspect of success was foolish... and they all now know that. It's all too clear Volt wasn't a vehicle intended for the masses. This is why I pushed the "Who?" question so much. It was meant to be a wake-up call to draw attention to opportunity being missed. So much focus on their niche was a terrible choice. Oddly, some still try to spin it as not so bad. To that, I say: That narrative here is pretty sad. Several automakers are diversifying with fuel-cell exploration and pursuing EV offerings. Those that engineer with press-release get lots of credit. Those who don't get an "anti" label. No one cried foul about how GM squandered their subsidies on a niche rollout as a distraction from actually electrifying their fleet. It worked well too. That resistance to delivering a plug-in SUV or Pickup went completely unnoticed. In other words, some here really need to reevaluate priorities. The group-think has consequences.

1-25-2019 **Sensibility?** Sometimes there is a glimmer of hope from the noise of chaotic discussion: *"Ultimately, this goes back to coming up with cars that people not only want, but they can afford."* Well, there isn't much to add to that. How many times did the *"nicely under \$30,000"* goal get mentioned over the years? I would remind them of it and then point out why it was so important for the technology to be affordable. You'd think that would be obvious. But then again, some online act as though they are totally brain dead. I never cease to be amazed how many people expect the technology to either be totally free or for there to be a complete payback at some point. That could make sense if they would make an effort to explain why, but they don't even try. It's why I'm often not that hopeful with most discussions. What does "afford" actually mean? For example, if you look at monthly expenses. Put in those terms, a person could see how the reduction of fuel cut has the potential to offset car payments. If the two come close, you stand a chance of keeping the person's attention. They may even become curious and ask you to tell them more. That's the key. Find something they find important. Money out-of-pocket can be a powerful motivator, even if the balance is a bit more than anticipated. Many people just need some sensible conversation to find out what the expenses really are.

1-26-2019 **Extreme Cold.** Weather forecasts state we are in for a blast of cold that will reach an extreme. We will likely break records, seeing temperatures low enough to break daily records. It does get that nasty from time to time in Minnesota, but it has been quite a number of years. In fact, I only remember a few times dealing with such situations in the Prius. Those are distinct memories that really stand out. The engine basically never really warms up, you only get brief opportunities for it to shut off... with previous generations. Knowing of the improvements Prius Prime has implemented, it don't expect as noticeable of an experience. The engine will just run at a high RPM initially, but longer than usual, then stay in that low & off zone. Since I will likely just work from home to avoid the horribly slow commute, that driving experience may not happen. I'd like to get something to share, but wasting so much time behind the wheel when you've got deadlines to meet doesn't make sense. Though less convenient, being able to work remotely is the better choice. Hopefully, after the dangerous part of the system coming through passes, I'll be able to film a commute in the extreme cold. Stay tuned.

1-27-2019 **Jumping Ship.** How would you respond to this: *"Unless Toyota does better to address the range issue on the Prime (Need 60 Miles on Battery) or another Electric or Plugin I am going to defect."* When someone who really wants to be supportive losses patience, you don't want to burn a bridge. Being able to reach out to them later as a friend who ventured out elsewhere is important. They may become an ally supporting the same cause, but with a different automakers. They may return with insight you wouldn't otherwise be able to obtain. They may simply appreciate a supportive goodbye. Whatever the case, it's important to listen to what they have to say. Since that was posted on the big Prius forum with a sense of constructive criticism, I tried to extend a hand of support:

Then, you will get a thank you from us for be willing to pay a premium for a product aimed at a different audience. Breaking out beyond the affordable choices will be helpful at some point. In your case, you'd be paying sooner for that extra capacity and either giving up electric-heating or adding to the price to get it... from a Hyundai that doesn't actually exist yet. Toyota's current focus is to strike a balance that will attract the masses, not what you seek. Diversity is very important. So, you'll get the recognition for breaking other ground.

Keep in mind that GM failed miserably with their attempt to draw buyers to a plug-in hybrid offering that range you deem as necessary. Most people dismissed that as a want, not a need. Someday when cost is much lower and energy-density is much higher, that could be realistic. Currently, it most definitely is not.

Toyota doubled capacity from 4.4 kWh (20 km) to 8.8 kWh (40 km) in their quest to keep Prius targeted at ordinary consumers. Could a 19.6 kWh (80 km) capacity be realistic for the next generation offering? That seems reasonable to expect. It wouldn't satisfy your distance requirement though. So, we must ask what other criteria you deem important for a plug-in hybrid. Tell us, please.

Think about how Toyota has strived to deliver high efficiency for both EV and HV modes, as well as keeping emission-rating for the HV system impressive to all those promoting cleaner air, without forcing a premium to be paid.

1-27-2019 **Priorities.** The death of Volt sure has made it easy to finally discuss matters other than range & power. The obsession with that got so bad, any mention of cost was simply dismissed as an effort to endorse Prius. That ironic twist of recognition to what Prius held as a high priority was quite amusing. To achieve the "*leap frog*" goal, Volt would have to exceed what Prius delivered. Simply disregarding price meant having to overlook failure to actually deliver. The enthusiasts certainly tried too. Problem is, what happened in the United States was only a small play in the big game. In other words, what happens in China really matters, as this post drew attention to: "*I don't think Chinese are incapable of quality manufacturing, I just think there's a huge cultural disconnect. In China, price is king ... and I mean king over all other considerations.*" Discussion of such matters was impossible in the past. That change is quite welcome, which hopefully will become an on-going theme. Even small progress is still progress. One step at a time, keeping priorities clearly in mind:

I had the opportunity to drive an EV from BYD (China automaker) on a closed track along with a number of plug-in offerings available here.

It was truly remarkable to observe firsthand what the cost tradeoffs to achieve a super low price would result in. The electric motor was slow & noisy. The regenerative brakes were rough & noisy. The car itself was utilitarian. Standards in our market would make it a non-starter, even without taking into account the lack of safety features. But if you simply wanted basic electric-only transport, it did indeed deliver.

Sadly, many early-adopters are poor representation of balance, yet they don't recognize that... despite the obvious willingness to spend top-dollar for emerging technology. They gravitate to that opposite extreme, where pricing isn't a priority... which is why Tesla has been so successful. Tesla will continue to be successful too... but not in the same way. Success later this year will depend upon cost-reduction choices. The generous tax-credit phaseout will bring those changes. Sales will drop as a result, settling at sustainable level.

I'm tired of the blatant efforts to stir discussion by bringing up comparisons obviously not relevant to the market changes taking place now. Events of the past don't apply well, or at all, when the audience is different. That's why early-adopter preference may not be applicable to ordinary consumers. Mainstream sales have little in common with the draws of introductory crowds.

Observations of other markets is what helps bring about a better understanding of what we will soon be facing. Looking close at the very large Chinese market with a very different culture and very different priorities will teach us more about what we need to consider.

1-27-2019 **Battery Warming.** There's lots of people posting about the battery-warming feature in Prius Prime. Though my data from last year is limited, it is still something to work with. I captured operational aspects. You can see how the system performs, but there isn't any detail about the battery. Back then, all I had was limited access. Just engine information doesn't tell you enough to really understand what's needed to deal with extreme cold. This generation of battery-pack includes warming technology. It's not complicated. It's basically a carefully thought out plan to take advantage of what essentially is just warming-tape. That simplicity is key. Done right, you have an affordable solution that's really effective. Proving that's what Toyota actually delivered shouldn't be too much of an effort. Complex filming setup can be a problem though. If you breathe too much in a cold car, the windshield will freeze from the moisture you are introducing prior to starting the vehicle. I'm hoping to avoid that situation while trying to get valuable extreme cold data to share. I'll keep the Prius plugged in to take advantage of the warmer. Since my 240-volt charger at home is Wi-Fi enabled, I will be able to capture that data in the form of a graph... hopefully easy enough to see that I could include that detail in a video. The electric draw shown will be exclusively from that of the warmer, since the battery-pack itself will be fully charged prior to the wait. Stay tuned.

1-27-2019 Technology Analogies. It is very interesting when someone brings up a situation to make an analogy, but then totally messes up the concept. For example: *"Phone chargers is a good example of how things develop and progress."* It was obvious he was frustrated by the past from long ago. Remember in the previous decade, when each phone had it's own propriety adaptor? We all do. It was very frustrating to see so much incompatibility. What a waste. We learned from those experiences though. Standards were developed. Sharing & Reuse became a reality. Did the poster forget that? How could so much of this recent history be completely disregarded or overlooked? I was quite curious to find out, so I posted:

Not really. The mini-usb chargers are forward-compatible with usb-c. All you need is a \$2 adapter. I'm still using my S6 charger with my S9 because of that forward-thinking design.

SAE-J1772 protocol for plug-in vehicles is well thought out already. Doubling of our current 3.6 kW charging rate is already supported by most 240-volt chargers, without any need for an adapter. They automatically deliver power based upon the rate requested from the vehicle. Should someone be fortunate enough to take full advantage of that spec and have a high-power vehicle, a 100-amp line will provide 19.2 kW. A charger with that protocol and input capacity covers it already. No adapter needed.

That planning ahead is the result of trying really hard to prevent future capability issues. A standard for household charging benefits everyone involved. Anyone setting up equipment with at least a 40-amp line will be set for many years to come.

Looking at it another way, consider a sustained rate from that 40-amp line. The 7 kW will supply 7 kWh of electricity in 1 hour. Given 8 hours to charge, there would be about 56 kWh delivered. Subtracting charging losses from conversion & transfer, you have roughly 48 kWh added to the battery-pack after that duration. Figuring you'd consume it later at about a rate of 4 mile/kWh, it would provide roughly 190 miles of range... at home from today's technology.

What more do you realistically need?

1-27-2019 Battery Warmer. My hope for extreme cold data has been fulfilled already. It was just something to anticipate, this morning. Now in the evening, I see exactly the activity I was hoping for. To my surprise, I ended up having to drive into work. That certainly wasn't planned, but it was beneficial. Since there's a 240-volt charger there, I could collect some unexpected data. Rather than the Prius being parked in my insulated, but unheated garage, it was exposed to the elements in the parking lot. That's the kind of real-world information which tells us a lot. The battery-warmer kept it at 39°F while parked outside for 9 hours with the outside temperature at 5°F. Slightly above freezing is the goal, since freezing is the point at which efficiency drops significantly. That warmth really makes a difference. Remember decades ago when people routinely plugged in their vehicles to power an engine warming? Now, we're doing the same thing for battery warming... but the reason is quite different. In the past, that was to ensure the car would start. Now, it's just to squeeze out remarkable efficiency and significantly improve emissions.

- 1-28-2019** **Encouraging.** It's amazing how many don't notice, or even look for, clues. They are all around. It's just an endless & senseless attack on Prius. Even though the potential for this new RAV4 hybrid rolling out right now is enormous, it gets totally ignored. That's because an affordable large hybrid that squashes the competition doesn't fit their narrative. They have nothing to fight that with, so they choose to pretend it isn't there. That's where Corolla hybrid comes in. It is the vehicle which will push Prius to become plug-in only. With the world's most popular car of all time finally offering a hybrid option here, the game is over. You can see the entire fleet embracing hybrids, simply because it has become an undeniable endorsement from the automaker. For them to offer the technology on that scale (models & quantity), the decision becomes a no-brainer. I shared that wisdom this way: We've known about the plan for a while. Sadly, that information was drowned out by cries of the "*laggard*" narrative. Far too many don't understand the complexity of a massive legacy automaker. So when they don't find the simple answer they seek, it leaves them vulnerable to being misled... which the antagonists have been exploiting lately. Toyota tends to be very quiet, the opposite extreme of what online venues thrive on. So. It's easy for the vitals to be overlooked, like this. You won't find much, even when you look. Those who get caught misleading will spin the situation to appear that Toyota has finally woke up and is now scrambling to catch up. Those of us who were paying attention know that's not the case.
- 1-29-2019** **Choices.** This is a great example of someone basing judgment on anecdotal evidence: "*If the Prime is any indication, Toyota can make a good BEV, they just choose not to.*" Rather than actually taking the time to research the entire business, they make the mistake of focusing on just what they see with a single vehicle at that time. Ugh. Worse though is the reality that those individuals making that assessment don't place any value on quality. It's a focus almost entirely on market presence. No BEV offering is bad, period. That disregard for what's truly important is disturbing. Of course, it's nothing new. We've seen that for decades. Remember how the SUV was pushed as the safest choice for your family? It clearly wasn't. So, even the feature being promoted as most important didn't deliver. Ugh. I deal with that nonsense on a regular basis. Today's volley back was: Good is not enough. They feel no pressure to rush. Taking their time to do it right... deliver something great.. is why PiP was just a mid-cycle upgrade to a limited market, then halted all together. They waited with Prime, and even then moved slowly... seeing the market had issues. It should be obvious that the tax-credit dependencies the other automakers were struggling with is what Toyota is trying to avoid. Simply waiting is an easy solution. Having to wait annoys some and results in rhetoric being stirred. Overall, it's still worth it though ...and that's the way Toyota chooses to operate.

1-29-2019 **Damage Control.** Things fell apart to such an extreme for GM, there isn't really much to save anymore. A few are trying though. I keep hitting back, reminding them of how that mess came about what when they did to downplay & distract from what was important. Looking back at the terrible decisions. With so many warning signs, it wasn't worth risk. They now know that all too well. You don't put all your eggs in one basket, especially when that basket is so small. Volt had such a small audience, it made no sense continuing with that approach. Moving the technology to a vehicle appealing to a wider audience never happened though. Volt remained a compact hatchback among a fleet of SUV choices. That never made any sense. Yet, there are some still defending it. I'm happy to point out the problem that invites: Damage control is the stage Volt is in now. Many pointed out right from the very beginning that the goals were unrealistic. How could a profitable vehicle with specs so high be achieved so quickly? When the bankruptcy recovery plan was put in place, the task-force assigned to that expressed a "*too little, too slowly*" concern for that very reason. Sure enough, Volt-1 struggled with sales. But rather than spread the technology to another platform, GM decided to make Volt-2 even more in the image Lutz envisioned... which had proven a terrible choice. The design approach is expensive & inefficient. What to do with it at this point is a very big problem, especially now that tax-credit phaseout had been triggered.

1-29-2019 **Game Playing.** Getting early-adopters to recognize their own enthusiast perspective is very difficult. They don't see how intimidating new technology appears compared to commonplace approach. When a person doesn't understand or even have the background, they don't bother. Change requires effort. People are busy with other aspects of their lives. How green a vehicle is doesn't matter. They don't deem that important. What we do is looked upon as a game, actions with an outcome inconsequential regardless of what happens. They'll never be a part of what's happening the industry now. Years later, they'll look upon whatever spoils the victor gained. There is nothing at stake for them. In other words, all the posts now are just rhetoric from everyone. It doesn't matter to them. I can't stress that enough either. Enthusiasts refuse to accept that reality. So, all you can really do is point out the situation: Toyota isn't anti-BEV, they are just avoiding the early-adopter mess. That slowness rubs some people the wrong way. So what if the EV model of CH-R doesn't rollout until next year and only in China at first? It makes no difference with respect to high-volume sales. GM got too much attention from Volt. It was clearly only a niche, never targeting mainstream consumers. Toyota doesn't play that game.

- 1-29-2019** **Halo.** When reality finally comes crashing down, then what? Only now are discussions emerging. It's far too late to be constructive. They are looking back long after anything can actually be done. We see that Prius was able to weather the storm. All the craziness Volt introduced didn't amount to much. So many promises were broken. It comes down to a lot of the effort being expended upon image, rather than actually moving the fleet forward. Reading this now as a result of all that is strange: *"Probably the biggest flaw in all of it was that GM always and only saw value in the Volt as a halo car."* To think, how many times was I attacked for pointing out Volt wasn't actually achieving anything? I'd point out wasted opportunity, miss after miss with nothing to show for. They built up hope without substance to support it and completely losing sight of goals. That mess would only get worse as more time passed... and it did. All that happened when the difference between want & need became so obscured, they couldn't tell the difference. It's sad to win this way. So what if I get vindicated. My own goal was to forge an alliance, to find friends from other automakers. Instead, they chose to fight. Oh well. At least the lessons to be learned will be difficult to deny this time around. I closed the discussion with: That's how enthusiasts became such a problem, pushing mainstream hope with a niche vehicle. It was a conflict of goals they absolutely refused to accept. This is why the *"too little, too slowly"* concern grew. GM didn't show any interest toward spreading technology to a popular vehicle, like Equinox. So much loyal customer opportunity was missed, while wasting tax-credits on conquest sales for the sake of that halo.
- 1-29-2019** **Not True.** Spreading FUD will never end. In this case, it was the "U" for uncertainty: *"With one exception, all other PHEVs have an electric range below 30 miles and will switch to the gasoline engine under strong acceleration."* When I posted a rebut to that, I knew there would be quite a backlash. Enthusiasts don't like to be called out when wrong, especially on a pivotal point. This was definitely one that really hurt. Volt was supposed to be the only plug-in hybrid with such behavior. This is what the current definition of EREV had mutated to. Getting confirmation that a PHEV with the name Prius behaved the same was beyond reproach. My contradiction would stir anger. I didn't care. The truth cannot be silenced. After all, this is a fact, nothing a topic of debate. Ugh. I fired back with: NOT TRUE. Even with the pedal dropped all the way to the floor in Prius Prime, the engine will *NOT* start when in "EV" mode. Reviewers often mistake "EV Auto" mode to mean pure electric-only operation. Their mix-up is understandable. Spreading that confusion here is not.

1-29-2019

Adoption. One way is the only way. Ugh. That mindset goes so deep, many won't accept the idea that problems can be solved by other means. There usually isn't just one approach. That really messes up rhetoric though. Narratives are based upon a single-mindedness. For example: *"Toyota is worse, they try to burnish their fading green credentials and gaslight us into thinking they care about the environment more than sacrificing a bit of profit to speed up the adoption of electric vehicles."* It all comes back to approach. So many think the way GM pursued the challenges of electrification is the only means possible. Problems like this come about from not being aware of all the factors at play. This is why all the engineers get confused when their obvious brilliance is rejected. Regardless of how amazing the results actually were of whatever project was delivered, there's a mystery as to the reason people didn't embrace it. This is where I bridge to the other world, that thing called *"mainstream"*. It is so different, confusion is the norm. Adoption of technology includes obstacles that have nothing to do with science or mathematics. Appealing to emotion or justifying a comfort is beyond quantification. It is still very important though. But how do you sell *"green"* as a feature? This is where approach comes into play. Not everyone comes to terms with a problem the same way. That's why the solution won't be the same for everyone either. Whether or not enthusiasts ever figure this out is their own reality to accept. Meanwhile, I share what I observe: Belief that the only means of electric-vehicle adoption must be a top-down approach is a very common problem among early-adopters. Not recognizing how effective bottom-up can be will be a painful lesson to learn... which is the ambivalence we are witnessing now from those who had high hopes for Volt. It's too bad that understanding of economics is absent from discussions like this.

1-30-2019 **Top / Bottom.** I have no idea if the request I got to provide more information about approach will be understood or taken seriously. It isn't everyday that someone actually responds back with a question. Most of the time, it's just a head-in-the-sand reply... in other words, a down-vote. Never taking the time to find out what is meant harms credibility. That's why the daily blog fell apart. They embrace group-think to the extreme that the venue became nothing but a brainless chanting website. If you didn't agree, you were wrong. Ugh. I try my best to be constructive. In this case, it was this response as an answer to explain those differences:

GM decided to use the TOP-DOWN approach. That meant delivering their vision of the final product configuration, which required a premium price as a result. Selling a Chevy compact hatchback with such a high sticker made no sense. Only early-adopters were interested, hence focus on conquest sales.

GM figured production-cost would fall rapidly, allowing the automaker to take advantage of the technology within just a few years. That expectation was grossly miscalculated. GM was stuck with an expensive halo, rather than something for the masses.

Toyota took the opposite approach, choosing BOTTOM-UP instead. That meant delivering a design through a series of generational upgrades. The results was a highly flexible vehicle that was affordable immediate. Tradeoff was range & power would improve over time... hence starting from the bottom.

Toyota's approach enabled the ability to adapt on-the-fly. For example, the advanced heat-pump could be deployed when it became affordable to do so. Waiting for the rest of the industry to catch up wasn't necessary, which is how Gen-2 got it. That is also how the carbon-fiber hatch and the aero-glass window was rolled out.

Those 2 fundamentally different approaches have demonstrate profoundly different paths to mainstream acceptance, the economics of which are rarely understood in online discussions.

1-31-2019 **Engine Cycling.** Back to the basics, just explaining various aspects of how the hybrid system in Prius operates. Right now, there are many questions being asked about how the engine runs in the extreme cold.... which is very much what I will experience when I head out to work in a little bit. Sharing of those firsthand experiences goes a long way. The words of an owner really taking the time to explain what happens while driving are very powerful. That's what really sways those uncertain about a purchase. We convince them by simply providing everyday information. The detail really matters. It is why I'm compelled to film whenever the situation can add to the understanding of goals & results. With the question about engine cycling, that was easy to answer in the form of setting an expectation... since we have collected so much information, it has been confirmed as fact: When the air-intake temp drops to 11°F, the engine will provide primary heat. It warms the coolant to a threshold you set (based on cabin temperature), then shuts off when reached. It starts off until it cools down. At that point, the engine will repeat that same on/off cycle. Note that the minimum threshold will become greater as the entire vehicle warms. So, you'll see more and more EV the longer you drive.

- 1-31-2019** **Cold Commute.** I did indeed film my drive to work today. That data is priceless. Having so much detail to share about a single experience effectively conveys an understanding while also avoids overwhelming. That's a difficult result to achieve. Lots of feedback makes striking that balance easier. People will provide guidance, if you listen for it carefully. What they pull out and share from observing what you share gives something to build upon. That's how my videos have evolved. It starts with a basic description. I summarized the experience this morning as follows: Commute to work today. Prime hadn't been driven for 3 days. Was plugged in to keep the battery-pack warm. 41°F is what the OBD-II reader stated the battery-pack was at. Outside temperature was -5°F. I drove 18.7 miles. 32% of the drive was EV based on engine-off duration. 61.7 MPG overall result.
- 2-01-2019** **Serious?** Remember the "*do no wrong*" attitude toward GM and Volt? Things got confusing when Bolt was introduced. It contradicted much of what enthusiasts had praised GM for. That got worse and worse as time proceeded, finally coming to this today: "*...if they were really serious/pushing this EV. Right?*" Questioning motive was one thing. Questioning interest is entirely another. I happily jumped in with: Wrong, since we know that GM wasn't really ever serious. From an automaker who heavily favors SUV and Pickup choices instead of cars, it never made any sense to make their premiere offerings a compact hatchback and compact wagon. Talking about a colossal customer mismatch. Also, we know that January (the dead of winter) is terrible for sales of most vehicles anyway. Combine that with having to wait an entire year to wait for getting a tax-credit, there's simply no incentive. Might as well just wait to see what others in the market will be offering. That being said, there is basically no inventory of Volt's antithesis still. There are only 150 Prius Prime 2019 models available for the entire country right now. That lack of inventory seems to be in line with Toyota preparing to take advantage of GM's downfall. Timing of GM phaseout dropping to 50% is perfect for a mid-cycle upgrade reveal, exactly the right timing for Earth Day. Imagine a 2020 model rolled out shortly afterward. It's good reason not to build up much new inventory. This is that opportunity missed a chorus of us raised concern about. Wasting time & credits on conquest achieved what?

2-01-2019 **Realistic Expectations.** It is intriguing to have a discussion with someone who abandoned Volt in favor of Clarity. He use to fight me on a regular basis. It wasn't pretty. My frustration paid off though. He recognizes that my concerns of the past were valid, that I really wasn't just a troll trying to undermine GM. Today's discussion was a reflection on January sales. He wondered why Toyota's green offerings were all low. I pointed out the opportunity approaching. There was intrigue. That's quite an improvement upon confrontation of the past. His comments ended with: *"What I don't understand is why Toyota is using up all their tax credits with it. Seems like a PHEV Rav4 with 20 kW battery or something would be a better way to use it (or what I would rather have)."* With GM sales so low now and the tax-credit reduction rapidly approaching, there's opportunity for constructive exchanges. So, I replied with:

The intended purpose of the tax-credits was for each automaker to use them to establish high-volume profitable sales which could be sustained without any subsidy. In other words, it was to fortify the everyday expectation of seeing a plug-in vehicle on the showroom floor. Whatever it would be, that vehicle needed to be able to compete directly with traditional offerings there at the dealer.

This is why I got so frustrated with GM. Watching great engineering go to waste from stupid management decisions was sad. Enthusiasts made excuses, knowing in the end a compact hatchback would never appeal to GM shoppers. It's really unfortunate Voltec wasn't ever deployed in a vehicle like Equinox.

Since Toyota customers still embrace cars, using up tax-credits on Prius makes sense. There's simply no possible way for the next-gen RAV4 hybrid just rolling out now using the TNGA platform to be established long enough to take advantage of whatever upgrade Toyota has been working on. It would just cannibalize itself. Prius, on the other hand, would be able to take full advantage of an Prime upgrade.

Just like you stated, it's easy to see Toyota treating Prime as a regular car. With some clever repackaging of the battery stack, exploiting the tax-credit to stir market interest and build up a following of non-enthusiasts would push it into the mainstream. The key is appealing to non-enthusiasts. That means reaching beyond early-adopters, which requires word-of-mouth endorsements and routine road-sightings.

200,000 is a very small quantity when you consider how many sales are required for a vehicle to be one that provides business-sustaining profit. That is absolutely essential when you consider the necessity of appealing to salespeople to encourage those sales. Remember, they work on commission and selling anything with a plug requires extra effort. Focusing on Prius jump-start dealerships makes sense.

2-02-2019 **Video: Extreme Cold (commute home).** I was able to film my drive in both directions today. This was the commute home, from work after a long day in the office: Extreme Cold brings about lots of questions. Prius Prime owners ask for detail about how their plug-in hybrid system operations in conditions with the temperature well below freezing. This is a commute home that I filmed when the mercury dipped down to -1°F. Watch the temperature reading of the engine coolant. You can see how the engine shuts off when it reaches a warmed state. It will then remain off for a little while, using that warmth to supply heat for the cabin. Though that electric-only driving doesn't last long, it does contribute quite a bit to overall efficiency. As an expected bonus in this video, you get to see how well the defroster works too. I accidentally bumped the blanket covering the lower camera used to film my commute to work. It slipped down the dashboard, covering the vent... which caused that section of windshield to frost directly in front of the upper camera. Oops! Overall, the EV driving ratio came to 37%. That resulted in a 60.0 MPG average for the 19.1 mile trip in the extreme cold, complete with travel while it was lightly snowing... [Extreme Cold \(commute home\)](#)

2-02-2019 **Spot Blocking.** I couldn't believe it. The guy in front of me pulled right into the charging-spot and sat there with his engine running. I sent a brief honk his way. Nothing. So, then I got out and said: *"I would like to park here to plug in."* He looked at me and said: *"Why don't you park over there?"* Annoyed, but unwilling to give him an emotional excuse to lash out at, I calmly said: *"I would need to drive all the way around, then have to back in to reach the cord."* He got angry, but stayed quiet, rolled up his window, backed out of the parking spot, then drove away. With all the snow we got recently, he was hoping to take advantage of the charging area and not get called out for blocking. I wanted that spot and was polite about my request. It was a very effective means of telling him to leave and never try that again. With only those 2 chargers there, filling one with a non-plug vehicle with its engine running is totally inappropriate. More and more I am seeing both being used at the same time. Why did he think he had the right to prevent what the lot's owner intended that location to be used for?

2-03-2019 **Timing.** If you study carefully, you will uncover clues about what really happens. The key is to do that digging actively while those events are playing out. Looking back, after the fact, they may not be visible. It's that lack of certainty which makes certain things stand out. In other words, those are the decision points. Following whatever choice was made, it may not be obvious what happened any why. That's how blogs like this become so valuable. They document history as it is unfolds, during that moment to capture whatever was relevant & important at that particular time. That's why stuff like this becomes annoying: *"My theory is cost. Toyota needed a bigger battery for Prime and it didn't fit the existing Prius well so they just raised the trunk floor up till it fit. Toyota did keep the Prime cost down."* Looking back years later, it's very easy to miss something vital. While things are taking place gives you sight no one else will ever have. I take advantage of that... and later try to relay my documentation:

We already know that's what happened, no theory necessary. Prime was originally intended with a smaller pack. Flexibility of the design allowed a larger one to be used instead. It didn't fit well... physically, but it was a better fit for the emerging market and still fit within the affordable goal. So, Toyota felt it was fitting.

That responsiveness to market is what we saw with Prius PHV. Back in 2010, the prototype had a raised floor... exactly like we have now. I drove one around for a short span and didn't see any issues with it. When the 2012 was finally rolled out, they decided to scale back from the 5.2 kWh capacity to 4.4 kWh for a better fit. Since it was just a mid-cycle upgrade, no big deal. We'd find out what the first true generation would offer "soon" anyway, not realizing how just how complicated the resistance to change would become.

The problems GM had forced Toyota to be responsive to market uncertainty, of which Volt enthusiasts created. Choosing to rollout Prime into limited areas only to test the waters with a larger pack, while waiting for that fallout to take place made sense... but made enthusiasts crazy, despite the obvious benefit from waiting. Now, we see tax-credit reduction just weeks away, as well as the discontinuation of Volt... a path cleared for Toyota to launch an assault.

This topic addresses the possibility of Toyota going all out, by killing the regular Prius. A logical step to preparing for such a move would be to rollout a mid-cycle update to align Prime according. Lack of 2019 model inventory seems to be setting the stage for an early 2020. Think of the opportunity Toyota has from having waited until the timing was right.

- 2-04-2019** **Video: Extreme Cold (commute to work).** That cold drive to work looked great on each of the capture devices. I couldn't wait to assemble the pieces to something comprehensive to share. It turned out really nice after lots of sizing & cropping, then the long series of renders. Here's what I published: Polar Vortex blast of cold remained for several days, keeping temperatures well into the negatives. That meant no driving. I stayed at home and the Prius Prime stayed plugged in. This was the ideal opportunity to collect data showing how the battery-pack was warmed by electricity from the cord. Its purpose is to allow as much use of power from the battery as possible, despite extreme cold outside. Watch the variety of instruments showing how the system operates when it is so cold. There's quite a bit that takes place, most of which drivers don't usually notice... [Extreme Cold \(commute to work\)](#)
- 2-04-2019** **Complaints.** There are some who will never be happy. Like today: "*Ah, I'm not the only one who realized toyota blew it with battery placement.*" I would like to figuratively slap some sense into him sometimes. This was such an occasion: You are the only one who constantly complains about it. The rest of us acknowledge the upgrade process and the tradeoff decision. Drawing conclusions during pregame simply doesn't make any sense. Wait at least until the tax-credit stage has passed. Real players of the game (mainstream consumers) haven't even arrived at the field yet. Keep in mind that the market is still emerging, that we are only in a very early stage still. In other words, there is no "*blew it*" to claim... that's far too premature. Everyone is only testing the water. There is lots of opportunity to adjust. Also, don't overlook the barriers you create toward technology acceptance but distracting with complaints. Though valid, they are far less important than proving the battery is robust enough to withstand the extremes owners encounter.

2-04-2019 **Priorities.** Follow up to that online slapping was motivating. He actually responded. Most of the time, comments are just blown off. I was pleased to get this: *"Toyota's problem is that they don't listen. There was plenty of talk about the miserable range on the pip for 5 years."* He remains clueless, but at least lurkers will have something to recognize a pattern of denial with. It's intriguing how some people don't like the answer, so they keep asking the question over and over again hoping to finally get something different in return. Refusal to accept is quite common. Resistance on this scale, especially when there isn't anything to gain anyway, makes no sense. He keeps fighting though, hoping for an outcome to change. That's the same nonsense I dealt with for years with the Volt enthusiasts. They absolutely refused to accept what was happening, belligerent to the very end. It was a defeat so comprehensive, there wasn't anything left. Giving up on the idea of GM rolling out any type of plug-in hybrid anymore wasn't an outcome any of them ever saw as a possibility. The remote chance I could possibly be correct was never entertained. They had no clue how bad the situation for GM really was, despite all the evidence I supported. Seeing that automaker's stance change so drastically is a victory for whom? I wasn't even expecting such terrible management decisions to cause such a dramatic setback. Yet, that's what happened. All GM now has is Bolt, which barely sells anymore... even with the \$7,500 tax-credit. That's why Toyota staying true to priorities is so important. That's why I admire any automaker who presents such clear plans for their future. It's not loyalty. It's common sense. Duh! He doesn't get it though, no matter how hard I try to convey that message: Toyota listens, just not to you. Far more people weighed in saying they wanted a more powerful EV drive with electric heating that was still affordable. Toyota delivered that. It's all about managing priorities.

2-04-2019 **Big Problem.** I figured the following message I posted would generate a large number of negative votes: *"You are mixing up RANGE with EFFICIENCY. There's a profound difference, a factor many supporting plug-in vehicles don't recognize the importance of. That's a big problem. MILES/KWH is a measure everyone participating here should learn & understand."* That was a testament to the lack of education related to everyday posters... you know, those who oppose without substance... aka: enthusiasts. Ugh. They blindly follow the mantra of more being better. In the minds of many of them, they belief is a tipping point toward acceptance will be reached simply by delivering enough battery-capacity. Talk of how the electricity is consumed simply doesn't happen. Rather than improve how a heater operates, you just add to the pack enough to compensate. That's an awful approach. Don't deal with the actual problem, just find a better way to compensate for it. Ugh, again. It's maddening at times how poorly informed some people are. But what really makes it troublesome is when they resist any effort to become better informed. They just plain don't care. They've had it with oil & pollution. Green is all about plugging in. How much electricity they actually consume doesn't matter to them, as long as it isn't gas. That's such a let down. They don't even recognize the true issue at hand. It's about the triangle. You know... reduce, reuse, recycle. The effort is to minimize, not just switch to another fuel and waste that instead. Needless to say, it was very disappointing to see that lack of understanding. I've heard from several other leaders recently dealing with that same big problem. Any suggestions?

- 2-04-2019** **The Game.** This seems reasonable, at face value: *"I started to wonder if Toyota might try to up their game by putting in a larger capacity battery-pack."* But when you start wondering about detail, questions emerge about purpose... as I pointed out: If the *"game"* is to sell more, what data is there to show larger capacity would raise demand? I envision Toyota rolling out a mid-cycle update with cell/stack arrangement for the pack altered to provide a better fit in the hatch area for greater cargo space. That may not increase capacity, but it wouldn't cause a price increase either. What if the *"game"* is to prepare Prius for a plug-in only approach instead? In that case, the smaller battery-pack would be better. Think about what people have in their garage for charging. If only a single circuit is available and it must be shared, the rate may be limited to 8-amp draw... which could require 8 hours for a full recharge. More and more, it looks like Toyota is aiming for the masses, where their high-volume profitable seller is something in that regard. Prius would be a "prime" candidate for that. (I know, bad pun.) Reaching mainstream consumers is far more difficult than appealing to early-adopters.
- 2-05-2019** **Video Collection.** Continued refinement of video presentation is rendering some of my older content less useful. More detail and improved quality made that inevitable. Adding value is the goal though, so that's ok. It's interesting to look at those old captures from years ago. A lot has changed with the technologies involved, both car & camera. It's rewarding too, when you have that content to share for education & debunking. So as time progresses, I'll just recapture some of the most referred to video with new footage containing a lot more information. Sadly, some of the locations & circumstances cannot be recreated, but at least it all reflects real-world driving. That's just me behind the wheel doing what I normally do... nothing special... just drive it. More to come as I get better with the editing too. The effort to assemble the variety of feeds and insert commentary is rewarding. I enjoy that build process.

2-05-2019 **Damage Control.** Virtually all the Volt enthusiasts have vanished, gone without a trace. Rather than showing up elsewhere with a revised purpose, there is nothing. It's exactly the pattern observed in the past. Those who cheered & antagonized disappear entirely upon recognition of having failed. Acknowledgement never happens, they simply don't exist anymore. The few who remain don't even speak of them. It's as if that history was just a bad dream. So, all the rhetoric is over. However, those individuals remaining feel the need for damage control. Today, it was an effort to make things look like Toyota was in the situation: "*OMG, even Toyota's doing it.*" Quickly after posting my reply, there was a response to spin what was really intended by that. It was too late though. Even more damage had been done. Making it worse is evidence of still having not learned their lesson. Oh well. It's their loss, which I'm happy to point out: That attempt at damage-control is pretty lame. The advertisement for RAV4 hybrid features the second-generation now being rolled out, not the first as you imply. I have been talking about a "*Prime*" upgrade to that platform for years, just add a one-way clutch and more battery the same way Prius was augmented. It's a simple & affordable way to offer a plug option. Each time I brought up the larger and more powerful hybrid, I got attacked. In fact, I expect the same with this post... especially when I remind everyone of how GM recently chose to offer Equinox as a diesel, rather than a hybrid. See, with the RAV4 hybrid becoming a popular choice, due to the regular RAV4 being Toyota's top-seller and the hybrid being so affordable, taking the next step by offering a plug in a no-brainer. Those loyal showroom shoppers will see the plug-in and seriously consider the purchase, simply by association. All the senseless efforts to undermine Prius and attack me were in vain. Enthusiasts here failed to heed the warning, despite being told hundreds of times GM must diversify their plug-in hybrid technology. It was never spread to a SUV... and clearly should have.

2-06-2019 **40% Loss.** The topic of Winter's impact was exclusively in the domain of enthusiasts, until now. Of course, even then there was little discussion of heater type. That has finally changed. An article published by AAA is the reason. What it says really doesn't matter much yet. The point was to raise awareness. Most notable of that new found attention is the 40% figure sighted. With so much of a range-loss claimed, there was obvious outcry. If you have to deal with lots of weather-related traffic and have the heater set on high, there will indeed be that much of a reduction. But under ordinary circumstances, that's not the case. I wear my coat while driving and use the heated seat. That means nowhere near the amount of electricity for warming is needed through the vents. So just like the problems with MPG rating and the setting of realistic expectations, there's the same YMMV disclaimer. Question is, will readers actually understand that. Sadly, that is not likely. Detail is lost in the shuffle, when it is provided. But most people won't recognize there is a difference between a heat-pump and a resistance-heater. So trying to get any type of awareness related to the type of heat-pump... the regular kind verse one that's vapor-injected... is basically impossible. Long story put short, it's an uphill battle. Required education to better understand purchase choices... or even knowing what to look for... will remain quite a challenge for years to come.

2-07-2019 **Perfect Timing.** A constructive question from an audience genuinely interested in feedback: *"What are you basing the likely mid-cycle refresh on? And when do you think those cars are coming? I am in the market for a Prime right now and I don't want to regret not having waited a few more months."* I always hope replies result in an on-going dialog. After all, we don't have answers. We only have research & observations. Those serve as clues, but nothing definitive. This was my contribution to the hope for more discussion:

Waiting is a challenge. Some people don't like the idea that Prius is morphing into more of an affordable sport/luxury design, rather than remaining the family-mover it started as. That's the reality of a changing market though. RAV4 is quickly becoming the hybrid of choice for that family audience. So, have some realistic of expectations of what adaptations could be offered.

Knowing the shift is underway, it makes you question the direction Prius really will take. From Toyota's extensive history of pushing affordable emission & consumption reduction for Prius, it makes sense that they use the second-half of this product-cycle for Prius Prime as the staging opportunity to make it a plug-in only. Can Toyota attract enough buyers that way for the next-gen to be a high-volume profitable seller? I say: *"Yes!"*

Evidence supporting that builds upon more awareness of history. Toyota likes to do mid-cycle updates. Prius PHV (gen-1 Prime) was in fact that. It was also a limited rollout as a result of carefully watching market change. In that case, it was the disaster GM was dealing with trying to figure out how to configure Volt. All these years later, we see that GM failed to deliver something for the masses... as confirmed by production ending and the tax-credit reduction taking place. The timing is a great happenstance for Toyota, exactly when a 2020 model with a mid-cycle update could be revealed.

Notice how 2018 inventory was burned down and 2019 inventory has been almost non-existent? Though it could all be an amazing set of unplanned circumstances, this certainly looks like far more than just a coincidence. Think of how perfect an Earth Day announcement it could be, especially if rollout follows shortly afterward.

Want more to consider? Think about the timing of rollout for Corolla hybrid. It's just a little too much to dismiss as just dumb luck that everything is falling into place so nicely.

2-08-2019 **Next Step.** Thoughtful questions are nice: *"So you are thinking they might go to a full EV rather than Plug-in hybrid... ?"* This was an easy one to provide an answer for: No, we are looking at the paradigm-shift from hybrid to plug-in hybrid. There's strong potential for them in the mainstream, even without next-gen battery advancement, like to solid-state. EV market development is still its infancy. Dependency on tax-credit subsidies and early-adopters for sales makes that reality all too clear. Hybrids, on the other hand, are a mature market, at the ready to advance to plug-in models as the next natural step. That's vital for reaching ordinary consumers.

- 2-08-2019** **Lacks Vision.** This question wasn't as nice, but it was still an expression of thought: "*Toyota lacks vision?*" I found that one easy to answer too: Reality is, Toyota sees something different. They are looking at the mass market, trying to find a way to affordably fulfill the wants & needs of their 10 million customers per year. In other words, you are looking at something different... which is quite common from the eyes of an enthusiast. Appealing to a Corolla or RAV4 shopper is very challenging. They won't be forgiving like early-adopters and they won't be as willing to pay as much to get a plug. There won't be any tax-credits available for them either. In other words, know your audience. An electric future for those of us here is a reality already. For the masses, it's still a number of years off.
- 2-09-2019** **53 City, 52 Highway.** That's the official EPA rating for the 2020 Corolla hybrid. With MPG being basically the same as Prius (slightly lower City and slightly higher Highway), it marks the end of every possible argument against the hatchback... since this is an affordable sedan instead, a very popular one at that. Nothing can be said about looks anymore. That's the beauty (ironically) of diversification. Toyota is providing a variety of hybrid choices. That spread of new technology is a vital step early-adopters don't understand, since they focus only on what it takes to prove the technology worthy of being a successor. Very few actually take the time to study what comes next. That's why they are enthusiasts, rather than supporters. Phasing out an old technology requires a great deal of effort getting everyone to accept it as a replacement. Seeing it implemented in several different configurations shows that the automaker is committed to it, in addition to proving the design is well thought out by witnessing it being used on a regular basis. Think about how quickly the Corolla hybrid will become a common sight on roads. People buying them tend to be more conscious of efficiency anyway. Having a hybrid choice makes it even more compelling.
- 2-10-2019** **Extremes.** Sighting them is a common practice. Taking the time to determine whether or not that was a good idea is not. For example: "*iirc, the pip won't run ev mode that low whereas the soon-to-be-no-longer-produced 2019 Volt will run EV mode until it's cold soaked to around -13°F.*" How often does it really get that cold? What's wrong with running the engine for those few times per year it happens? Isn't the point of having an engine to use it from time to time? Don't forget, it needs to for routine upkeep anyway. I was annoyed. So, I shot back this: Exaggeration serves no purpose. Here's PiP driving in EV without engine warm-up at -2°F: [Prius PHV - No Heater](#) Remember, the purpose of using the engine is for the best balance of available resources... something Volt did not do. Why carry an engine, then go to extremes to avoid ever using it? In other words, EV driving is possible, just not the best overall choice.

- 2-11-2019** **50, 42, 97, 48.** Checking the post counts for that new troublemaker revealed those numbers. He only posts a sentence or two and rarely includes the quote he's making a comment about. They basically come off as a nuisance to the well informed. But to the casual reader, they could be a source of confusion. I worry because that can be misleading, since it is often quite vague. He doesn't care though. It seems to have become his pastime activity as a retiree... which is unfortunate for us. Having to deal with someone treating the forum as a source of entertainment, rather than being a helpful resource is a loss for everyone. He is basically a friendly troll. There is no intent to cause harm or confusion; nonetheless, that's the result of his ways. No group is perfect. It's not always worth the effort to address each and every problem though. You choose your battles. In this case, I'll just let it go.
- 2-11-2019** **Blog Bias.** We are starting to see some serious purity problems emerge on the EV forum. Back when it was founded many years ago, the thought was that it would cover the advancement of electric-only vehicles. The idea of also providing news coverage & commentary opportunity for plug-in hybrids wasn't even a consideration. That simply didn't make any sense. If it had an engine, it wasn't important. Turns out, that wasn't a good idea. The transition to electricity would very much include that interim stage. The realities of business & infrastructure made it all too clear. Some still see that domain as one of purity though. So, we see insulting & belittling posts on a regular basis. Any of that sound familiar? Needless to say, I recognize the symptoms of the problem. Sadly, I haven't found a source of resolution yet. The moderators have been quite. They are at a loss about what the next steps should be. I appreciate their modest efforts to stir feedback, but I wish they were more forthcoming. The possibility of their blog becoming too bias to appeal to a wide audience is quite real. You get a feeling of unwelcome every now and then. It's quite a contrast to the open expression of acceptance I witness from our local plug-in owners group. Change is difficult. I hope they deal with it appropriately.
- 2-12-2019** **Cannibalize.** What do dropping sales of the regular Prius actually mean? Quite often, the comment is new hybrid offerings from Toyota will continue to erode Prius interest. From a macro perspective, I could see that. But from a micro, not a chance. Prius was always what ushered in new technology to the masses. We are far from complete with the rollout of technology. There is quite a bit of advancement opportunity remaining. Why not just push Prius into the new category of offerings? Why is there always a doom & gloom portrayal of the future? I suspect many people simply thrive on drama. Fortunately, sustainable business is pretty boring. That's how Prius has sneaked through barriers in the past. Such a soft push goes unnoticed... until the count grows to such a scale that you discover the stage has changed. In other words, no cannibalizing is expected. It will be business as usual. I put it this way in my reply to the stir of that topic today: "*Know your audience*" is a fundamental which has served Toyota well. They don't pander to enthusiasts like some others do. Their focus is on how to appeal to their own loyal customers, finding ways for long-time Corolla or RAV4 buyers to go hybrid next time around. Prius doesn't even fit in that market category.

2-13-2019 Corolla Replacement? Now we are really starting to get some constructive questions. I like this simple and to-the-point query: "*What does Prius have to top that?*" It was an easy one to provide a reasonably acceptable-to-many response too: Sedans are rapidly vanishing. Corolla will survive that changing market simply due to it being the world's best-selling vehicle. After so many generations, the choice is a no-brainer for the basics. Prius has always offered more than the basics. So, it makes sense that it will continue to hold that position in the fleet, especially with it being a hatchback. Camry is what see taking more of a sales it, proportionally. That's due to the rise of RAV4, which is extremely well positioned for SUV demand. Keep in mind that Toyota is a 10-million-per-year automaker. They don't cater to the allure early-adopters seek. Their target has always been ordinary consumers. So, there has always been a perception issue when it comes to the appeal of Prius, an image never properly portrayed based on claims from those trying to interpret history long afterward... which always made the understanding of how it sells so well a mystery. The direction of Prius taking on a plug-in only role seems the obvious next step. Battery advancement combined with some emerging clarity of what mainstream consumers will actually purchase... now that we are finally starting to see the confusion caused by enthusiasts & subsidies fade... makes a high-volume profitable approach realistic in the not-too-distant future.

2-13-2019 Attack Ad. First thing this morning, an assault was launched on Toyota. It was the typical "*anti-EV*" nonsense. Not understanding how to reach the masses or understanding how their hybrid technology is actually designed causes all kinds of problems. They focus on only key factors, not everything as a whole. That's why there are claims of me shifting focus. When I mention emissions, profit, sales, and production, an enthusiast will inevitably choose just one to respond to. That's how you end up with spin. They just plain don't want to look at the big picture. In this case, it was how to reach ordinary consumers. The blinders have been on the "*EV market*" for so long, many have completely lost touch with purchase priorities of ordinary people. That's why engineering has changed to advertising. Whatever reality they had based original goals on is gone. That's why the impact of tax-credits loss really hasn't sunk in yet. Enthusiasts are focused on subsidized sales so much, they have no idea how difficult the real-world of direct competition with traditional vehicles will actually be. Plug-In choices don't stand a chance in that aggressive market. This is why they were living in their own world. In made sense, at first, to establish reputation by proving the technology worthy. Unfortunately, many forgot that was only a stage. So now with Toyota advertising Corolla hybrid, they feel the need to attack. Since it doesn't have a plug, they believe it is the enemy rather than a bridge. Ugh. I launched my counter-offensive to that with: We have seen quite a bit of advertising by press-release lately, to the degree that "*over promise, under deliver*" has become common across the industry. Yet, there's no outcry about that. The fact that Toyota made an undeniable subtle comment about the current state of our infrastructure is good reason to self-reflect. In other words, why is there still so much forgiveness in buying guzzling ICE vehicles while we wait for promises of years to come?

2-13-2019 **Large-Scale Change.** Constructive discussion is gone. The death of Volt has opened up the automotive market to explore new offerings. That nasty precedent GM was so counter-productive, it's basically impossible to argue otherwise. Evidence of that approach being unrealistic for the masses was overwhelmingly proven... to the extreme that those saying GM was never committed to the technology go unchallenged. It's over. With that niche no longer being a barrier, a lot of attention is turning toward Toyota with an expectation of it leading the way. Problem is, many at this stage don't agree that leadership is best when targeting mainstream consumers. Want for standout vehicles is the theme, not something to become so common it goes unnoticed. Well, too bad. That's what needs to happen. I let them know it too: Distracting from the challenges of infrastructure and turning a blind-eye on subsidies by crying "*anti-EV*" is constructive how? Reality is, that's an excuse drawing attention away from how the masses will embrace electrification. What is the plan from other automakers for their entire fleet? Taking the hybrid step to plug-ins is a solid means of quickly phasing out a wide variety of ICE choices, as well as overcoming change intimidation.

2-13-2019 **Bon Voyage.** There are hints of trying to be constructive from some, even former antagonists: "*one should at least acknowledge that the cruise ship's bon voyage horn is about to go off - one would think.*" They don't get it though. When you want to attract ordinary consumers, you can't do something symbolic. To get their sales, you have to be persistent, yet subtle. Sending a clear & concise message without actually advertising is a challenge though. People must have enough clues to recognize the paradigm-shift without any question of its takeover. Things like having Wi-Fi at home. Setting up a wireless network was only the domain of technical savvy individuals ages ago. Ask yourself how it became normalized. Think about that. It was due to encountering those free Wi-Fi signs all over the place. Routine sightings make a profound difference. This is how and why Prius became the symbol of hybrids. There was a lot of work set forth to make a colossal, yet seemingly invisible change. That's what will happen with plug-ins. You'll just notice them more and more. I pointed this change out by posting: The first ship of hundreds is basically just symbolic.... very important.... but nothing that will affect the masses for a generation or two still. Remember the first cell phones or digital cameras? They were a sign of great things to come, but totally unrealistic for mass-adoption in those early years... which is exactly where we are now with plug-ins. It's tiring to hear early-adopter impatience, but that's actually how potential is gauged. They feel opportunity is being missed, but are too out of touch with ordinary showroom shoppers to understand why such a different path must be taken to appeal to them.

2-13-2019 **No More Spin.** It's nice to see the arguments are over. We're just seeing a lot of summaries at this point, like: "*Then Toyota will either be left behind or just play more catch up with the rest of the industry.*" It came from someone who sometimes serves as a devil's advocate. So, it was worthwhile providing a well thought out response:

Toyota continues to refine their EV tech. The efficiency from both Prius Prime's traction-motor & heat-pump is impressive already. That will be offered in a plug-in model of Corolla hybrid in the not-to-distance future. Next year, an EV model of C-HR will be offered in China. Meanwhile, the next-gen RAV4 hybrid is being rolled out. What aspect of "*behind*" is there with respect to reaching mainstream consumers?

With respect to cost-reduction of those non-battery components, where is the rest of the industry? Think about how well positioned Toyota will be with RAV4 hybrid in this market when an affordable battery (no tax-credit dependency) becomes realistic for the masses. Having that already established puts them in a very good place.

When I see claims of needing to catch up, it makes me wonder how far reaching the rhetoric has become. There are far too many engineers claiming to be well versed in marketing & economics. It's the problem GM had with Volt now playing out on a larger scale. Knowing your audience means understanding how to appeal to them.

So what if a point-in-time advertisement doesn't embrace the future if it still gets the consumer to take a step forward. You worry about the next step after the baggage holding you back is gone. In this case, Toyota is trying to rid itself of traditional vehicles far faster than other automakers.

Look at it this way, other automakers will have a premiere electric vehicle and a large selection of traditional vehicles. Meanwhile, Toyota will have a wide selection of hybrids and a few plug-in hybrids, to go along with their premiere electric vehicle. No more high-volume traditional vehicles would put them ahead.

2-13-2019 Leadership & Payback. Someone brought up the analogy of this being the age of "*Horse & Buggy*". That was about a century ago when the switch from almost all horses and a few cars reversed to only a few horses and almost all cars. It seemed like overnight, but in reality took roughly 2 decades. Back then, the benefit of switching was profound. Switching from a high maintenance form of transport for one or two to a means of moving more people and cargo a greater distance at greater convenience was obvious. What is there with a switch from guzzler to green? Most people look at it as an expensive sacrifice. How do you sell that? Apparently, the leader is the one who offers the most range... even though you get less miles and less convenient from plugging in rather than pumping gas. Ugh. That comes from our simple-minded approach to everything. When a complex issue comes up, people in general think there is always a simple answer somewhere... that we just need to find it. Ugh, again. The hard work it took to even get the buggy to take over for the horse is over-simplified. It took a lot of work to setup infrastructure and to train people. Whether or not the answer is obvious doesn't mean it will be easy. In this case, we are dealing with a society obsessed with size & power. They will sacrifice quite a bit to have that, but won't consider even a penny toward being green. So many ask about "*payback*" duration, you don't stand any chance of getting them to contribute anything toward environmental benefit. They absolutely refuse to put any value on lower emissions & consumption. It's all about getting something for nothing. Thankfully, there are a few true leaders who see the actual problem. Toyota is pushing Corolla as that something-for-nothing solution. Payback is so obvious, that question won't even get asked. It should become a "*no brainer*" purchase decision. You want a Corolla, why not get the hybrid model? My response to the issue doesn't get such an elaborate explanation though. Heck, I don't even bring up purpose. I keep it very simple: 329,196 sold last year in just the United States... a land of SUV crazed consumers. Not a single one of them had the influence/dependency of a tax-credit and the result was a tidy profit for automaker & dealers. Whether or not that's called "*leadership*", it is an example of solid business... which is exactly what's needed to position the entire fleet for motor & battery use.

2-13-2019 **Smug.** Ever wonder how the smug respond to the logic of a sensible business approach? This was a great example: "*And in Toyota's case it's head in the sand and fingers in the ears, while loudly screaming lalalalalala I can't hear you.*" That's how they perceive the choice to ignore rhetoric. That never ceases to amaze me. Their own hypocrisy goes totally unnoticed. The very comments they make about the situation are their own version of lalalala. Yet, they don't see it. Pushing ahead blindly with nothing but the hope of "*if you build it, they will buy it*" has failed dramatically. Studying the market and staying true to goals is meaningless. They have a group-think idea and believe everyone else will follow, even when there's nothing to support that belief. I find the lack of understanding quite troubling. They simply dismiss what they don't like, rather than addressing the issue. How does that fix a problem? This was my response to the nonsense they stirred today: Hear who? GM made the mistake of listening to enthusiasts. Volt-1 failed to attract their own loyal customers as a result. Volt-2 repeated that same mistake, delivering even more of a niche product. Targeting the wrong audience cost GM immensely. They now have a plug-in hybrid about end production with no successor. It was a huge waste of tax-credits. Toyota isn't concerned about the opinions of those screaming "*anti-EV*" because they don't represent their showroom shoppers. Profitable high-volume don't come from listening to those not interested in what mainstream consumers will actually purchase. Why would Toyota put so much hope on dealers serving a complacent market? Setting the stage for plug-in offerings by shifting a large chunk of their fleet over to hybrids is a sensible next step. Meanwhile, other automakers are making a lot of noise but delivering very little. It's quite hypocritical to pretend not to see that taking place by aiming a spotlight on Toyota. Those of us paying attention see what's really happening. Think about how easy it will be to sell Corolla plug-in hybrid when Corolla hybrid is a common sight on roads and in parking lots. It will be that silent sucker-punch to those enthusiasts here in denial about how to appeal to ordinary people... in high-volume... for a profit.

2-13-2019 **Facts.** Don't you love how people throw around facts, but fail to include any detail to actually support what they claim the fact represents: "*The fact people are abandoning Toyota hybrids in droves for the model3 says it all.*" I wasn't about to let that nonsense attract any thoughtless response: That "*fact*" omits vital information, providing a distorted perspective of the bigger picture. True, some owners of Prius are indeed trading up for Model 3. That's a very small percentage though, and they'd be really missing out on the opportunity by not taking advantage of the tax-credit. It's a low-hanging fruit situation, quite short-sighted. What happens when that \$7,500 incentive is gone? RAV4 hybrid (second-generation is just rolling out now) shows a great deal of growth potential. What does that say? It's a compelling choice at an affordable price. That's what mainstream sales are all about. Corolla hybrid is in a similar strong growth position. For anyone who didn't like the look of Prius, there's no excuse not to seriously consider it. That's what product diversity is all about. Within the fleet, there will be a hybrid choice to your liking... and each is designed to take the step of offering a plug very easily. Remember, Toyota is investing heavily in battery advancement. So what if those plug-ins aren't offered for a few more years still. In the meantime, the platform to take advantage of the new tech will be establishing itself on a massive scale. Dealers & Salespeople will grow familiar with the system ahead of demand from showroom shoppers. So, what does that "*fact*" really tell us about the upcoming market?

2-14-2019 **Direction & Patience.** The smug is growing. Purity is changing to intolerance. It's getting ugly. Statements like this indicate a turning point: "*They reduce emission sure, but not enough, they are always burning fuel, that's not sufficient.*" Remember how Volt had an engine, but everything was done to avoid actually using it? That never made any sense to anyone other than enthusiasts, but it did serve as a bridge to reach ordinary consumers. That failed, but the reasoning of it appealing to mainstream consumers was an obvious point. They'd sell the idea of the engine only being used as an emergency backup, but promote the fact that it performed without sacrifice to power or speed when you used it. That mixing of messages is what ultimately killed Volt. Lack of agreement of purpose is even worse than not fulfilling a goal. Advancement in any direction is impossible without consensus. GM found that out the hard way by trying to please everyone with a one-size-fits-all solution. Thankfully, we can clearly see Toyota isn't doing that. We get a wide variety of hybrids for their wide variety of customers. That makes the direction to take with the technology very easy to agree upon. I pointed that out in my attempt to deal with today's smug post: A plug-in hybrid will dramatically reduce consumption & emissions. My Prime averages 80% EV driving, despite numerous long highway trips per year without a place to recharge. It's a technology we can deploy immediately, due to its affordable design. GM failed miserably with Volt due to the cold, hard reality that it was too expensive to produce. That made it very unattractive to dealers and made the sticker-price unreachable for ordinary people. Your "*not enough*" isn't constructive in 2019. You know quite well next-gen offerings will take battery-tech the next step to being realistic for the masses. In the meantime, the much needed infrastructure will be improved too. Most businesses don't have any chargers at all. The few that do only have a couple. How does that help anyone beyond early-adopters? Show some patience.

2-14-2019 **All-Caps Rant.** Wow! The response to Toyota's advancement of Corolla got intense. It's obvious why. Prius was an easy target. Enthusiasts will dismiss it as slow & fugly, then move on. They saw no reason to take it seriously. Even though sales were strong, it was easy to dismiss as just being a green statement. People were only buying it to show off their care for the environment, to portray an image of caring for all things green... as far as they were concerned. That served enthusiasts well too. It was their excuse to deny. Seeing the same technology rolled out to Corolla without any sacrifice whatsoever derails their avoidance tactics. How does one fight such a popular vehicle offering so much benefit for so little cost? MPG combined rating equal to Prius in a stylish body already proven very popular is a death blow so extreme, they have no logical response. So without any sensible next step, the inevitable happened. Someone posted a rant in all capital letters. It was hysterically long too, just a single run-on sentence a large paragraph in length. You can't help but to be amused by such desperation. It didn't work though. I posed the following to address the nonsense: Wanting it done quickly rather than done right has consequences. Look at GM's rush to market with Volt. It's production will soon end with no successor. That proved a massive waste of tax-credits. Toyota's plug-in approach is slower, but stands much greater chance of reaching mainstream consumers affordably and in large quantity.

2-15-2019 **6 Weeks Left.** Remember the hell some of those enthusiasts put me through? They fought for years in favor of a plug-in hybrid with no compromise, one that only used the gas-engine as an unnecessary emergency backup. They coined "EREV" to displace the original purpose of addressing "range anxiety". It supposedly worked so well, there was no reason to even discuss anything other than EV driving. That was how they chose to fight Prius PHV and Ford's Energi. That kind of worked, until BMW came along with i3. That exceeded performance & purpose of Volt to such an extreme, enthusiasts lost their way. That's what ultimately pushed them to all focus on EV competition instead. Nissan was the victim of that. Leaf's lack of an active thermal-management system left it vulnerable to spin attacks. To the dismay of Volt enthusiasts, that didn't work. They were losing the fight regardless of what seemed sound logic. It was the dismissal of facts they didn't like which caused their downfall. Every time vehicle price was brought up, they'd brush it aside, saying that was of no importance. Having a \$7,500 subsidy to disguise that problem helped tremendously. They could shield attacks with that artificial barrier... which has since expired. Seeing that phaseout coming and the consequences there of, enthusiasts of Volt almost unanimously shifted loyalty over to Bolt instead. Remember how I pointed out the "olt" part of the name could later be exploited to mislead? That's exactly what we saw. The confusion was accepted as a misunderstanding, as if that's what everyone had been talking about all along. We saw that mantra spread like wild fire. As if overnight, Volt enthusiasts began saying the path to Bolt was planned all along. As soon as EV became "*affordable*", the switch would happen. Halting production mid-cycle was supposedly an expectation, even the part about people losing jobs in the process. Ugh. I reminded them of the rhetoric on what's left of the daily blog, pointing out no progress has actually been made in that regard: GM press-release October 2, 2017 stated: "*In the next 18 months, GM will introduce two new all-electric vehicles based off learnings from the Chevrolet Bolt EV.*"

2-16-2019 **Constructive Coexistence?** Fuel-Cell technology gets brought up a lot as a form of diversion. Rather than deal with issues at hand, they attack Toyota with that nonsense. Pretending GM, Honda, and Hyundai don't have fuel-cell programs of their own is key. All you need is just enough to make people lose focus. It's like yelling "*Squirrel!*" with the hope it makes the person talking stop long enough for someone else to fill in the silence. It doesn't matter what is said next, just as long as topic changes. On rare occasions, I get to actually point out some facts with the hope of constructive feedback. It should be obvious that there will be a co-exist situation with hydrogen. That means of energy storage & transfer is practical for certain application. Getting people to consider the possibility of particular situations being more advantageous is a challenge. I keep trying though: Keep in mind that hydrogen will have a place in our society, but that will almost entirely be on the commercial side. The reach out via passenger vehicles right now is to stimulate support for that. Think about how practical they would be for large business fleets and the certain types of cargo trucks. Educating those who will fund those programs is difficult. Rollouts like this do a great job providing that information. Plug-In vehicles face serious challenges in the meantime. High-Speed charging is basically non-existent when you consider how rare those stations actually are. There cost for equipment and the physical space they occupy makes them a monumental effort to rollout. A variety of vehicles supporting a minimum rate of 150kW simply aren't going to be realistic for a number of years still. We are very much in the earliest stages of rollout. In other words, the doom & gloom and conclusions people are already drawing are complete nonsense. There's no reason to take any of that seriously. One thing you can count on though is there will not be a single solution. We are embarking on a multi-technology age where there will be a variety of approaches taken. The one-size-fits-all mindset is not constructive.

2-16-2019 **Charging Cost.** A problem most plug-in advocates tend to avoid is the cost to charge. Under some circumstances, it can be a good deal. Heck, at my local grocery store, it's free. Unfortunately, sometimes it can be really expensive. So, you need to consider all the factors a play. The very high-speed is where you have to be really attentive. A friend of mine tried it with his BMW i3 using a DC Fast Combo charger. He got 17.07 kWh over the course of 45 minutes. A slower charge (2.5 hours) for me overnight (for the off-peak discount) with my Prime is 6 kWh. That comes to \$0.42 for the total cost of that electricity. My friend had pay \$15.75 for his charging. That much faster speed at a more expensive rate (due to the higher draw during peak hours) made it far more expensive for him. Was that worth it? Depending upon the situation, perhaps. In terms of what that electricity equates to for distance, it's typical to get efficiency of around 4 miles/kWh on average for this time of year in the south. That's about 68 miles of travel. At 50 MPG using \$2.50 per gallon gas, that would be equivalent to paying \$3.40 for the same distance. So on the road if you really need electricity, it might be rather expensive for a rapid recharge. Less convenient is usually a better idea. For my commute, electricity is by far the better choice. For my long-distance trips, I'm much better off with just using gas. Eventually, infrastructure will make electricity favorable in far more conditions. That doesn't mean you should wait though. The choice of fuel available to plug-in hybrids can provide the best-of-both-worlds experience... if you pay attention to charging cost.

2-16-2019 **Attacking Others.** It's one thing when a troll becomes an antagonist who lashes out at you. But seeing it happens to others makes the effort to attack anything in opposition obvious. What do you do then? Today, it was this which brought the newest problem to my attention: *"I'm just really not understanding all this effort you're going through to point out the superiority of BEVs and the (frankly) marginal improvements in oil savings when tons of people are moving to hugely less efficient vehicles. You're practically preaching to the choir while (to extend the analogy) the church burns down all around you."* It was directed at a long-time troublemaker, a person who would spread FUD for the sake of keeping conclusions from every being draw. Raising doubt can be an effective means of undermining. Fortunately, you can point out the pattern of repetition after a while. That's what stirred this anger. The other being attacked recognized the intent and wasn't about to put up with any more of it. I joined in with this to help out:

Oddly, preaching to the choir does have its place. It teaches everyone about goals.

I was called a *"troll"* for years due to my pestering of Volt enthusiasts for them to get their priorities straight. Individuals, like our troublemaker here, obsessed with range & power to such an extreme, they lost touch with purpose. It was all about fighting the other plug-in vehicles for superiority. What an embarrassment for those of us really trying to make a difference.

My mantra was repeating the *"too little, too slowly"* concern the GM bankruptcy recovery task force stated. They were worried the technology in Volt wouldn't result in the profitable high-volume offering GM was claiming it would become. So when I asked *"Who is the market for Volt?"* over and over and over again to point out GM wasn't doing anything to spread that technology to vehicles their own loyal customers would actually purchase, I got personally attacked by the *"vastly superior"* crowd.

It was brutal, a test of character remaining true to goals. But it paid off. We now see that all the rhetoric against Prius from those Volt enthusiasts really was an effort to satisfy want, rather than to fulfill need. GM was actually the laggard. They rested on their laurels and fell into the innovator's dilemma trap, despite so many warnings. Now Volt production is about to come to an end without any successor. All those tax-credits with the intention of establishing a mainstream vehicle were wasted. So much opportunity was missed... and they enthusiasts now recognize my concern was sincere all along.

Ironically, this topic of *"EV Mode in Cold Weather"* is what started all the rhetoric. Precisely 1 year before rollout of gen-1 Volt began, back when little was known about plug-in vehicle performance, I brought up this very topic. Armed with some Nissan Leaf mule testing data, I pointed out how much of an impact to range use of the heater had. Volt enthusiasts immediately got angry, claiming my effort was to undermine the *"40 mile"* range goal GM had set by making up FUD about electricity use. Now, we all see that couldn't have been further from the true. I was objectively stating a reality.

Recent rhetoric has turned to the state of panic GM enthusiasts are now dealing with. The abandonment of Volt came with the understanding that Bolt would be the replacement, that GM would aggressively deliver EV choices. It was all based on a press-release from October 2, 2017 stating the following: *"In the next 18 months, GM*

will introduce two new all-electric vehicles based off learnings from the Chevrolet Bolt EV." There are only 6 weeks left of that self-imposed deadline... and we still haven't heard anything from GM.

That terrible mindset of doing it quickly instead is something we must remind ourselves of and make a concerted effort to avoid. Toyota's approach of staying true to goals and taking the time to do it right is proving their wisdom of understanding the market. They know their audience. They study the entire system, carefully noting impact to every step of the production, delivery, and support process.

2-16-2019 **Enthusiast Hope.** The spin keeps coming: *"Can't wait to see all the EV's GM has claimed are in the pipeline."* Seeing that, I was happy to point out the GM press-release October 2, 2017 on that thread. Including those words of *"In the next 18 months, GM will introduce two new all-electric vehicles based off learnings from the Chevrolet Bolt EV"* will obviously still. I also pointed out that April 1, 2019 is rapidly approaching and we still haven't heard a peep. Then I really let those enthusiasts attempting to stir hope with this additional bit of cold, hard reality: *"Following those two, at least 18 more EVs will launch by 2023. GM has already said that it expects to launch 10 electrified vehicles in China by 2020. The 10 for 2020 included plug-hybrids like the Cadillac CT6 Plug-in and the Buick Velite 5 range-extended EV, but some of those ten China-only models will likely be among the 20 EVs that are part of the announcement."* Needless to say, I'm on the offensive now. They must present substance, something of merit. Their attempts to stir blind hope have had costly consequences. Allowing that to continue is unacceptable. They must acknowledge how the path they chose didn't work, they choose a new one. There's nothing wrong with a correction measure. You learn from mistakes, they try something else.

2-17-2019 **Closure.** We've come full circle. I got this in reply: "*You don't need to be an insignificant mosquito looking for a satiating blood meal.*" It was followed by a few personal insults. That invited me to post what I have been waiting a very, very long time for. In other words, patience does pay off:

You think analyzing a situation, sharing observations, then waiting 18 months for it to come to fruition is that? Talking about a complete loss of objectivity. After having to tolerate so many personal attacks, I am very much allowed to point out the hypocrisy unfolding.

This group went from spinning a term called "*EREV*" to set their favored technology apart, without substance to actually support any clear difference, to abandoning it entirely when those efforts fell apart. The choice at that point was to embrace EV and promote how rapidly GM would deliver upon new promises.

This group heavily endorsed those promises, pushing the belief that GM would build upon what Bolt achieved to bring about 2 new all-electric choices. The timeline was firmly established. We had to accept what was promised blindly. We were told to just patiently wait. That time is about to run out and we still haven't heard anything.

GM's reputation for "*over promise, under deliver*" is undeniable. The fact that it stings to find out it happened again is no reason to blame me for your decision to believe what was promised. I was sharing as much history as possible to get you to notice the pattern, to take a more objective view of what could actually be delivered.

The blood is yours and I am not the cause. I'm the one standing next to you with ointment hoping to finally get what I came here for all those years ago... an ally, someone else who understands what it really takes to get each legacy automaker to end production of their traditional vehicles.

GM's fleet is highly dependent upon vehicles which return a very large profit. That means a very large sticker-price, a situation that doesn't work in the age of electrification. Adding the cost of batteries is a very real challenge this group is only now coming to realize. 12 years later isn't too late, but there certainly is a lot of excess baggage to deal with.

What really stings though is the reality that Toyota doesn't have anywhere near the baggage. With Corolla, RAV4, and C-HR hybrids becoming well established in various markets, their preparation for introducing plugs to those particular hybrids is becoming an obvious opportunity... something GM has totally missed.

That lack of diversification effort is what will likely cause the very idea of Volt to be abandoned entirely. Most of the early-adopters have already written off GM as having failed in that market. Remember all those requests for GM to finally deliver the Saturn VUE plug-in hybrid SUV they promised? Over the years, that turned into a focus on Chevy Equinox as the recipient of Voltec instead. Yet, people called me a Toyota troll, despite the blatant effort to push GM to capitalize on their own technology.

Ugh.

- 2-18-2019** **GM Hybrids.** Seeing the shift back to usual levels of rhetoric is interesting. This morning, it was yet again GM getting attention. It's the reason so much blogging focus is on GM, spin emanates from their social-media hubs. In this case, it was an article asking: "*Ford Escape Hybrid On The Way, How About A Chevy Equinox Hybrid?*" That obviously caught my attention. Would there be any mention of RAV4 hybrid? Turns out, the answer was a glaring no. The only mention of RAV4 was to combine sales numbers of both Equinox & Terrain together, then compare them to sales of only RAV4. How is that the slightest bit objective? What was most telling is when you look up the actual count for RAV4, which was suspiciously missing. It was 427,170 for last year. The count for both Equinox & Terrain together was 446,932. It was a blatant greenwashing attempt. The difference is tiny, only 4%. Imagine if they would have also included the count for Highlander to make it fair. Those extra 224,511 units make the difference massive. Instead, all we got was a compare of Ford engines with speculation of what a GM system could deliver. Pretending RAV4 hybrid doesn't exist is an dishonest effort to feed a narrative. RAV4 hybrid is now on its second generation. There is no excuse whatsoever for a claimed journalistic source to misrepresent the market like that.
- 2-19-2019** **Too Early.** It's both intriguing & annoying to have witnessed such an attitude shift. Volt was vastly superior, period. All others were "*laggards*" and Toyota was so far behind it would never catch up to GM. I heard that same sentiment for years. Prius Prime was getting attacked in every possible way. Then GM confirmed Volt production would come to an end sooner than anyone expected and without an successor. All of a sudden, the attitude changed. Rather than spinning the perception of a market Volt alone occupied, it was a new consideration that judging now was far too early. Really? I had been saying that for years! Subsidized sales don't represent mainstream demand, so all of the tax-credit related interest is nothing but early-adopter rhetoric. What that audience feels is in no way a reflection of what ordinary people will feel. That's why enthusiasts have gatherings and participate online. They are a small bunch of specialists... who unfortunately suffer from group-think. They have a very difficult time understanding how different the perspective of an uniformed showroom shopper. They simply cannot relate. Hearing so many finally comes to the realization that the situation they experienced is not the same in some way as what the masses will encounter is somewhat encouraging... though, very hypocritical. There's that frustration of having been accused of trying to undermine their efforts, then having them abruptly change their stance and agree with what I had been saying all along. Ugh. At least I have extensive documentation pointing out my observations of the time. That level detail is quite valuable. With it, more accurate predictions about market response can be made. So, it's not wasted effort... however, the fact that I get attacked on a regular basis for staying true to goals and not giving into the temptation to draw conclusions too early is quite a mix of emotion. I guess being strong and remaining polite through even the most hostile of personal strikes is a credit to my character. I never gave them the satisfaction of fighting back on their terms. I just kept researching and publishing videos to counter their attempts to create misconceptions and spread undermine narratives.

- 2-19-2019 Break-Even Point.** How many times in the past have we encountered someone "*doing the math*" to attempt to figure out the break-even point? It is always looked upon as the technology having to pay for itself entirely, and in terms of nothing but a saving in gas expenses. No value whatsoever is given in regard to reducing dependence on oil or reducing impact to the environment. There isn't ever consideration for those other factors, period. Whether that is appropriate or not, that is the reality we have to deal with. I obviously object to the blatant lack of objectivity, but I deal with it nonetheless... as does Toyota. Remember when RAV4 was first introduced? The hybrid option was only \$800. That made the choice a no-brainer. Who wouldn't want an SUV that used less gas, whether the math worked out or not. With gas so cheap, it's much more difficult of an equation than one would expect. Toyota has embraced that reality too. This new generation of RAV4 is now offered in a variety of packages, making the math more of a "*value added*" situation rather than just a matter of saving gas. That's quite obvious when you consider the top package offering, which is hybrid-only. You want the best? It only comes as a hybrid. I'm not sure if Avalon will be taking that same approach, but that seems rather likely. The new-gen upgrade this year jumps from 40 to 44 MPG. An article featuring the hybrid naturally focused on ROI. That return-on-investment perspective is annoying, but the writer knows his audience. He simply stated the pricing difference was only \$1,000 more. He also pointed out the real-world MPG results were observed higher than the EPA rating.
- 2-20-2019 Temperature Influence.** It's not as simple as one would think. There are tolerances & circumstances to consider and most anecdotal observations don't provide enough information to establish a pattern. You can guess, but the detail can be illusive. This is what new owners find: "*The manual, and my experience says continuous < 14 degrees F will trigger auto HV start... The car has its own mind some days.*" That is inevitably followed up with a post online asking why that situation isn't always clear cut. Sometimes, the observed rule doesn't apply. They want to understand what else is happening. Even for me with detail, every scenario may not be accounted for and experiencing a specific temperature a specific way is very difficult. So, all we can do is share as much knowledge as we can. Today, from me, it was: Outside temperature alone is not what determines the behavior of when the engine runs. Most importantly, the battery-pack must be warm. If you didn't have it plugged in and the temperature within is below freezing, the engine will start regardless of degrees outside the car. The initial trigger is 11°F for outside temperature, with a warm battery-pack (above freezing). That's very easy to confirm if you have an OBD-II reader with aftermarket software (like "Hybrid Assistant" for Android). Following engine warm-up, that threshold changes to 14°F (after power off) or when coolant drops below the threshold you set (while driving), which is controlled by the cabin-heater temperature setting. That threshold for the coolant will drop too, as the vehicle warms up. Knowing all those factors at play and having a means to monitor them, it's easy to understand the car's mind.

2-21-2019

Single Solution. An interesting new bit of insight emerged from the endless attacks on Toyota for supposedly being anti-EV. Turns out, if you take a step back to look at the big picture, you see the self-deprecating approach GM took as a mindset of expectation. There's a group-think at play telling the narrative that all automakers must have a one-solution-for-all approach. The idea of diversification goes no further than whether you want a car or a truck. We've been brainwashed to the point that we aren't aware are choices have been limited. It's effective marketing when you lose sight of what could be offered. They have been forcing a belief that everyone embraced. In this case, it's that a single solution is all we have available. That's why the expectation for an automaker to commit to just one choice is so deep in our psyche. We aren't using our brains. We just follow that credence without question. Since when does such a position make sense? For example, why would a trait of a pickup have to also apply to a car? That sounds absurd, until you notice the pattern. This is why GM has gravitated toward only offering the SUV as a choice for mainstream consumers. They can't handle two entirely different audiences... in other words, show favor toward the strengths only a car can deliver. Understand the problem? It's so subtle, you don't realize you're being manipulated. Why did you give up the comfort of a large sedan to pay a premium for a far less efficient and less safe SUV? Put an entirely different way, how can an automaker promote the benefits of a hybrid while also promoting the benefits of a plug-in? Enthusiasts aren't open-minded enough to embrace a co-exist approach. We have overwhelmingly seen evidence of that with EV and FCV clashes. The problem with this is there's this thing called a plug-in hybrid. That represents the best of both worlds, for Prime... since it offers top-efficiency in both EV and HV modes without compromising affordability. Volt was quite the opposite, neither EV nor HV mode was efficient. To compensate for the shortcomings, GM added battery-capacity... which made the vehicle extremely expensive. Resulting from that came an army of enthusiasts spinning a narrative to persuade us that was the best solution available. Problem is, both Nissan and Tesla proved otherwise. They showed the choice could be EV, as well as the PHV from Toyota. And now that Toyota is also striving to offer a competitive EV, there's a chaotic mess for those attempting to market a single-solution perspective. How can Toyota show favor for both choices? This is where "*know your audience*" comes in. Toyota is marketing to entirely different customers. One type shows interest for hybrids. One type shows interest for electric-only. Either may consider a plug-in hybrid. That's called smart business. When you have over 10 million sales each year to consider, you must offer a variety of choices.

- 2-21-2019** **Tax-Credit Intentions.** I certainly enjoyed taking offense on this play: *"It has almost completely done what it was intended to do, jump start an EV renaissance. Don't reward the laggards..."* The opportunity to choose a fight with a well-known antagonist, spelling out his mistake with such simplicity, was a delight. I'm tired of the insults and there's no reason to allow such blatant attempts to mislead. So, I don't put up with that nonsense anymore: That was not the intent. It's easy to prove too. Had it been, there would have been an industry-wide limit instead of it being for each automaker. What those tax-credits were actually intended to do was help each of those automakers establish a viable (profitable & high-volume) product of their own, something appealing to their particular customers. GM squandered that opportunity, wasting their allocation of tax-credits on conquest... vehicles clearly not targeted at their own particular customers. Why would someone loyal to GM switch from their beloved SUV to a compact hatchback or wagon? Intent was not fulfilled. In other words, the label of *"laggard"* is grossly inaccurate and it distracts from the true problem. We shouldn't have to deal with rhetoric people spread without giving thought to origin or purpose. Automakers who saved their tax-credits for something they believed would become a product that could compete with their own vehicles on the same showroom floor should not be misrepresented like that.
- 2-22-2019** **Fanboy Instructions.** Volt production will be coming to an end soon and we still haven't heard anything at all from GM. No one has any what's in store. Heck, even the most hopeful have moved on... or so I thought. That old daily blog turned into a place for this & that posting. There would comments about the political stage and some environmental tech exchanges. It was pretty blah. What could they bring up that hasn't been beaten to death already? Turns out, I got an answer to that this morning. One of the troublemakers, a particularly nasty one known for posting lies about other automakers, started a *"how to"* for dealing with trolls. I was intrigued, since he chose Tesla as the automaker to attack this time. The quote that caught my attention the most was: *"Trolls are jealous about GM's thorough technical quality, even though they don't understand any part of it. So they undercut anyone that does treasure it and easily explains it."* That ultimately revealed what was really being posted. It was really instructions for preserving that fanboy site. It was the final refuge for anyone still hanging on to the belief that an expensive solution would prevail. Volt never made any sense. They didn't want to hear that. For years, the denial persisted. They wouldn't give up, regardless of how evidence stacked against that. GM wasn't interested in pursuing something so unprofitable. Poorly designed for efficiency... resulting in low Miles/kWh for EV driving and low MPG for HV driving... there was no possible way to compete. Other automakers would deliver better plug-in choices and GM's own traditional choices would be a better buy. Heck, even the early-adopters showed their true colors as the \$7,500 subsidy end drew near. No one is interested anymore. This is where that *"too little, too slowly"* concern seals the coffin on the technology. GM made no effort to diversify. The technology should have been spread to a more appealing vehicle years ago. Volt-2 should have been a small SUV, not another compact hatchback. Of course, that inefficient drive still would have presented challenges. But at least it would have been a step forward. Instead, GM will just let it be buried... and the fanboys know it.

2-23-2019 Game Changer. Yesterday, we found out production of Volt had actually ended already, the week before. No one knew the "March" target would come so much sooner. But then again, Volt was doomed right from the start. I had proof of that too, in a blog I had written way back then. It seemed very fitting to post that in the discussion topic on the EV site about this news. So with a short introduction, that's exactly what I did: People seem to forget the mess Volt was right from the start. Shortly after rollout began, that's over 8 years ago, I posted this reminder of how expectations didn't match what GM ended up delivering: Hype vs. Reality. What was revealed to us 4 years ago is quite different from what we actually got. Most just want to move on at this point, especially those who were responsible for allowing unrealistic hope to continue for so long. Anyone who studied the EV knew very well that demands of the heater reduce available range significantly. But enthusiasts absolutely insisted the "40 mile" promise took that into consideration. It obviously didn't... and they know that well, now. It's a harsh reality they're finally coming to terms with. Too bad they didn't listen to those sharing that information all along. Oh well. It's like the price target. That was totally unrealistic too. Yet, that hype remained right up to the price announcement. As for MPG after depletion, that approach never made any sense. So, Volt now faces a market rapidly filling with choices. It's a plug-in hybrid competing against both pure EVs and other plug-in hybrids... not the "*game changer*" they wanted.

2-23-2019 **Missing The Point.** Death of Volt has brought about a flurry of posts looking backward about mistakes (which were denied until very recently) and complaints about the tax-credits. That monetary incentive is now looked upon as a major disadvantage, even though other automakers don't actually have that many left. Think about how quickly they could be used up when ramp-up takes place. A sustainable approach must be established before expiration, something GM did not take seriously. For that matter, GM didn't even bother. They just let Volt die, shifting favor to Bolt... the very antithesis of what Volt was designed to compete against. Remember all that "*range anxiety*" nonsense? That's the problem with the single-minded belief. An automaker offering a variety of choices is unacceptable. Enthusiasts shot themselves in the foot... a problem originating from not understanding the point of the technology, as I continue to try to convey:

GM competitors? You've completely missed the point.

Volt's competition has always been other GM offerings, those vehicles sharing the same showroom floor.

I asked the question "*Who is the market for Volt?*" hundreds of times over the past decade. Enthusiasts didn't get it. Their contributions to a false hope helped to make Volt fail. They were their own worst enemy and never figured that out. It was always an effort to divert attention to other automakers, rather than taking any time to self-reflect. That's why "*Know your audience*" is what the mantra has changed to.

Early adopter purchases didn't lead to anything. Those owners were absolutely delighted with their choice, focusing so much on factors unimportant to ordinary consumers, their endorsements made the chance of GM diversifying the technology less and less likely. Volt became a modern example of "*Innovator's Dilemma*". It's a trap that could have easily been avoided by putting the same components into an Equinox or Cruze.

Instead, GM focused made diesel their recent focus for an efficiency choice in their popular vehicles. Both Equinox and Cruze got that instead. Meanwhile we see the "*competition*" offering their equivalent as full hybrids. Notice how Toyota, Honda, and Hyundai/Kia are all spreading their affordable choices to a variety of vehicle shapes & sizes?

Meanwhile, we see efforts to offer some hybrids with a plug too. None sacrifice cost (resulting in a very uncompetitive sticker-price) for the sake of range like GM did with Volt. What does that tell us?

2-23-2019 **Placing Blame.** There's a lot of that going around right now. Dependency on tax-credits still isn't being taken seriously either. You'd think after all that has already played out, that lesson would have been learned. Clearly, that isn't the case: "*Badly written legislation killed the Volt.*" Seeing the blame placed on government subsidies, rather than the automaker is pretty bad. Volt wasn't a good product. It targeted the wrong audience. No amount of artificial price manipulation will fix that. Correcting the problem means actually addressing the issue. Pretending the source of the trouble isn't the automaker is hypocritical too. I'm still seeing GM supporters attack Toyota on a regular basis for that very reason. Automaker choices is the problem GM chose to deliver a niche, not a vehicle for mainstream buyers. Their own loyal customers never expressed any interest. And after 8 years of denying that, it's time for the message to finally be acknowledged. Get over it. Stop placing blame elsewhere. Anywho, this is how I responded to that particular comment: Volt wasn't selling well even with the \$7,500 tax-credit available. Looking at GM sales of their other vehicles overwhelmingly confirms that. Intended purpose of the tax-credit was to make that automaker's choice of technology competitive with its own traditional offerings, a means of moving beyond their product-line of just guzzlers. The belief of it to be a tool used for conquest sales against other automakers is a terrible misrepresentation of what such a subsidy was meant to achieve.

2-23-2019 Unprofitable & Uninteresting. That discussion topic addressing end-of-production for Volt sure has stirred a lot of opinion. Posting activity usually dies the following day. That's the nature of blogs. This one is different. Lots of people have lots to say. I homed in on this particular comment: "*Chevy has lost their minds. I have a Volt, it is a great car.*" Could you blame me, especially after having dealt with an attitude of "*just trust GM*" for so many years? That blind faith has cost enthusiasts dearly. They lost the war. No matter how many battles they won in the past, this final outcome says it all. Having endured so many insults along the way, it's quite vindicated for having remain polite and true to purpose. I let them know that in my own way too, keeping focus on what needed to be achieved:

Being so unprofitable for GM and so uninteresting to GM's own customers was good reason for ending production.

GM needed a popular vehicle using that technology, not a "*halo*" that only ever achieved subsidized conquest sales.

We all know GM shoppers want SUV choices. That is why GM introduced both Trax & Blazer to their product-line, neither of which with a plug or even as a hybrid. That disregard for the technology Volt demonstrated so much potential for was just completely abandoned. What a waste of opportunity, as well as tax-credits.

Think of how loyal customers shopping the showroom floor of a GM dealer will feel walking around looking for an efficient SUV choice. GM has nothing. Whether or not that person who has purchased many GM vehicles in the past is aware of what other automakers may be offering doesn't matter. They will be stuck with gas SUV choices of a 28 MPG Equinox, 28 MPG Trax, 24 MPG Blazer, 22 MPG Traverse, or 18 MPG Tahoe.

Think of how popular a SUV choice with a plug could have been.

2-23-2019 **Loss of Trust.** Consequence is becoming evident already: "*But I really don't believe much of anything from GM anymore.*" Everything related to Volt hinged on the belief that GM was committed to the technology. Evidence that GM was not became abundant. That's why I ended up blogging so much about the situation. Enthusiasts were expending an enormous amount of effort defending GM by attacking those who raised concern. That level of defense with basically no offense whatsoever meant the best outcome would be not losing any ground. Problem was, everything else was advancing. Even that Prius they loved to attack was drawing more and more near to the hearts of mainstream consumers. It was a simple matter of battery-technology improvement. Being able to deliver the same for less was that needed step forward. More range or power isn't necessary. Cost reduction was of the greatest importance... and a smaller capacity makes that easier. Neither GM, nor their enthusiasts, ever learned that lesson. Obsession with range & power blinded them from being constructive. And now that their gamble has proven a terrible choice, there's a loss of trust. Being able to take on new risk will be much harder. Virtually all of those holding the line have vanished. Whatever GM announces going forward will require new support. Those defenders of the past are gone. I still see some of them posting. Their attitudes have changed though. That quote above is a good example. To that, I responded in dismay about him being so out of touch: Any more? It's bad enough words of warning about how Two-Mode was handled and concern expressed from the bankruptcy recovery task-force wasn't taken seriously. But then GM disregarded advice about how to make the second Volt appeal to a wider audience. How many times will GM be given a free pass? Remember, it was enthusiasts who encouraged the disastrous course that was taken. Those of us who pointed out those details, noting observations to confirm the terrible choices being made were treated poorly (to put it politely) for our effort. And we were correct! It really did all fall apart... and for the reasons stated way back when it was playing out!

2-23-2019 **When Things Go Bad.** At the point an enthusiast realizes there is nothing constructive to post, they revert to personal attacks and name calling. This evening, discussion turned to "*anti EV*" for Toyota. That seems to make them feel about GM's struggle... and on a thread about Volt's death, such a turn was inevitable. Right away, I fired back: That narrative of an automaker only being able to sell a single choice is what messed up GM. Remember all their "*range anxiety*" nonsense? They embraced the one-solution-for-all approach, which resulted in abandonment of Volt mid-cycle in favor of Bolt. GM is missing so much opportunity. Reality is, a large automaker needs offer a variety of choices. That means they don't need to send a unified message in their advertisements. One can show strengths of an EV and the next can show strengths of a Hybrid. That's why a Plug-In Hybrid fits so well into the mix. Portraying Toyota... a 10-million-per-year automaker ...as a business that must choose only one solution to sell is just plain stupid. Diversity is an essential key to high-volume sales. Anyway, we know for a fact that there's a Corolla PHV coming later this year and a C-HR EV next year. More choices with a plug will follow. So, you can stop with the "*anti EV*" greenwash and show a little patience. Put it this way, because GM wasted tax-credits on conquest rather than focusing on delivery of a product their own customers would be drawn to, you shouldn't be diverting attention to what happens with Toyota. It should be obvious GM needs to regain the support they lost.

2-24-2019 **Silence.** It is amazing to look back and see how much worthless noise Volt was actually making... all bark... no bite. Those declarations of leadership lacked substance at the time. Now, we see there was no merit to those claims. None are coming forward to fill the void. It is somewhat bizarre for such silence to come so quickly. Production ended. Without a successor, the technology is dead. Whatever "EREV" was supposed to represent, it doesn't anymore. The long-predicted collapse upon triggering of tax-credit phaseout happened. To have brought of concern of dependency on those subsidies, been attacked for doing so, then getting vindication afterward for proving to be correct. I was polite. The message was sincere. Reaction was to get attacked. They made it personal. What a waste... or so it would seem. Reality is, that history is documented in great detail. Their denial of facts and spin of news was noted while it was playing out. No level of recall afterward can compare to study of what was written during the time those events were unfolding. There will be claims now of how market change could have never been predicted. Evidence proving otherwise is here. That is what has shut them up. It all turns to silence when you finally recognize your mistake. No amount of "*my bad*" will change this lesson learned, especially after seeing history repeat. I will use the knowledge gained from witnessing their errors firsthand to remind them.. Remember Two-Mode? Remember Volt?

2-25-2019 **Not Posted.** The blog about Volt's production coming to an end came to an end with a brief post about the terrible mistake GM is making. It came from an owner of 2 Volts, blinded by the technology. All he provided was praise for the vehicle. There was nothing else. That lack of consideration for the rest of GM's fleet perfectly illustrates how I knew of this demise so many years ago. I knew the early-adopter would obsess with the range & power, showing no care whatsoever to affordability or profitability. That's what turns a supporter into an enthusiasts. The attack anything unwilling to express praise for only their choice. That's why bringing up the topic of a second model of Volt long ago and an Equinox using that technology in recent years fell on deaf ears. They truly believed any type of diversification would dilute what "EREV" meant... which was only just a vague marketing term anyway. They didn't care about anything else GM could or should offer. They didn't care about dependency on tax-credits. They didn't even care about using electricity in an efficient manner. It was all just treated as a big joke, with Prius as the object of ridicule. Eventually, I pointed out how the situation resembled the story of the Tortoise and the Hare. They just laughed... which I found quite ironic... now that the Hare is no longer in the race. So, it doesn't matter how long the slow of the turtle takes... a winner is a winner, regardless of duration. The knowledge of pacing yourself and taking the entire race into consideration is a very important one to understand. They didn't care. So, I just stopped typing this response mid-thought, since it wasn't worth posting a reply to that blog message: Big mistake was not spreading the technology. That's what the "*too little, too slowly*" concern was all about. Worry was that GM would waste tax-credit opportunity on conquest sales, rather than focusing on actual change for their own customer base. Not having a plug-in hybrid choice in their product-line, like Equinox or Trax, meant nothing dealers would be interested in stocking.

- 2-26-2019 Pricing.** We are getting very close to debut of the long-awaited Corolla hybrid. Detail is finally coming out. Though, this summary is all that most people will focus on, in addition to the 52 MPG rating: "*The 2020 Corolla LE Hybrid starts at \$23,880 with destination, or \$3,000 more than the non-hybrid LE.*" 46 Million Corolla have been purchased globally since introduction in 1966. That makes it the most popular vehicle of all time. So it being rolled out worldwide now as a hybrid marks a turning point in automotive history. There is nothing anyone can say anymore about hybrid potential... since that's as mainstream as you can possibly get. All those attacks on Prius based upon appearance didn't change the outcome. Joining Camry, Avalon, RAV4, and Highlander hybrids is now an even more familiar nameplate... with pricing to play a major role in the effort toward bringing traditional vehicle production to an end.
- 2-26-2019 Omitting Detail.** This is the most effective means of being dishonest. You just leave out an important detail. That omission is quite often overlooked, allowing the person trying to persuade you of something an opportunity to deceive. Today, I heard a senator defending the president by leaving out the vital fact of duration. He claimed the president offered the democrats what they wanted by referring to it by title only. The reality that it was only an extension for 3 years, rather than the permanent change they were asking for was conveniently omitted. Not mentioning that bit of detail changes meaning dramatically. 3 years versus the rest of your life is how significant of a point? Ugh. That's the same kind of thing we've been dealing with in regard to green technologies since the very beginning. Heck, a decade into them, we got tax-credits... limited to just 60,000 per automaker. How can that possibly compare to the subsidizing of gas prices since before everyone reading this blog entry was born? Examples like that are disheartening. Just imagine how far a teeny, tiny increase in the price of gas could contribute to the building of infrastructure for charging cars. It's a transportation tax used specifically for transportation use. That's how investment in the future should happen. Sadly, we never get to talk about choices like that. The discussions never start... since even in just casual conversation, there's a bias from omitting detail. Whether it is intentional or not, it has a very big impact on outcome.

2-27-2019 **Incorrect Assumptions.** I found this comment quite intriguing: "*This is the linchpin: GM simply couldn't make a profit on the Volt, and so there was no incentive to advertise or sell it.*" The poster continued on, providing insight about how PHEV systems were "*designed to significantly increase MPG*". That really got my attention. Where would his thoughts take us? Sadly, it fell apart in the very next sentence: "*Volt on the other had was designed to be a full-time EV around town, and an ICE on the road. These are almost two different animals.*" My guess was that he really didn't understand what a plug-in hybrid actually was. That seemed odd, based upon his opening of: "*just about every plug-in PHEV out there has a very small battery and a very low EV range*". I wondered what the heck "*full-time*" really referred to. Thinking about the past, I recalled how antagonists would lead people to believe EV from all other plug-in hybrids except Volt would start their engine upon demands for high power. That isn't true for gen-2 of Prius PHV and was never true for BMW i3. Others make the distinction rather confusing to pinpoint if you don't know what to look for in the first place. That's how the deception works. Someone presents a misconception as fact, then it becomes an assumption without ever being questioned. Ironically, that is what helped to kill Volt. Never being well understood is good reason to avoid purchases. People won't embrace something they aren't quite certain about, especially with such a high sticker-price. Some of us knew the influence of enthusiasts could be that significant. They laughed off those words of warning. Who's laughing now?

2-27-2019 **Rule of Thumb.** This basic knowledge seems to be a really useful way to summarize need: "*8 hours on a 40-amp line will deliver 200 miles. More is nice, but not necessary. Remember, you'll be wanting to add additional chargers at some point... one for each vehicle in the household. So, consideration of maximum capacity from your service-panel is a factor.*" It's the type of simplification required to reach mainstream consumers. They need a clear & concise message. Understanding those terms is difficult when the concept is new. I'm hoping something that basic will catch on.... hence my push to repeat it over and over. Again, I see a need and a pattern. Let's hope this one sticks. Remember how "*stealth mode*" became an expected success? I didn't even realize the importance of such identification of operation back then. Now, it's rather obvious. We need clear understanding to get strong acceptance.

2-28-2019 **How We Got Here.** All I can say is: Wow! There are so many different spins on history at this point, it's easy to see how mistakes get repeated. Most online participants don't bother to research or even check the "facts" they do have. Recent posts have been a complete disaster from any historical perspective. They basically don't have a clue how we got here. Sadly, that's all too common of a problem. Making decisions based upon limited anecdotal evidence has become the norm. It is a consequence of letting anyone express an opinion online. They expect instant validation and will settle upon any source that will provide it. Whether or not that information is accurate doesn't matter. Heck, it doesn't even need to resemble anything truthful. We created a mess and haven't really come to recognize the situation yet. That makes dealing with it pretty much impossible. Hopefully, a glimmer of hope will emerge from Volt fallout. To learn from efforts being made and advance forward, something must be acknowledged as not good enough. You can't just assume more is better... the very problem Volt experienced. Adding range & power didn't help deal with the problem of being too small and too expensive. It was an act of pure hope that such a senseless effort would provide the necessary fix. Optimism, rather than logic, is not a good way to run a business. GM really messed up and no amount of damage-control now will make it better. That's why looking back upon history cannot be a perspective built upon incorrect claims. Remember, there are some who spread misconceptions intentionally, so due diligence is absolutely essential. Any change of moving in the right direction requires careful consideration of how we got to where we are now.

3-01-2019 **\$35,000 Tesla.** It has finally happened, but not really in a good way. The reveal of this "affordable" choice of Model 3 comes at the penalty of reducing overhead expenses. Many of the galleries will be closed. (Those were the "stores" where you could test-drive a Tesla vehicle, but not actually purchase one. They just served as delivery & service locations, not anything resembling an actual dealership). Employees at the remaining locations will not get bonuses and there is an expectation of salaries being reduced. It's an ugly form of attrition... a sour-the-milk approach to cutting cost. Knowing that Tesla's tax-credit has already been lowered by 50% (to \$3,750) and that another reduction of 50% (to \$1,875) is coming at the start of July, it's a step we all saw coming. But year-end, the tax-credit will be eliminated entirely. That \$35,000 price must be enough of a draw to keep sales strong, all on its own, while also providing enough of a profit to sustain the business. Remember, the introduction of Model Y is still pending. Turning that into a rollout to grow the market won't exactly be easy, especially with legacy automakers struggling to find their own means of selling plug-in choices. While all that is happening, there is still the reality of battery technology evolving. Tesla uses cylindrical shaped cells. Pretty much everyone else uses prismatic. All still rely upon a liquid electrolyte. How packaging & solid-state changes will influence the upcoming market is anyone's guess still. We just plain don't know, especially on the scale of gigawatt production.

- 3-01-2019** **Extended Range.** It looks like BMW i3 will offer a 44.2 kWh pack for 2019. That translates to an electric-only range of 126 miles for the range-extended model. This is why GM's marketing of an "*extended range*" vehicle, or as the enthusiasts used the "*EREV*" identifier, never made any sense. How could Volt's range of 53 miles be considered the market leader compared to that? Nothing the enthusiast did to spin favor toward Volt worked anymore. All of their greenwash efforts fell apart, without any successor. It's the "*doom & gloom*" that was predicted from such heavy dependency on tax-credits. BMW understands their audience. That's why the REx model offered an ample supply of electricity, then supplemented by a small engine (2-cylinder 647cc) for power following depletion. It was the design for Volt that GM never actually delivered. BMW did. That's why enthusiasts focused so much attention of Toyota. That diversion of thought prevented readers from noticing what Volt really was, a plug-in hybrid. The definition of "*extended range*" never worked for Volt. It was a deception they worked hard to convince others to embrace. That's why I battled them so often, knowing that misleading wouldn't be enough for the war to be won. All they could do was hold a line for awhile. Fighting is over now. Volt has become a footnote in history, an example of what not to do.
- 3-02-2019** **Speculation.** It is always interesting to hear from someone who has no background whatsoever. Their history of Prius and knowledge of Toyota is limited to recent observations only. Knowing they were just introduced to this world I've known for over 20 years adds an element of fascination. It's all new to them. That adds a somewhat magical feeling to their perspective... that overnight success impression people get. You know, like when a musician achieves a smash hit and most people think "instant success" without ever coming to realize they worked hard on that for decades. That's simply a reality of working with mainstream consumers. They consider the product, not the history. So naturally, there's a look of guessing & assumptions. Today, I saw this: "*Just offering an opinion.*" It was in regard to what Toyota might have decided about Prius. The absence of history was obvious; so much so, I wanted to make sure my reply to that was to the point. It's easy to come across as insulting or condescending when you have extensive knowledge of a situation and the other person has no background. Hopefully, this did the trick: No need. Cosmetic changes are a very common practice for mid-cycle updates. We saw that with both gen-2 and gen-3 Prius, though on the subtle side. The gen-1 mid-cycle update was more like gen-4, rather obvious.

3-02-2019 Sales Numbers. They were always a contributor to trouble, especially when broken down by month. That helped to feed narratives. Rather than looking at the bigger picture, you could select specific data to present. Volt enthusiasts were notorious for choosing to focus on just the "*EV Market*" to allow them to completely disregard incentives & distribution. In that regard, anyone taking the time would notice that 200,000 is really a very small count. The same is true for availability limitations. They'd fight to make sure no one took the time to do that though. It was always an effort to mislead. I have hundreds and hundreds of examples documenting their attempts too. Some of those quotes are truly remarkable. Looking back, now that Volt is dead, you can see lack of objectivity rather easily. GM set a self-deprecating course. They were in denial. Automakers require diversity. Lack of choice was an obvious flaw for any long-term (big picture) expectation of profit & sustainability. Somewhat annoyed by their denial, but not in a teachable moment situation, I posted this on the thread discussing Volt's final sales:

Epitaphs for Volt have been interesting to read. They all tend to follow the same pattern. Praise is given, then there's a comment that follows about what GM should have done. When that very same comment was provided in the past, it wasn't treated as a suggestion though. The response was a narrative about how GM knew what it was doing and that comment was really just an effort to undermine GM progress.

Now, we all see the situation clearly. Concern expressed as "*too little, too slowly*" to draw attention about how GM still had not spread Voltec to ordinary loyal GM shopper choices, like Equinox, should have been looked upon as constructive discussion. Shooting the messenger was just plain wrong.

Volt has become a modern example of innovator's dilemma. GM focused on the wrong audience, accepting the voice of early-adopters to be that of mainstream consumers. That group-think contribution sent a message approval to continue on with what we all recognize after production has ended as a niche. It was a terrible path to follow. Warnings should not have been so easily dismissed.

Consequences of that are obvious. Tax-Credits were wasted on a very limited market. Rather than using those subsidies as a means of establishing dealer change, making the showroom a means of reaching GM's own customers, that opportunity was lost.

- 3-03-2019** **Used Import Purchase.** Every now and then, we'll get a post on the big Prius forum from someone who purchased a used import of a Japanese model Prius. Since their own country doesn't offer them, that's the best they can do. So when help is needed, we try to provide it. That's a challenge when English isn't their native language and photos or video are almost never provided. We just have to make a best guess at what they are asking. This one in particular was really difficult. The question was asked repeatedly, in a variety of different ways to help convey what was going on. This was the most understandable of what I could use to quote the situation: "*The button should lit up and turn off the EV icon on the screen, which it doesn't even do all the time under 5kph as well (Sometimes I press it will turn on or off the EV icon other times nothing). But above 5kph it doesn't respond like the button is dead or something.*" He wanted to know more about how the HC/EV button should work on a 2012 model PHV from Japan. His location was Pakistan. We really couldn't even figure out why he wanted to use the switch or how well EV mode itself was operating. Basic information, like the number of kilometers the vehicle had already been driven, wasn't ever included. There were also factors, like temperature, missing too. We simply didn't have much to work with, despite his many posts. After a number of others had contributed detail about how the system operates, I jumped into the discussion with: After reading through this entire thread twice, I get the impression you aren't aware of the required warm-up cycle. Once you push that HV/EV button, it will force the engine to start and will continue running until coolant reaches the necessary temperature for emission cleansing. If there is something wrong with your coolant (low, dirty, clogged) or your thermostat (unable to shut), you may not be able to get back into EV mode.
- 3-08-2019** **EPA Deregulation.** This topic just pops up in the news from time to time. Today, it was about yet another rollback. We fought so hard for years to get regulations & restrictions to help guide cleaner and more responsible transportation technology only to have this administration do everything possible to undermine and dismantle. Thank goodness the diesel debacle played out a number of years ago, back when the situation could be dealt with properly. There's so much FUD going on now, it's hard to even notice. People just dismiss without conscience. The efforts to promote consumption have been so constant, perspective has been lost. Goal posts were moved back (our expectations) and that was enabled by our society as a whole (our regulations). It's really sad.

3-08-2019 **Longer?** Ugh. Seeing this from early-adopters is getting annoying: "*How much longer can Toyota wait to start bringing EV models to the markets?*" The reason why is simple... no one else is making the same claim. The mainstream is perfectly content waiting a few years. They know that in the meantime early-adopters are helping to work out any details that need to be refined. It's a sensible view that enthusiasts just plain cannot see. Lack of patience is no surprise. That's a common problem. Today, I dealt with it using the following:

That overall environmental impact approach is the same **BIG PICTURE** mindset Toyota has had since back in 2003, when it was first discovered that the gen-2 Prius could deliver electric-only driving speeds up to 100 km/h (62 mph). I asked the top engineer why a plug wasn't made available. It wasn't due to the extremely low energy-density of the batteries of that time. His direct answer was due to how dirty the electricity was. We would have to patiently wait for cleaner sources.

Think about how much coal we still use for generating power for what we recharge. Thankfully, I live in a state that has seen explosive growth of local solar farms over the past few years. Watching small towns build those vast spans of cells over their otherwise modestly used land is amazing. It's quite a surprise too. That happens with little to no fanfare. It just happens. It's like the ramp I park at for work. All of a sudden, they are installing a massive solar-array on it's sunny side.

I understand the "*How much longer?*" anxiety the full EV supporters are dealing with, but I really don't appreciate the barriers they are erecting for ordinary consumers. My household already has 2 plug-in vehicles, each with their own 40-amp 240-volt charger. So what if both vehicles only average around 1,000 miles per tank of gas? That shift to using more and more electricity is already well supported. We have our infrastructure established and our current plug-in will feed the used market when we upgrade later.

Show some patience and consider the big picture.

3-08-2019 **Looking Back.** Reading through a discussion from 11 months ago was interesting. Quite a bit has changed with regard to plug-in vehicles since then. Think about Model 3 rollout hopes. Think about Volt discontinuation rumors. Think about the continued attacks on Toyota. There was a lot of rhetoric back then, far more than anything even remotely considered trouble now. In that not-so-distant past, you didn't need any evidence to support your claim. In fact, it was very easy to dismiss the post of others simply by taking advantage of group-think. The enthusiast mindset was so focused on an obsession with speed & distance that nothing else mattered. It's interesting to see how that early-adopter push has fallen apart. More and more people are turning attention toward the possibility of an EV being in their future only to become disappointed in the price. Automakers are seeing that. We are hearing about planned rollouts elsewhere with much smaller battery-packs. Why pay for all that capacity when you are only looking for an affordable & reliable commute vehicle? Saving the old guzzler for only the long trips is a heck of a nice tradeoff... especially if you have an old Toyota that still has a number of miles remaining, despite many years of great service already. What's wrong with keeping your high-mileage vehicle for non-commute use? That already seems a sensible choice, even if you are only looking back to compare opinions from just last year.

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The wasting of tax-credits, then spinning those who took the time to really think through their decisions as "*laggards*", is a red-flag that there's enough gullible people for the cycle of misleading to continue. History repeats for those who are not wise enough to study what happened in the past and work to prevent.

This is an aspect of "*know your audience*". When the cycle begins again, you observe who participates. When that introductory stage concludes, you observe who's being targeted. For Two-Mode, Volt-1, and Volt-2, there was a clear mismatch between the audience claimed and the actual buyers. That threw goals into chaos. Each of those projects fell apart as a result.

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In just a few weeks, the event enthusiasts tried so desperately hard to avoid at all costs will play out. Tax-Credits for GM will be reduced by 50%. To distract from that ugly reality of Volt not having any plug-in hybrid successor, GM announced they would expand their EV offering by revealing 2 new models based upon the Bolt design. The promise was that would happen within the next 18 months. Our wait is now into the 17th month. Not a peep from GM still. Why is this acceptable for GM but not for Toyota?

It's a double-standard that needs to get proper attention. Engineering by press-release has been a chronic problem that no one seems to take issue with, to the point where that is accepted as legitimate advertising... even though there is no actual product to sell... not so much as the basic detail sometimes.

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Toyota is very actively producing & selling components vital for EV deployment, in high-volume for a profit. Refinements to those components and associated software continue on with lots of real-world exposure. So while they wait for that next-gen battery, no time is wasted in the meantime. That setting of the stage also includes drawing of interest away from traditional vehicles. It's a win-win with immediate benefits.

3-08-2019 EPA Deregulation. This topic just pops up in the news from time to time. Today, it was about yet another rollback. We fought so hard for years to get regulations & restrictions to help guide cleaner and more responsible transportation technology only to have this administration do everything possible to undermine and dismantle. Thank goodness the diesel debacle played out a number of years ago, back when the situation could be dealt with properly. There's so much FUD going on now, it's hard to even notice. People just dismiss without conscience. The efforts to promote consumption have been so constant, perspective has been lost. Goal posts were moved back (our expectations) and that was enabled by our society as a whole (our regulations). It's really sad.

3-08-2019 **Longer?** Ugh. Seeing this from early-adopters is getting annoying: "*How much longer can Toyota wait to start bringing EV models to the markets?*" The reason why is simple... no one else is making the same claim. The mainstream is perfectly content waiting a few years. They know that in the meantime early-adopters are helping to work out any details that need to be refined. It's a sensible view that enthusiasts just plain cannot see. Lack of patience is no surprise. That's a common problem. Today, I dealt with it using the following:

That overall environmental impact approach is the same **BIG PICTURE** mindset Toyota has had since back in 2003, when it was first discovered that the gen-2 Prius could deliver electric-only driving speeds up to 100 km/h (62 mph). I asked the top engineer why a plug wasn't made available. It wasn't due to the extremely low energy-density of the batteries of that time. His direct answer was due to how dirty the electricity was. We would have to patiently wait for cleaner sources.

Think about how much coal we still use for generating power for what we recharge. Thankfully, I live in a state that has seen explosive growth of local solar farms over the past few years. Watching small towns build those vast spans of cells over their otherwise modestly used land is amazing. It's quite a surprise too. That happens with little to no fanfare. It just happens. It's like the ramp I park at for work. All of a sudden, they are installing a massive solar-array on it's sunny side.

I understand the "*How much longer?*" anxiety the full EV supporters are dealing with, but I really don't appreciate the barriers they are erecting for ordinary consumers. My household already has 2 plug-in vehicles, each with their own 40-amp 240-volt charger. So what if both vehicles only average around 1,000 miles per tank of gas? That shift to using more and more electricity is already well supported. We have our infrastructure established and our current plug-in will feed the used market when we upgrade later.

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3-11-2019 Rule-Of-Thumb. I keep repeating it: Rule-Of-Thumb is that a 40-amp line will deliver 200 miles in 8 hours.

That basic formula covers the needs for most multi-car households. It's fast enough without becoming too expensive. Taking into account how much the typical service-panel has available for capacity, that idea of a continuous 32-amp draw (7.2 kW rate) of electricity from 2 plug-in vehicles at the same time may actually be pushing it. So, carefully consider plans for the future.

In my household, we installed two 40-amp lines connected each to 100-amp meters for Time-Of-Use discounts. The dedicated hardware makes tracking usage as simple as looking at the monthly bill. They break down the tiered pricing for each meter and show the usage in each category. Also, we choose to use larger-than-needed conduit. So in the future, we could pull higher gauge wire if there was the desire to beef up a charger.

Lastly, keep in mind that some people have their service-panel in or near the garage. That's quite convenient. Some have it clear on the other side of their house. That's quite expensive. So, the ideal may not work out. But even just sharing a 240-volt line works fine, since some chargers will allow you to set a maximum draw.

The key is to consider how many vehicles will need to be plugged in overnight.

3-12-2019 **Melting!** There's a lot of that happening now... to the point of flooding. Spring has arrived. Yeah! Of course, the chance of getting significant snow still is quite realistic. That happened last year in April. What a mess! We had near blizzard conditions. In the meantime, I'm able to take advantage of the warm for some outdoor work, including some cleaning of the car interior. Winter in Minnesota presents challenges at times, fortunately nothing related to the car. It worked fine even in the extremes. It looks awful though. Sprayed with the residue from salt & sand, you can't keep it clean for more than just a single drive. Oh well. Pre-Conditioning from the cord sure is nice. You come out to a warmed vehicle and a full battery that is also warmed. The thing to look forward to now is watching EV range increase. With warmer temperatures comes an increase in efficiency.

3-13-2019 **Apologists.** Now that other automakers are getting attention, as was with this thread about VW, there are GM apologists working hard to protect image: "*GM doesn't belong in your post. GM has been at the forefront with the Chevy Volt, the Chevy Spark EV, Caddy ELR, some other caddy, and the now the Chevy Bolt EV.*" More realistically, that's a damage control effort. Volt may have reached the forefront, but it didn't do anything in that position. Spark, ELR, and Bolt didn't do anything at all; they just rolled out without any type of industry draw. GM had potential, but chose to do nothing with it. I'm making sure that history is not overlooked. Allowing it to repeat without a fight to share information about what happened in the past isn't something I will tolerate. The time to take an position of offense has come. Playing defense made sense in the "fake news" time. But now that tax-credits are about to expire, the early-adopter stage can finally be seen with some clarity. Detail is key to moving forward. It starts though with point out the problem:

GM certainly helped in support of the technology itself, from an engineering standpoint. But the amount of collateral damage caused from their focus on a small & expensive niche pretty much makes their position a wash. Volt most definitely was not targeted at mainstream consumers and nothing became of that plug-in technology. Rather than actually being at the forefront of change, the status quo remained firmly in place.

Try arguing that those tax-credits made a difference in their fleet. Notice all the guzzlers on the showroom floor? There aren't even hybrid choices. Why isn't there a SUV based on Volt after all these years? It's just a wide selection of traditional vehicles still. GM never diversified. Volt was the low-hanging fruit that early-adopters feasted upon, then moved on.

Notice how VW is trying to promote a variety of choices right from the start? Many people don't. After all, people obsess so much with Prius, they don't even notice the other Toyota hybrid choices available. Ironically, that tends to be a good thing if the goal truly is to electrify more with each generation. It's like phasing the variety of past automotive technologies, like the carburetor, power-steering fluid, and incandescent bulbs.

Changing the course of legacy sales requires far more than just token efforts. Those who judge based on just that aren't making an effort to consider consumers beyond the initial early market. Ordinary shoppers are considerably more difficult to appeal to... and it certainly won't happen as fast as you'd like.

- 3-14-2019** **Model Y.** The reveal was quite a let down. Tesla didn't move forward much. Everyone expected more. It's a just hatchback version of Model 3 and won't be available until the end of next year. It won't be affordable either. Looks like the lowest priced configuration will be \$47,000. It's not at all what had been hoped for. The extremely long introduction, which spent quite a bit of time dwelling on Tesla history (about 30 minutes or so), ended up devoted just 4 minutes to Model Y itself. I expected the opposite, a brief overview of how the automaker got to that point, then a deep dive into what the newest vehicle would have to offer. There's seemingly so much more that could have been done, I think. My impression is morphing as I consider the choices available. It feels like that Y should have been rolled out side-by-side with 3. The only apparent difference is seating. What's wrong with that being a choice, like how other automakers deliver packages. You select the interior you want. Wouldn't that reduce cost? Too much variation without obvious benefit is a difficult sell anyway. Needless to say, this evening's reveal didn't stir much promise. The anticipation fizzled quickly.
- 3-14-2019** **Local Production.** Toyota just announced plans to begin production of RAV4 hybrid here in the United States, specifically in Kentucky next January. Capacity will be 100,000 of the RAV4. Starting this year will be 12,000 of the Lexus ES300h. Having both hybrids local is great news for everyone. The increase in employment is an obvious plus. There's the obvious benefit of not having to ship the final product as far too. Several other local investments for production were also in the same announcement. Corolla gets some for the Mississippi plant. Highlander gets some for the Indiana plant. There's the hybrid transaxle production in Virginia getting more money. And engine production in both Alabama & Missouri also get some. Note that Kentucky had a major investment for Camry & Avalon 2 years ago. So, long story short, anyone who calls Toyota a foreign automaker really doesn't have any clue what they are talking about. Toyota has a major presence in the United States. In fact, their commitment to new investment since 2017 will end up reaching nearly \$13 billion in a 5-year span.
- 3-15-2019** **"Losing" Spin.** Now that Volt has been dead for an entire month, it's curious to see what will emerge. I posted this on a topic attempting to keep attention on Toyota: I find it interesting how much "*losing*" spin is being published. It's the standard rhetoric that comes from early-adopters who don't want to look at the big picture or want to distract from it. The recent news of Toyota investing heavily in hybrid production in the United States is good reason for those desperate to undermine to step up their efforts. Reality is, the plan for Toyota to offer a wide variety of hybrid choices is a very effective means to not only bring traditional vehicle production to an end, it also sets the stage nicely for high-volume plug-in demand. Getting a hybrid owner to upgrade to a plug-in hybrid is far easier than convincing someone to go straight to a plug. Other automakers don't have a transition plan. Their attempts to introduce something with a plug have been chaotic and with an uncertain message of commitment.

3-15-2019 **Slowness?** My attention was caught by an article with this title: "*Reasons behind the slowness of EVs adoption in US.*" Sadly, the thread pointing it out was almost immediately joined by our resident problem poster. It was the usual banter: "*30% of Americans polled will say they would consider an EV in their next purchase.*" I was quite annoyed with such lack of substance: What poll was it? How people were questioned? What was the question? Did those being asked understand what an EV could be? Were these people who had access to a plug? And what the heck does "*consider*" actually mean? For that matter, when was the poll taken? That type of vague statement is exactly where "*Know your audience*" came from. It originates with a small sampling and a meritless claim, just like that. Volt enthusiasts spread such rhetoric to the point of creating their own "*fake news*" source, way back before the term had been coined. I got mocked for pointing out the power of what turned out to be propaganda. Those observations shouldn't have been so callously dismissed. Now, it's a grim reality with widespread collateral damage. It's the face-value acceptance of comment without detail that feeds group-think. People endorse the greenwash simply by passing it along without question. Just look at the outcome of Volt. Expectations were set that were based on want, not need. That fundamental disconnect confused the market and prevented progress forward. It's a trap that's easy to fall into, started by spreading a vague statement. Now, we wonder the reasons why there's a slowness to adopt EV here.

3-15-2019 **Trolling, part 1.** There is a well-known antagonist who relentlessly provokes to stir discussion. He just plain doesn't care about the bigger picture or the longer term. It's all about getting attention. He likes to participate. So, the routine post like this is an expectation: "*It's there because the press, market research, and gen1 owners said they wanted a middle seat.*" I rarely respond, but today's was rather enticing. Teaching moments can be useful. So, I took his bait. In this case, it was related to Volt and how the lack of a 5th seat applied to Prius Prime. Pointing out his spin by distorting & misleading the perspective to confuse the topic is something I've had to deal with routinely anyway. Sadly, it's easy to greenwash simply by being selective about the information being shared, especially if it is just vague comment. My sharing of what was learned went like this: Listening to them was a fool's errand... the fundamental mistake "*know your audience*" draws attention to. GM played tax-credits and early-adopters ignored signs. Those wanting to purchase a vehicle for family transport didn't want a compact hatchback anyway. It should have been obvious the technology would need to be in a larger vehicle. That is why Camry hybrid, RAV4 hybrid, and Corolla hybrid are all better PHV choices here. So what happens in Europe, may not be what happens for this market. In other words, understand who you ask.

3-16-2019 Trolling, part 2. I was rather surprised that his response was just a load of greenwash, something very easy to disprove: "*The new Corolla shrank; it has less passenger and cargo space than the Volt*" Why would anyone make a claim with undisputable evidence available to reveal intent to mislead? It only took me a few minutes to look up the specs for each, to confirm every one of the dimensions in question were wrong. He lied, plain & simple. There's no way around it. I caught him in the act. How will others respond to the obvious effort to troll? Causing trouble brings down the integrity of the forum. Yet, there is rarely a moderator response when such posts are spread. Sadly, the proliferation of fake news has become so bad, people may be getting burned out... tired of fighting battles the cannot possibly win, due to the quantity. Stumbling across efforts to mislead is easy. You can find them everywhere; nonetheless, I keep fighting them: 2020 Corolla Hybrid: headroom = 38.3/37.1 in; legroom = 42.3/41.4 in; cargo = 13.0 cu-ft. 2019 Volt: headroom = 37.8/35.8 in; legroom = 42.1/34.7 in; cargo = 10.6 cu-ft. Why are you spreading such blatantly false information?

3-16-2019 Trolling, part 3. That same post with the lie also included this: "*Where, oh where, can one get a PHEV version of a Camry or Rav4?*" He knew the possibility of getting caught should include something to distract with. He'll just attempt to avoid the callout by shifting focus. I wasn't about to let that happen either: You know all too well Toyota has been focused on getting TNGA-based platforms out to as much of their fleet as possible. The goal is to convert roughly 80% by the end of 2023. That's an aggressive pace for such a major undertaking, but the results are enormous... lower cost, improved performance, and reduced emissions. That's a mammoth goal for a 10-million-per-year output. What other automaker is pushing that hard to advance what they produce overall? You also know that Toyota is starting with Corolla PHEV, which is why that was conveniently left off the list. It's the best selling vehicle worldwide, so it makes sense to choose that. And since the new Corolla hybrid is only just this month starting wide-scale rollout, expecting a PHEV already is clearly a lack of patience. Keep in mind, the new RAV4 hybrid is only now just rolling out too. You aren't taking into account the most important part of Toyota's timing either. It's affordability. Everything they do is fundamentally planned around delivering something that will appeal to both dealer & buyer. Both are important customers. Both want a good price.

3-16-2019 The Race. Discussion topics about Toyota falling "*behind*" have a new "*losing*" label. We see various sources attempting to stir online comments, but with mixed success. Posts like this help to obscure the reference: "*I don't think Toyota is losing the BEV race; they're not entering that race!*" They are an effort to get people to think about the bigger picture. The nightmare created by Volt enthusiasts about supporting a niche is beginning to raise awareness. Why did Volt fail? It's a good start to constructive consideration of what really needs to be done. I gladly contributed to that:

The race hasn't even started yet. What has been done so far that would qualify as mainstream penetration? Thinking these warm-up laps taking place now (sales subsidized by tax-credits) are what count as efforts to compete directly with traditional vehicles... the actual race... is just early-adopter rhetoric. How many ordinary consumers are actually that gullible to believe such nonsense?

Media outlets posting such dribble are taking advantage of hype to draw traffic to their publication. The knowledge of "*there's a sucker born every minute*" is just as relevant now as it was when back when that phrase was first coined. Think about how much easier it is to fool people now that anyone can post a comment online.

Look around. We are surrounded by guzzlers running on cheap gas and outright denial of their impact. That harsh reality is something "*EV Market*" spinners don't want you to notice. They direct focus on just the plug-in offerings to avoid addressing what really matters... change of the status quo.

Legacy automakers have a massive undertaking required to get their own loyal customers to embrace greener choices. Focus on the low-hanging fruit people are eating right is such a waste. Whomever wins the warm-up laps doesn't matter. In fact, that competition to follow isn't just a single 500-laps around the track either. There will be many races. Consider how many models of vehicle each automaker must implement battery-powered technology in.

3-17-2019 **Vague, Divert, Dismiss, Restrict.** That troll attack continued. It's like I had to revise my old greenwash-awareness guide. Ugh. Oh well, a refresher for everyone isn't such a bad thing. What he selected for the source of antagonism was interesting anyway. So, I punched back: We all know how this works. It's usually either post a vague reference or divert with a red herring. I'm not the one doing either. The other tactic commonly used is dismiss the issued being raised. People complained about Volt-1 head room. So when GM did nothing about that with Volt-2 (in fact, head room was slightly reduced), the problem was just dropped as no longer a concern. Head & Leg dimensions have overwhelmingly been the focus of seating size discussion, so that's what the response included. With respect to "cargo" discussions, you must list the actual height/length/width to address transport capability properly. Lastly, there's an obvious effort to restrict scope. If it isn't available here or now, it doesn't exist. That's just plain wrong. Toyota's expansion of plug-in offerings by diversifying their "Prime" enhancement is exactly what GM had been pressed to do for years, knew it needed to for business success, but chose not to regardless of the consequences. Toyota choosing to spread their technology to a variety of choices is a wise move. So what if Corolla PHV doesn't fit a family of 5 well. That's what Camry & RAV4 are for. You want a larger interior, you purchase a larger vehicle. That is also why Avalon & Highlander are offered as hybrid models. Toyota is preparing for large-scale electrification. What's happening here is quite different... vague... divert... dismiss... restrict.

3-17-2019 **True Change.** I like when someone helps out by interjecting a constructive comment to take attention away from the troll. This was a great example of that: *"You mean we need to wait for the government to mandate EVs? Good luck with that. Too much oil lobbying for that to happen."* I was delighted to indulge that initiation to discuss what really matters too. So, I added to the topic with:

That's why early-adopter sales shouldn't be taken in any way as representative of mainstream penetration potential. All those heavily subsidized sales do is prove out the technology... which is great... but nothing worthy to gauge demand upon. This discussion of a 5-seat Prime is a highlight of Toyota testing the waters. Just like the intrusion of cargo-space by the battery-pack, it is pre-mainstream real-world study. They have learned the value of research-by-trial.

So when certain people here raise a big stink about a configuration during these early-market rollouts, they need to be reminded about perspective. Toyota is extremely aware that no government funding or mandate should be counted upon for help with sales. It is up to each automaker to find their own way to appeal to their own loyal customers. For Toyota to retain their 10-million-per-year sales, they must do what works for them.

What I find most interesting about a particular thread like this is how newbies are introduced to what those of us with many years of observation have witnessed many times now. Toyota will respond to customer feedback. They take online comments seriously and respond in a constructive manner. Rhetoric is filtered out to find a high-volume solution. Watching the challenge being addressed is fascinating for those who truly want to change the status quo.

3-17-2019 **Antagonism.** Some people have a bridge to burn: "*nah, toyota blew it...*" Basically, he just thrives on the attention. So, choosing to provoke Prius supporters has become a pastime. He seeks out something to argue, then posts a provoke to stir attention. Yes, it's trolling. But as a regular poster and a Prius owner, he just blows off anyone who sights issue with his activity. I don't bother. I do look for opportunities to provide exposition though. The provokes provide an invitation to do exactly that. For example: That's not how the early-adopter market works. This is why you get the "*know your audience*" every time you complain or try to prematurely draw a conclusion. Knowing goals is the second part of that wisdom to share. An automaker can only be losing if they fail to achieve their goal. Notice how others are placing their statements in front of Toyota's to make it appear as though Toyota is struggling? That's how spin works. We have been watching Toyota set the stage for very wide-spread acceptance of electrification, offering a variety of choices across their entire fleet. The dealer's showroom floor will have diversification no other automaker has achieved. Though, we do see Hyundai/Kia working toward that same goal. Kudos to anyone genuinely working toward the phaseout of traditional vehicles. It's not easy and there will be a lot of people who will declare blowing it prior to even having finished the early-adopter phase... which is very clearly defined as the time when government subsidies (both federal & state) are offered to help establish those new choices.

3-17-2019 **Cycle Attack.** Now that plug-in hybrids are getting more attention, constructive discussion is emerging as a result. A big part of this is the death of Volt, since it was always a barrier to progress. That senseless EREV labeled confused the entire industry. It was an obvious effort to obscure PHEV offerings. It was marketed as superior without any explanation why. Details were intentionally suppressed. So, topics like how cycling of the battery-pack in various plug-in vehicles came into play. Efforts to keep focus on only range & speed was the mantra. That is no more, because Volt is no more. Other plug-in hybrids are now getting attention. That's putting the up directly against electric-only vehicles... hence today's attack. It was a misrepresentation of how the battery is used. I was quite annoyed. The thread was filled with blatant attempts to mislead, all by one particular individual. I saw that as a great "teaching moment" opportunity, ignoring him entirely by posting this information stand-alone: Cycle... Cycle... Cycle... Cycle... Notice how many times that reference is used in this discussion and not a single comment uses it correctly? The definition of "*cycle*" is when a battery is fully discharged, then fully recharged. That's not something which actually happens with a PHEV. Avoiding those extremes is what greatly improves the longevity of the pack. Look no further than Toyota for a Prime example (bad pun). A full charge is only 83% capacity, not 100%. A full depletion is only 13% capacity, not 0%. That's very similar to what other automakers do and the advice given to anyone wanting to keep their battery-pack from getting stressed. So when you see a post referring to how many "*cycles*" a battery can handle, keep in mind that doesn't apply to the PHEV systems designed to prevent extremes. The result is a battery-pack that lasts longer.

3-18-2019

The Wait. There's a calm before the storm. GM is approaching their own self-imposed deadline. That promise to deliver news within the next 18 months is nearly 18 months old now... and still not a peep. 2 new vehicles based upon Bolt were supposedly to be announced for our market. With the death of Volt and no successor to the technology, the belief has been that GM will indeed just embrace EV and allow their "EREV" technology to die. Knowing that just 2 weeks from now the \$7,500 tax-credit... which Volt was so heavily dependent upon... will be reduced by 50% is good reason to expect some type of vague announcement. It will be ambiguous, of course. That's who GM operates. They release something lacking detail with the hope that hype will stir interest and distract from their problems. In this case, that reduction of the tax-credit to \$3,750 is good incentive to yell out "Squirrel!" Ugh. This was inevitable. Volt lacked safety features that Toyota offers standard (like dynamic-cruise) and you had to pay extra for the features enthusiasts really want (like faster charging). So, GM waited out the clock, rather than making any type of next move. That's their biggest obvious missed opportunity. Rather than taking advantage of the transition period from quantity-based credits to time-based, GM didn't do anything. Tesla did quite the opposite. When they hit the 200,000 limit, they took full advantage of the unlimited quantity period. It is a 6-month span where the full \$7,500 is available for the automaker to sell as many of their product as possible before hitting the 50% reduction time. Tesla most definitely capitalized on that. GM rested on its laurels, doing nothing at all... just letting Volt die on the vine. All the low-hanging fruit people wanted was picked. The remainder now sit on dealer's lots. No more will ever be delivered and there is no word of anything "EREV" on the way. We have the impression GM will drag its feet, but not "*kicking & screaming*" as Toyota is portrayed by their enthusiasts. Instead, it's silence. We haven't heard any plans. All we have been told is that EV sales from GM aren't expected to be profitable until 2021. That puts the wait of these last 18 months into perspective. No much of anything is hoped for. GM lost its supposed "*leader*" position... exactly as predicted.

3-19-2019 **Success or Failure.** The antagonists certainly are enjoying this time of wait: "*My point is that outsiders, and likely many insiders, can say why the Volt was cancelled, and not knowing the why means we can't call the model itself a success or failure.*" They see it as a chance to spin new history, to distort facts about the past simply by stating their own narrative. Sadly, this is rather effective when a void is left behind... exactly what the death of Volt has created. Stating vague references and misrepresenting timelines is all it really takes. Casual readers of forums & blogs (lurkers) won't have any idea they are being feed fake news. Manipulation of facts has become so common, it is especially difficult to debunk the assumptions emerging. In fact, that's why the mindset of success or failure has become so prevalent. There's a polarization at its peak... thankfully, one that about to fall. We'll see a variety of plug-in hybrid and electric-only configurations hit the market. That diversity of choices will open up some closed minds, reaching those who didn't even realize they had fallen into that trap. That's the goal, to have a narrative so effective people have no idea they are being manipulated. This is why I strive to deliver a collection of detailed videos. That type of simple-to-understand presentation serves as a powerful empowerment tool. You learn more than it would at first seem, simply by paying attention to what was offered without bias. In the meantime, I'm still dealing with this type of crap online: That load of rubbish isn't fooling anyone. We all knew the goal of Volt long before it was even rolled out. By the end of year-2, sales were expected to reach 60,000. For year-3, production capacity would be capable of delivering 120,000 annually. That failed to such a degree, GM scrambled to revive the struggling effort by slashing prices. It didn't work. Focus shifted to what the second-generation could deliver instead. That turned out to be even more of a sales disappointment. Cancelling a product mid-cycle, without any successor, is the epitome of "*over promise, under deliver*" ...something we know GM all too well for. Had a Trax or Equinox been rolled out using Voltec, that would have been a different story. But all we see now is a tree with all the low-hanging fruit picked and an automaker not interested in climbing.

3-20-2019 **\$13.8 Billion.** That level of investment is clearly stirring executive anger. We have been witnessing the president attack GM for plant shutdowns and the loss of jobs. His pride & ego are focused on bringing jobs back to America. Seeing the opposite happen, where production ends here and resumes elsewhere is really bad for him.... especially when Toyota makes it quite clear they are investing heavily in the opportunities here. Toyota sees the profit-based decision making will lead to trouble, again. That's how GM fell into bankruptcy last time. They were desperate for money, which is how the highly-profitable Pickup & SUV focus came about. Watching the production of their sedans come to an end is far more than just coincidence. It is evidence of the same thing happening again, but this time out in the open. It's obvious what they are doing. GM claims that's just a move to align with market demand, but the lack of investment in efficiency offerings says otherwise. Had we seen a Trax with Volt technology, that would have been a different story. Why would a new offering like that not include at least hybrid technology? Claims of leadership make no sense when a small SUV is nothing but a guzzler. That should have been what replaced the plug-in hatchback. Why not? Of course, the all-new Blazer being built in Mexico makes any such argument of "*investment*" difficult. What is being done to retain production here, to prevent bankruptcy and rebuild employment opportunity? Toyota is doing it. Why not GM too? Remember the "*too little, too slowly*" concern?

- 3-20-2019** **Bleeding Cash.** It was intriguing to just finish blogging about the problem GM has created for itself, then stumble across this: "*Sedans a cash bleed*" It was a section of an article published explaining that very problem. It proceeded on to state: "*GM is discontinuing many of the products built at those five plants, which are mostly sedans, saying U.S. consumers prefer SUVs and pickups. But GM has faced a backlash for opting to build other new products, such as the Chevrolet Blazer SUV, in Mexico.*" That is exactly what I said. The link for that article came in a post including this comment: "*So, I am not surprised that GM's lackadaisical support for plug-in sales is evident in their customer lack of demand.*" It was in a thread complaining about GM providing no support for their plug-in vehicles. Exactly as I argued many times in the past, the true customers of GM are their own dealers. That is why I asked the "*Who?*" question so often. It was to point out that Volt buyers were only conquest sales, enthusiasts just taking advantage of a good deal. Evidence of that was the lack of loyalty. They'd just abandon Volt when the next opportunity came along. They didn't care. Most had never owned a GM vehicle prior to that purchase. So, moving on to another automaker later was no big deal. That stems from the dealer they made the sale with never expressing any interest. After all, they don't want to be bleeding cash too. This is why inventory is almost entirely just Pickup and SUV choices. Heck, I see something similar happening at Toyota. The difference is seeing strong growth opportunity for the hybrids, especially the newest choices: RAV4 hybrid & Corolla hybrid. Competitively affordable with traditional counterparts makes them a compelling advancement forward for dealers. They will be willing to carry some inventory like that. It shows Toyota's commitment to them... rather than GM just expecting their dealers to find a way to survive with expensive choices.
- 3-21-2019** **Ford Investment.** Talking about building pressure for GM: "*As part of an \$11.1 Billion investment in emissions-free cars, the Dearborn, Michigan-based company's Flat Rock Assembly Plant will manufacture the next-generation battery electric flexible architecture.*" Hearing from both Ford & Toyota recently about their plans to invest and carry the industry forward makes you wonder when the long awaited announcement from GM will finally come. With the March 31 deadline rapidly approaching, it's getting rather dramatic. Of course, the expectation is the same old game play. GM will have a press-release that tells us virtually nothing. Most are so horribly vague, you don't even have enough detail to sight concern of vaporware. The spin will be obvious. An expectation of "*next-generation*" promotion is a given. There's always some type of "*new & improved*" hype, without anything telling us what that actually means. GM's goal with any type of distraction like this one coming is to build hype. That creates a sense of hope few question the merit of... knowing anyone who questions the absence of clarity will get publicly shamed. The internet continues to be cruel like that. Constructive discussion is still unwelcome. That's sad. As with this announcement from Ford, it will get buried in rhetoric. Ugh.

3-22-2019 **GM Announcement.** Sure enough, we got exactly what had been anticipated: "*This new Chevrolet electric vehicle is another positive step toward our commitment to an all-electric future. GM will continue to invest in our U.S. operations where we see opportunities for growth.*" That was the highlight in the press-release today. It tells us nothing whatsoever... except the fact that 2 new electric vehicles were the expectation GM had set. That only mentioned 1. Sadly, that was literally all we were told about plug-in investment. The statements made primarily focused on GM's investment of \$1.8 Billion to take place. That's a far cry from Toyota's \$13.8 Billion and Ford's \$11.1 Billion. The assuming part, since there is always something, was the mention of and "*advanced version*" of Bolt this new EV will be based upon. Of course anything new will be advanced. What else would it be? Nothing else was stated. It simply concluded with: "*Additional product information and timing for the new Chevrolet EV will be released closer to production.*" Talking about stirring the pot without adding any substance. We literally got nothing. The certainly is an effective means of avoiding the problem of over-promise, under-deliver. Not setting any expectation whatsoever or even hinting at a plan is par for course. We really didn't think substance of any sort would actually be shared. So close to the reveal of Q1 sales and the 50% reduction of tax-credits, the mood is grim. Anything providing a glimmer of hope is welcome. I await the rest of the industry to take advantage of this leadership fall. GM's claim to "*game changer*" was nothing but an exploitation. Evidence of choosing to support the status quo is overwhelming.

3-23-2019 **Server Down.** I posted a brief response to an antagonist yesterday, just as I was packing up to leave work. It was in reply to GM dropping the ball. I wanted to get it out there right away, since the evening was about to be filled with things having nothing to do with the automotive industry... though, our drive there would be with electricity. We watched a performance of a play our good friend's daughter was a part of, both as a performer and writer. It was a great too! She's got a lot of potential, a talent I really admire. Anywho, that was followed by a nice late dinner with my wife. It wasn't until this morning that I attempted to follow up on the many notifies I had received from my post. Unfortunately, the server is down. I suspect routine maintenance, since this is the start of the weekend. That means having no clue what was posted. All I know is several well-known antagonists had something to say. Sadly, I didn't save my own post to quote. It simply as priority. We'll all have to wait. The forecast for today is 58°F. Yeah! Yesterday was the first time we saw a temperature over 50 in over 4 months. Minnesota had a proper Winter. Now, we welcome Spring. That doesn't mean a huge storm with lots of snow won't still happen. It just means the mess afterward will melt quickly, now that most of the ground-cover is gone. This time of year is quite welcome. So, I'll gladly enjoy it. The server will be restored by this evening, after the sun has set. I'll get back to those posts then.

3-23-2019 **Impressive.** That was his assessment of current sales. Unfortunately, such a perspective requires absolutes. I begged to differ by posting my own: "0% purchased without tax-credits is not impressive. Don't be fooled by only paying attention to the low-hanging fruit." That stirred exactly what I anticipated for a response: "*So you really think EV sales will totally go away once the tax credits do?*" That's absurd. There will always be some type of niche market. The point though is to get the technology into the hands of mainstream buyers. This is why I called out his limited scope. It's easy to manipulate be simply cherry-picking data. In this case, it was misrepresenting the market. I provide a does of reality: Absolutes are no way to form a constructive query. We know that there will be some winners and some losers. Dependency on subsidies will confirm weaknesses. For example, today's disappointing announcement from GM (basically no plan and a small investment) seems to indicate a lack of interest. We figured something would happen as the 50% reduction approached.

3-23-2019 Background & Purpose. The timing made attacks like this inevitable: "*Then don't allude to it.*" Those troublemakers of the past will mislead & imply to make their narrative what gets the most attention. That requires a disregard of the past. For those paying attention, it's obvious. For others, you need to directly point out what's really going on:

No amount of "*totally go away*" spin can evade acknowledgement of my years and years of expressing concern that only affordable choices will survive the expiration of tax-credits. There were many short-sighted people who focused exclusively on the tax-credit dependent sales, absolutely refusing to recognize how few 200,000 actually is with respect to ordinary business-sustaining profitable sales. I most definitely was not part of that group-think crowd. I spoke out loudly against them... and you know it.

I was one who said Volt would die if GM didn't spread their plug-in hybrid technology prior to the approach of tax-credit phaseout. I kept posting "*too little, too slowly*" over and over and over again, warning of the consequences of inaction. For that, I got attacked relentlessly. Vindication now from having correctly spelled out that situation is bittersweet. Supposed leadership from GM didn't actually change the status quo. Something not dependent upon tax-credits still needs to be delivered.

Seeing Toyota have to deal with rhetoric for taking their time to do it right is annoying. How is rushing into a money-losing approach going to get dealers to embrace the idea of stocking & selling inventory that necessitates a subsidy? That never made any sense and GM's colossal screw up with Volt overwhelming concerns how terrible of a choice that was. GM violated basic business principles to push an expensive compact hatchback, something that stood no chance of actually appealing to their own Pickup & SUV wanting customers.

You know all too well that Toyota's effort to always focus on affordability and finding a way to spread their technology across the entire fleet at minimal cost has always been the better strategy for a legacy automaker. Is the effort to distribution a hybrid platform capable of plug easy augmentation to a wide variety of vehicles sizes & shapes prior to actually offering a plug that slow? Can you honestly claim that their long-term goal of achieving that diversity by 2020 was a waste of time & resources?

I'm tired of dealing with the nonsense of not taking market reach seriously. That smug from enthusiasts can finally end by us not feeding them with material like "*allude*" when you know quite well that wasn't the case. You are well aware of my background and my purpose.

3-23-2019 Breaking the Deadlock. I'm really starting to push now. There are several individuals who like to play the game. Hitting reset every time they begin to lose influence. They try to keep you from drawing conclusions from pushing a misleading narrative or raising doubt. I get really annoyed by the obvious efforts to divert discussions and the effort to repeat the same questions. They hope whomever challenges them won't have the ability to push back hard enough. I have earned the rank of a senior participant though. After having whether so many battles in the past, resulting in several wars being won, it's time I take advantage of that experience. Turns out, it's very difficult to argue with someone who has an extensive history to share that's so well summed up. I hadn't realized all the blogging would develop the skill to see past rhetoric so well. You learn to keep focus, regardless of how much of an influence the current hype is having. It all comes down to having established concise goals. That clarity is key... exactly like I theorized way back when... but since has been confirmed. Phew! This means I can come down rather intensely on particular individuals, intentionally making it personal. It works when you stay focused on why. It's not vengeance or malice. It's the effort to find allies. You don't try to destroy your enemy. You work to find compromise. Showing them a way forward can be that. Extending a hand to move in a direction unfamiliar, but with a shared objective, can be very effective. I intend to break the deadlock by showing force. Remember how effective that was ages ago, when I directly confronted a diesel antagonist?

3-23-2019 **No Spin.** This came from that antagonist who just kept asking the same question over and over again. Now, he's basically becoming a troll: "*We will have to wait till then to see what John's next spin will be.*" I'm not sure if he's just getting lazy or realizes there's a chance of getting called out. Eventually, others will notice the behavior pattern. That's why they try to put the attention back on you. Anywho, I responded to that with:

You know all too well I was correct about Two-Mode, correct about Volt-1, and correct about Volt-2. Each of those technologies had a fatal shortcoming... being too expensive. Each time the evidence became so abundant that their shortcoming could no longer be denied, something else came about to fill the void. Now for GM, that's Bolt.

In other words, there hasn't been any spin from me. It's the same old argument. I say the technology must be affordable, period. GM is the one providing spin. I could point out some old posts about me getting complaints for repeating the same old argument over and over and over again, like a broken record. You know that isn't necessary though. You too are well aware of my background and purpose.

I want a wide variety of affordable choices for consumers. They must be capable of competing directly with traditional vehicles, so those new clean & efficient choices can become the replacement. That means none of the activity so represents the change needed. It paves the way, but subsidized sales are sustainable... hence the concern about tax-credit dependency.

As for your obvious attempt to divert attention away from discussion of legacy automaker approach, that's disappointing. We need well informed people like you to help with the effort to get those traditional sellers (dealers) to embrace change they can actually influence. They won't ever have a business model like Tesla, so it makes no sense treating them that way. In other words, I reject your spin. Legacy automaker finances & distribution are quite different.

3-23-2019 **Common. Ordinary. Boring.** The transition from niche to ubiquitous is what early-adopters have a terrible time dealing with. Ironically, their exposure & understanding of the technology makes them blind to what mainstream consumer don't see. So neither group recognizes how each is interpreting the situation. What is obvious for the one is often be an unknown for the other. That's why a vehicle like Corolla is pretty much never mentioned by enthusiasts but is the first consideration for someone wandering around on the showroom looking for what to buy. There's the difference between want & need too, seen from perspective that are far from the same in any respect. This is why I face so many barriers getting those early-adopters to recognize what's important for an audience quiet unlike them. Often, they'll just dismiss what I say, claiming I've lost touch with reality. That's another irony, for me to be one of the few forum & blog posters who is more in touch with your typical shopper than any of their own peers online. They still don't realize that even just the basic act of posting participation sets them apart. It's why cars labeled as "*common*" or "*ordinary*" or "*boring*" get so little attention, despite being the top-sellers and the fundamental basis for business sustainability. That necessary profit comes from those vehicles, not the niche they endorse with such praise.

3-23-2019 **Already.** I was annoyed upon getting this: "*What will Toyota do when the \$4,500 federal credit goes away?*" It was a sign that he either wasn't paying attention or simply didn't care, since we had already addressed the topic multiple times. Well... there are some who remain clueless, not wanting to accept information. So, that's a possibility too. Whatever the case, I was annoyed but took the opportunity to explain yet again:

Toyota is doing it already. They are spreading their hybrid technology as widely as possible, striving to establish a customer base readily acceptable to change by offering a variety of affordable choices... each capable of offering a plug later. Making Prius into Prius PHV was basically just a matter of introducing that one-way clutch. We're about to see the same upgrade play out with Corolla PHV.

It's easy to see how RAV4, C-HR, Camry could all follow the same path. That's how successful economy-of-scale cost-reduction is achieved... exactly what's needed to overcome any type of subsidy... which Toyota has already demonstrated with the MSRP for Prius Prime.

The problem with your perspective is that you're treating the market of 2 years from now, when the tax-credits are used up... as if it is still 2018, not acknowledging how much change that's about to happen as a result of seeing so many new plug-ins on the road. It's that big curve upward we are about to hit in the product life-cycle that will introduce a market you are quite unfamiliar with. That's an exciting time to look forward to if you are **NOT** an early-adopter.

Remember that sales in high-volume to ordinary consumers are profoundly different. Far too many here assume mainstream appeal is just a matter of delivering enough capacity at a reasonable price... hence the technology being affordable. If it isn't, all those other purchase priorities people have can't also be delivered. Early-Adopters are willing to compromise. Buyers on the showroom floor are not... which is why Toyota is already working to deliver a variety of choices.

3-24-2019 **Spinning Stance.** The most common response to my posts has been to spin my stance. Someone will either twist what I say, take it out of context, or just totally make something up. I always wonder if that is intentional to provoke online activity or they simply aren't paying attention. For those troublemakers whom I have known years, it's especially bewildering. There are posts where I wonder if they make assumptions based what they can only remember in part or they are actually remembering someone else. That's why I'm taking the forceful stance now. Being very direct eliminates most of the uncertainty. We'll see if the nonsense continues or if I'm able to break the pattern. It stands a chance of progress forward. After all, the market itself is changing.

3-24-2019 **Antagonists.** There are some who are obvious trolls, more politely referred to as antagonists. You get the point. Their purpose is to provoke you to reply: *"I believe john's argument was that batteries are too expensive so small batteries will be better once tax credits end. Of course Nissan and Tesla have already proved this argument completely false."* Options about how to reply are limited. I chose my reply carefully:

You've know me for how many years? That has never been my stance. I have always said we need a variety of affordable choices. Not at any time have I stated a relational between PHEV & EV with respect to tax-credits.

As for Nissan & Tesla proving it, you've lost touch with the big picture... the market as a whole. There haven't been any non-subsidized sales yet. So far, all we have seen is early-adopters taking advantage of tax-credit opportunity. The stage where mainstream consumers make the choice on the showroom floor with traditional, PHEV, and EV all there as part of the decision with none getting special government incentive hasn't even begun yet.

PHEV will have a place for many, many years to come still. Our infrastructure (all locations: home, work, businesses, public locations, and roadways) is only in the earliest stages of building and becoming green for transportation. So, the very idea that all could be served in the near future by just EV isn't constructive in any manner.

It isn't just the expense of batteries either. There's the problem of production-capacity and energy-density as major holdbacks. Overcoming that still leaves us with the liquid-electrolyte limitation. It will all happen, but claiming *"completely false"* already is absurd. What has been proven is being at the *"lots of potential"* point with a great deal of effort required to achieve all those goals.

3-24-2019 **Continued Provokes.** He didn't let up: "*There is a good place for the <40 mile PHEV like the Prime, but these designs are better from the ground up. By the time Toyota gets its battery production together with Panasonic my guess is they will be able to produce 30 mile PHEVs with battery packs that are lighter, smaller, and cost less than the 25 mile one in the current Prime.*" It's interesting to read that, since arguments expire after awhile. You simply cannot use the same reason endlessly, especially when the circumstances change. In this case, the market is rapidly approaching the end of tax-credits... which will dramatically impact the situation. In fact, the death of Volt makes that blatantly obvious. Toyota clearly planned ahead. He just doesn't want to accept the evidence. So, he takes offense by trying to spin perception. I'll have none of that:

Use of "*from the ground up*" doesn't actually mean anything. People have come to recognize it as representing only a first-generation model. Why? Anything built upon with the original intent there from the start is dismissed. Again, why? Upgrades are an expectation with other technologies, why not with automotive design?

Looking at Prius, we see the design way back in 2003 offering up to 100 km/h travel in EV mode. It was pressed for power with battery-technology of the time; nonetheless, it was indeed built from the ground up. Potential from the system has always been limited that way. The most recent generation, we know as "*Prime*", was clearly it was configured to fit 4 stacks nicely inside the cargo area. The choice to add a 5th just prior to rollout for more range & power doesn't change the propulsion system. All it did was cause a loss of interior space.

Toyota's approach of a drop-in battery-pack means they will be able to take advantage of lighter, smaller, lower cost later. No where does it say they have committed to older cells. Newer will be used as the technology improves. Those cells will be arranged in the stacks to create battery-packs for newer models of Prime. Their design is already capable.

3-24-2019 **Yet Another.** The troublemakers are appearing in from all over. You can tell they fear what's to come a week from now: *"Toyota is not even in the game, for some reason....."* In his case, he has chosen to raise doubt. Attempting to get people to second-guess their conclusion is an act of desperation, especially at the last hour like this. But knowing this individual has been a particularly nasty Volt enthusiast who has gone out of his way to spread misconceptions, it was inevitable we'd have to deal with a return on the big Prius forum. With the 50% reduction of that tax-credit Volt was so heavily dependent upon about to become a reality, it's easy to see his motive to divert attention from GM back to Toyota. I wasn't about to let that happen:

What good came from the game GM played? Upon using up their allocation of tax-credits, nothing viable for the masses came about. They have an expensive plug-in hybrid that only appeals to enthusiasts.

Why would Toyota want to do the same? The choice for Toyota to refine their underlying electric-tech while waiting for battery cost to reach a tipping point sure makes a lot of sense. They are setting the stage for high-volume sales to a very wide audience while learning from real-world data they collect. That certainly sounds like a very good reason.

You mention Kia, Hyundai, and Nissan. Notice how none of them have anything in large quantity yet here. For that matter, how many have you ever even seen on the road? Do you consider the *"game"* they play better? If so, how?

Think about where we currently are on the product life-cycle curve for plug-in vehicles.

3-25-2019 **More Attacks.** This was quite predicable: *"Refine?? You mean like the cheap, inadequate TMS workaround that is in the Prime?"* I kept my reply to that short. There's no sense arguing with someone who simply doesn't care, but it can be helpful to lurkers now and the curious later to leave behind evidence explaining what the situation truly was at the time: Understanding the difference between want & need comes from seeking a balance. Your insistence upon the battery-pack requiring liquid-cooling, knowing it will never be DC fast-charged, shows a lack of understanding. Adding expense & complexity to a system that doesn't reveal the need makes no sense. Toyota's observation of real-world data from forced air-cooling will help identify what's truly necessary. It's ironic how some claim Toyota is unwilling to take risks, then turn a blind-eye to them when they do exactly that.

3-25-2019 Forcing Perspective. Rhetoric most common among those attempting to appear constructive comes in a form like that: *"Sure. Build all the PHEVs that you want. But don't pretend it is the fastest or only path to a highly electric future."* They are actually the ones who see the "fastest" and "only" perspective. It's called "projection" when someone accuses you of the very act they are guilty of. It's confirmation they recognize the problem, but mistakenly identify the wrong party of that act. I see it on a regular basis. Reading it gives me a bizarre feeling, every time. Most continue on forcing their message of reversed perspective without ever figuring out their mistake. You become familiar with their aviator after awhile. This is why I often end my response to them with a question: Automakers lived in the present for decades, promoting whatever was big at the moment. Now that there is a need to look forward, why must there be a comprehensive look to the long-term. You're setting a dangerous precedent. Think about how unrealistic that can be. Automakers can spin whatever future they want with no accountability... and some have already exploited that opportunity. We've seen things get very messy in the past. There's reason for caution. What do you really expect from an automaker touting a fully electric future, but still sells millions of guzzlers annually for years to come?

3-25-2019 Limited Perspective. That forcing of perspective can sometimes be broken by presenting options. People sometimes draw incorrect conclusions based upon assumptions due to lack of information. If they simply don't know to what degree something is available, they'll believe options are limited. I try my best to provide that missing information when I notice the problem. This caught my attention in that on-going rant: *"Yes, this makes it easy for the consumer. They can just at home, just using 110v overnight and they need no new infrastructure at all. If they forget to charge, no problem."* That overly simplistic response made me wonder if he just lacked a full understanding of potential. So, I pointed in out:

Evidence of the desire to upgrade after getting a taste of EV is absolutely overwhelming. Whether it is the want to recharge faster or simply the need to plug in a second vehicle in the household, there will be pressure which naturally occurs simply from that first PHEV purchase. The owner will seek options, discovering incentives from local electricity providers for them to use more electricity.

Keep in mind of the potential. SAE-J1772 can deliver a charge-rate as high as 19.2 kW. Most households, even with EVs already touting large battery-packs, don't have anywhere near the 100-amp dedicated service to support that currently. So, there will very likely be upgrades for everyone in the years to come anyway.

Toyota is well aware of this power to build a customer base. Their focus on reliability & affordability now makes sense. Higher capacity can follow without consequence of not being available now or even being promoted now. Upgrades are already an expectation. We have come to expect continued improvement.

Know your audience.

3-26-2019 **Push.** Bouncing between several different attacks all at the same time is interesting. I knew this day would come, when the panic from Volt enthusiasts would stir discussion about topics rarely addressed with anything more than just a brief mention: "*PHEVs do not ever, IMO, push that long term infrastructure...they kick that can down the road.*" That in particular caught my attention. It was an effort to spin perspective. That doesn't work when you've misidentified audience. He kept dwelling on the consumer. Overlooking another player involved is a surprise common problem. We see that all the time with respect to dealers. They are almost never treated as a customer to the automaker, even though that is exactly what they are. They choose how to stock & sell the product. That is a vital bit of knowledge to not notice. With regard to this topic today, it's the lack of recognition from whom the electricity for charging comes. Why would you equate infrastructure to an automaker? Since when are they expected to do things like influence the location & quantity of gas stations? In fact, that's an absurd idea to even suggest. Yet, that's exactly what is being forced. Ugh. I replied to that nonsense with: You're looking at it backward. Again, know your audience. There are electricity providers all around the country gearing up to do the push. As a PHEV owner, it's just a matter of taking them up on the upgrade opportunity. They want you to use more electricity, to get on their time-of-use programs, to want your next vehicle purchase to rely on electricity even more.

3-27-2019 **Push Back.** Eventually, he may catch on. Until then, it's dealing with stuff like this: "*Why would someone install a 19kw charger at home in order to take advantage of time-of-use rates? You are making no sense. The idea of charging at night is that you have 8 or 10 or more hours to charge. With an ~6kW L2 you can add enough miles for 95% of commuters.*" That brings us back to the limited perspective, conclusions drawn upon without having all the necessary information available. My guess is the idea never crossed his mind. Options that aren't ever thought of can sometimes result in a reconsideration when presented. I'm not sure that will work in this case. He seems dead set on incomplete facts being enough. Ugh. I pushed back anyway: You are repeating what I already pointed out, the rule-of-thumb: a 40-amp line will deliver 200 miles in 8 hours. You also sighted a situation when a person with the available capacity could take the most advantage of time-of-use rates. Think about this. It's mid-afternoon and you have a low battery. You want to avoid the dinner-time rate. The fastest charger possible is how you would achieve that. So what if a person has the ability to rapid recharge at home for opportunity charging but also overnight charges. You have the choice of when and how much. For that matter, you can even choose charging speed.

3-27-2019 **First Sighting.** I saw a 2019 mid-cycle refresh Prius this morning. It looked very new, no plates yet. That first sighting caught me by surprise. I hadn't heard much about shipments elsewhere yet. Living in the middle of the country, it's quite normal for reports from the coasts to become common before there's even a chance of it happening locally. So, I was happy to see the dealer-tag while driving by it parked on the road. With the market so screwy right now, it's difficult to set any type of expectations. Once the uncertainty of the tax-credit phaseout passes, then we should return to some sense of normal. For now, I'll just chalk this first sighting up as a moment to remember.

3-28-2019 **Reasons Behind The Slowness.** The discussion topic about EV acceptance & adoption on the big Prius forum has stirred quite a bit of participation. Here's my add to it:

It has been quite helpful to hear from the regular antagonists about EV adoption, especially upon the death of the biggest "*vaporware*" failure in the industry. Remember Volt? That promise of an efficient & affordable plug-in hybrid never materialized.

The biggest shortcoming was price. We were provided with a "*nicely under \$30,000*" target. It made a lot of sense why GM would set a goal like that. Supposedly, it would be achieved upon initial rollout. That didn't happen. We were told to be patient, the wait for gen-2 would address pricing. It was a let down for many, but fine. Unfortunately, the necessary cost reductions weren't taken seriously. That pricing never materialized... hence, the vaporware label... and the confirmation of price importance. Tax-Credit phaseout push so much pressure on that aspect of competition, the effort was abandoned. Volt production ended without a successor established.

Efficiency played an important role as well, but it was far more subtle. A system requiring less electricity to travel the same distance wouldn't require as large of a battery. That would contribute directly to a smaller, lighter, and less expensive pack. That would require reduce the time & electricity to recharge. It was a factor if design rarely focused upon. Importance of electricity consumption was just ignored. Displacement of gas got so much attention, concern for efficiency was recklessly treated as rhetoric without regard to source or quantity. It was evidence the situation would eventually become a clash of image verses truly being green.

Ultimate, it was the "*green*" messaging that caused Volt to be trapped in the early-adopter stage. Dealers had no interest in a "*EREV*" when no one knew what the heck that actually meant. Fights even among Volt enthusiasts made that marketing term a self-destructive concept. The definition continued to change, each time a new plug-in hybrid offering rolled out. That positioned Volt against the entire line of EV choices as well as all of the plug-in hybrids. No one ever really understood what purpose it served. Even the message from GM itself was bewildering. Volt wasn't the intended "*range anxiety*" solution as promised; rather, it was abandoned shortly after gen-2 rollout in favor of Bolt.

Everyone saw what was happening, but enthusiasts fought hard to evade addressing it. We witnessed propaganda efforts all over online to distract & mislead. How is that ever an effective means of promoting a technology? Needless to say, a massive amount of opportunity was missed as result. Nothing came about to help raise awareness about charging infrastructure. You'd think with that much attention and 150,000 vehicles sold, some message about plugging in would have come about.

Toyota saw this coming... as did I. We saw the value of simply continuing to study & refine while waiting for the GM disaster to play out would be a fruitful endeavor. Patience does have merit. Now, just 3 days before the 50% reduction of GM tax-credits and production of Volt having ended 6 weeks ago, there's a wide open field to play in. None of the other plug-in hybrids presented the unrealistic expectations hyped by GM and their fanboys. In fact, they were the ones who spread the "*slow*" narrative.

Stepping back to consider the bigger picture (the legacy automaker market as a whole), what reason is there to claim Toyota as being slow?

3-28-2019 **Distorting Purpose & Timeline.** That's what you do when things go horribly wrong. Here's the spin: "*Volt owners - jumping ship, consider the Chevy Bolt to be the Volt's successor. ie, a Bridge car. Isn't that what we keep saying? A plug-in is just a bridge before getting rid of the ice?*" Comments like that are often looked upon as damage-control. That outcome is clearly not what had been hoped for at this point in time. I responded to it with:

GM's fundamental problem with Volt was failing to attract its own loyal customers. Those who already owned a GM vehicle couldn't care less about a compact hatchback with a plug. They desired a SUV of some sort. That left it to attract only conquest sales, those early-adopters seeking opportunity in the form of incredibly low leases or a substantial tax-credit.

GM made that worse by listening to enthusiasts about how to make the next generation better. It was the classic "*Innovator's Dilemma*" business mistake playing out right before everyone's eye. They listened to the wrong people... hence asking "*Who?*" on a regular basis...which ultimately ended up becoming the lesson learned: "*Know your audience.*"

Volt being abandoned early in its product-cycle is a costly. No automaker ever plans an abrupt stop like that. Calling Bolt a successor makes that already troubled situation even worse. It suffers the same fundamental problem. GM's own loyal customers don't want a compact wagon, especially without tax-credit help.

Toyota gets routinely accused of resisting the EV market by "*kicking & screaming*". We know that's not true, since their push to phaseout traditional vehicles by offering a wide variety of compelling hybrids is on such a large scale. They are undeniably trying to change the status quo. For those watching carefully, they notice those doing damage-control for GM spinning that situation to draw attention away from GM not even going slow anymore. That previous progress has since come to a complete stop.

This discussion thread about EV adoption has been overlooking that history playing out at this very moment. Those reasons are far more important than quibbling about a past long ago or looking beyond the bridge. We must deal with what's unfolding right now.

- 3-29-2019** **Omitting Detail.** Reaction to my distortion callout didn't surprise me at all. It was a typical mislead by omitting detail: "*...but even if we look at recent sales - the Volt / Bolt (w/out the largest incentives any more) & Prime are all pretty close in sales.*" His attempt ultimately had an expectation of taking attention off of GM. I took the bait anyway, figuring his trolling had a motive of stirring discussion. So, asking his point may result in something to derive a construction exchange with. You never know, especially at such a critical junction. So close to that tax-credit reduction none of the Volt enthusiasts ever took seriously is a harsh reality none can escape. The nightmare they tried to dodge will smack them head on... production has already ended and the heavily depended upon subsidy is in the phaseout stage. I hit him with: Wow, that's a pretty lame attempt at whatever you're trying to convince us of. The incentives are still available for Volt & Bolt. That \$7,500 tax-credit doesn't get reduced until next month. So if anything, there should be a jump in sales for those wanting to take advantage of that final opportunity. As for attempting to compare a nationally available vehicle to one with almost non-existent inventory in the center of the country, that reveals the opposite of what was claimed. What was your point? We can speculate endlessly about GM's point, but it always comes down to wanting to out Prius, Prius... something that breaks the status quo... which didn't happen. Realistically, slow is just fine if it gets the job done. That's why it doesn't matter whatever each legacy automaker does, as long as they actually do something to get their own loyal customers to change.
- 3-29-2019** **Charger Upgrades.** This crazy moment in automotive history here isn't all about GM's fall and Tesla's aspiration. We often talk online about establishing infrastructure, but rarely is there mention of improving upon it. But now that so many years have passed since those original efforts began, it is time to address their progress... or lack thereof. In the case of where I park for work, there's very good news. 4 of the 6 chargers there (2 dual-plug units) lost communication with the network. I don't know the detail of what happened, but the decision was made to swap them out with new models. While at it, the 2 other units will be too. Both dated back to 2012. Only one L2 connection was available on each. But since they from long ago, each also had a L1 connection. Neither was ever used (as far as I know), but parking spots were allocated. So, they will now become L2. The newer duals will bump the count that can all L2 charge (usually a 208-volt commercial connection delivering up to 6.6 kW sustained) to 8 vehicles at the same time. That's a nice setup, especially when you consider the really nice location the chargers are at. Sometimes, you get really lucky.

3-30-2019 **Volt Epitaph.** There was a new topic posted on that old daily blog for Volt. It was an attempt to paint a rosy picture using this title: "*With Tax-Credit Cut Looming, GM Promises New Incentives for the Chevrolet Bolt*". I found it especially intriguing, since no other news source I had come across had made that claim. In fact, several of the green websites I frequent had posted quite the opposite topic. Those discussions were stirring quite a bit of participation too. I noted how the usual antagonists were almost entirely absent. They wanted nothing to do with such an obvious admission to mistakes made. I felt quite welcome to post an epitaph for Volt as a result, waiting until yesterday's stir had settled to post the following... on that daily blog, which even after a wait of 23 hours hadn't resulted in a single post:

Back in July 2013, the price of Volt was dropped by \$4,000 to help clear out the 2013 model-year pile up inventory. In August 2013, pricing of both the 2013 & upcoming 2014 model-years were dropped by an additional \$1,000. It was a strategy to stimulate the market. But having a new base-price of \$34,000, it was still far too expensive to be competitive without subsidies against traditional vehicles.

Back then, enthusiasts were confident the target of "*nicely under \$30,000*" could be achieved prior to tax-credit expiration. Many of the meritless claims about sales challenges were difficult to address; so much so, some of it became mindless rhetoric. That's what contributed heavily to mistakes made with the second-generation design. Those enthusiasts became the voice of misleading design suggestion.

Limited initial rollout of that next Volt and the reveal of Bolt prior to it were clues that something had seriously went wrong with the "*Game Changer*" plan GM had committed to. Sales remained a struggle and much greater investment was being made to traditional SUV offerings. As a result, enthusiasts turned a blind-eye to GM's fleet and directed focus entirely on the "*EV Market*" instead.

Now, with only 1 day remaining (0 in states that don't allow sales on Sunday) of the generous \$7,500 tax-credit, we see an abandonment of GM. There's simply nothing to draw attention anymore. Volt production has ended. There's no word whatsoever of an upcoming plug-in hybrid. And the price of Bolt simply isn't competitive with at \$32,870 (the \$36,620 MSRP minus \$3,750 tax-credit). If GM compensates with a \$3,750 price drop, how would that help? Sales will remain far below expectations for an ordinary profitable vehicle on the sales floor.

This outcome was predicted. Concern in the form of "*too little, too slowly*" was expressed countless times, only to be returned with an everything will be fine. GM's own loyal customers were never interested and enthusiasts are moving on to other automakers.

3-30-2019 Game Changer, part 1. My post from the night before was responded to with a link for this article: *"Better Late Than Never: Chevy Volt Sales Finally Hit 100,000 Mark"* It was from a Detroit publication in August 2016, a positive spin on Volt's history to help gen-2 rollout along as its first full year of nationwide availability was about to start. The prior was a strange mix of limited features and distribution to only select states. There was also the uncertainty surrounding gen-4 Prius rollout about to begin, followed by rollout of Bolt. It was an interesting time. This is the opening of that article I was about to comment on: *Chevrolet is marking an important milestone, General Motors' biggest brand taking an order for the 100,000th Volt plug-in hybrid-electric vehicle. The Chevy Volt has been one of the world's top-selling plug-based vehicles ever since its launch in December 2010, but tempering any celebration is the fact that the Volt hasn't come close to meeting the brand's once-ambitious sales targets. At one point, GM officials were hoping to deliver as many as 40,000 of the vehicles annually in the U.S. alone. "Not only is the Volt a class-creator, it serves as the foundation of a Chevrolet electric family that will soon add the first long-range, affordable EV available to customers across the U.S., the Chevrolet Bolt EV" said Steve Majoros, director of marketing Chevrolet Cars and Crossovers, in a statement. Few would argue with the fact that the original Chevy Volt was a game-changer.*

3-30-2019 Game Changer, part 1. This is the comment I posted in response to that *"Few would argue"* claim:

It was that sentence in the article's open which made this thread the one to stir the topic of GM's fall. Today is the very last day (for states that don't allow sales on Sunday) before the tax-credit for GM gets reduced by 50%.

Volt never actually changed the game. Now 6 weeks after its production ended, saying the status quo remains intact should be a statement made without contradiction. Sadly, we see GM's fleet flourishing with traditional SUV choices, including the newly introduced offerings: Trax & Blazer. Their concept of a plug-in hybrid died without a successor. Their contradictory shift to EV instead has floundered to compete. It's a disaster about to get worse.

The reason to bump this particular topic this way was to attract discussion about it. Sales are the measure of change. All we saw come from Volt was subsidized conquest and an impediment to other efforts. The natural progression for Prius to become more and more electrified became a confused message by those hoping to undermine Toyota's long-term effort to transform their entire fleet... the true game-changer.

It's time to argue. What should the next step for GM be to actually deliver something that changes the game?

3-31-2019 **Closure & Record.** I pointed that same epitaph on the big Prius forum. The introduction for it was as follows:

The point of stirring discussion here is both for closure and to leave a record with the hope of history not repeating, yet again. Awareness is key.

Sadly, most people are entirely oblivious to GM's first attempt to seize the efficiency market following their EV1 debacle. Those who know something likely have a distorted history of what actually happened, simply from only hearing about or remembering highlights. It's the detail that really makes a difference. Influences along the way are easy to overlook and dates are commonly incorrect. Lacking such information, those same mistakes can be repeated... and were, as I witnessed firsthand and had to deal with some rather hostile responses when pointing out the pattern recognition.

We saw that repetition with Volt. It was supposed to save GM from their sales disaster with Two-Mode, which ironically, actually had a plug-in prototype... the very solution they should have continued pursuing all along, something clearly needed from them now. Abandoning that technology for large guzzlers made no sense for an automaker who heavily favors SUV offerings; nonetheless, that happened anyway.

Since Volt is basically dead in every regard starting tomorrow, I posted an epitaph elsewhere yesterday, seeking feedback from that audience about what (if any) future the technology itself holds. That reflection of major past events started with the point when the sales struggle became undeniable.

3-31-2019 **Disruption.** Limited scope has become so pervasive, it's an everyday battle. Some have no clue they aren't seeing the market as a whole. For example, today I got: "*For the game changer, they are the only company in the world that has seriously disrupted the fossil fuel personal transportation paradigm.*" It was supposedly a summary of the industry, with Tesla as the "*disruption*" in the simplistic of terms. I disagreed with:

You're missing the bigger picture. It's is the same problem GM enthusiasts had. Watching Tesla support aim in the same direction should be reason for pause, a warning to be taken seriously. That's why I do so much to share history. We don't want a repeat of the same mistakes, yet again.

Volt was also a serious disruption. What it failed to do is the same thing there should be concern about with Tesla now. The influence didn't result in lasting change. Unless that disruption is permanent, people lose interest and move on.

GM failed because the "*know your audience*" suggestion was dismissed. They didn't acknowledge the reality that DEALERS were their customer, not CONSUMERS. That fundamental misunderstanding doomed their cumbersome & confusing technology to challenges unlikely to be overcome. And sure enough, lack of stirring interest to stock & sell that inventory contributed significantly to Volt's death.

In fact, this lesson is a big reason why Toyota is taking its time with the rollout of Prius Prime. Why push a technology with great potential in a market unwilling to accept change yet? Putting that kind of hope on dealers somewhat reluctant to even emphasize hybrid models of Camry, Corolla, and Rav4 simply isn't realistic. Waiting doesn't result in much penalty. Just look at the industry as a whole for that reality check... the bigger picture.

In other words, disruption isn't as simple as it seems.

3-31-2019 **Clueless.** He refused to accept my disagreement: "*Volt was never a serious disruption, and nothing even close to what Tesla has done and is doing.*" It brought me back to the beginning of that GM disaster, remembering how clueless those supporters were. It's hard to believe some stuck with it for over an entire decade... only to discover in the end they had made a fundamental mistake... the same mistake this individual is making now. It's bizarre how simply not understanding what the outcome should be messes how everything plays out; yet, few take the time initially to verify facts. It starts with an assumption, then builds to hype on such a scale they completely lose touch. Seeing it on a regular basis make it easy to recognize. Clearly, they don't pay attention. Oh well, it's not like I don't keep pointing out my observations and ask questions:

There it is, the pattern repeating. That dismissal of the past and looking forward with rose-colored glasses is exactly what I recognized back then... and now see again. The easy confirm is an assessment of the market requiring an assumption of mainstream reaction mimicking subsidized sales to early-adopters. Lack of any clear direction forward validates it.

For Volt, it was the obsession with speed & power. We kept hearing over and over and over again how that technology was "*vastly superior*" even though there was an obvious dismissal of both other purchase priorities and business objectives. Enthusiasts turned a blind-eye and convinced GM to do the same.

All you have to do is ask what the goals are. Lack of clarity is the first red flag. Efforts to evade is a dead giveaway. Seeing an effort to direct focus away from legacy automakers by vaguely claiming Tesla is responsible for changing something but not stating what or how is good reason to call for clarification.

What specific expectations are you trying to set? What should the goals be?

4-01-2019 **Nothing Constructive.** The start of a new stage, one that's difficult to accept, is unfolding right before our eyes. That misguided tax-credit with unintended consequences has triggered phaseout and the 50% reduction is in place. GM exploited the opportunity with Volt and now that supposed "*vastly superior*" technology is facing the reality of not actually being the leader it was portrayed to be. It clearly wasn't a "*game changer*" as hoped. That's very, very easy to see now. People are buying more guzzlers than ever. GM is thriving on their SUV sales, having introduced 2 new vehicle choices to their showroom floor. The outcome federal subsidized purchase was nothing. That technology just died. It had a focus so heavy on niche preference, there wasn't anything to appeal to ordinary consumers. GM's own loyal customers replaced their aged traditional vehicle with a brand new guzzler. Sadly, posts online don't want to address that outcome. I'm not seeing anything constructive. Today clearly marks the end to that particular rhetoric. To think, we had to endure all that nonsense about how GM's plug-in hybrid technology... with that meaningless "*EREV*" label... for it to result in a morbid fizzle. The worse nightmare of those terrible antagonists is playing out today. This is an intriguing time to witness.

4-02-2019 Reality. That reputation of "*over promise, under deliver*" has moved to a whole new level of disappointment. Enthusiasts of Volt who had moved onto Bolt were anticipating an 11th hour announcement. They dismissed warnings of GM ambiguity, a problem arising from intentionally vague press-releases. That practice of lacking clarity allowed the automaker to mislead about intentions and evade being held accountable later. That was definitely the case this time. Supposedly their announcement from 1.5 years ago with a deadline of yesterday was about here, this market in the United States. It was implied that the new vehicles would be something those reading the press-release would actually be able to purchase. Now, we are being told that was just to keep us informed about activity overall, that we may never get some of the GM vehicles offering elsewhere in the world. That worldwide perspective is crushed when hope of even an export the other direction becomes impossible. Nothing will be available here, end of story. It's a bitter pill for some to swallow. Being let down on that scale is going to have some interesting fallout. I have no idea what to expect. I suspect silence at first, denial so bad, no one wants to talk about it. That may result in new hope & hype, the way Two-Mode's collapse resulted in Volt... or perhaps not. GM may have burned too many bridges. The automakers heralded as legacy leader just 6 months ago may be facing abandonment, with literally nothing of appeal. It's not easy being green, especially when you don't heed warnings about the challenges to come. I summed up the situation this way: Try some prescriptive, something actually appealing for this market. It's time for a dose of cold, hard reality. GM promised we would be told about 2 new vehicles based on Bolt for this market within the next 18 months. That was 18 months and 1 day ago. 25 miles is amazing compared to the nothing we got from GM. All they did was kill Volt without a successor.

4-02-2019 Toyota Patents. A lesson learned long ago, forgotten by pretty much everyone, is the necessity of having allies. In fact, that wisdom is what compelled me to seek partnership with those supporting Ford and GM. With recognition of shared purpose, you can advance beyond the enthusiast market. That's the key to extending reach outside of a niche. It was quite ironic when I pointed out such a requirement to the "*vastly superior*" attitudes for Volt and they pushed even harder to resist exactly that. Today, we got an announcement from Toyota that a large collection of their hybrid-related patents would be offered for use royalty free. Obviously, there's a financial benefit to the spreading of technology when your push effort is to make it ubiquitous. This is especially true when the underlying control is retained in an open manner. Think of other standards, like USB and JPG. They have become open use, but how they implementation is applied remains that of individual businesses. They simply share the technology without restraint to approach. Toyota will be the owner, but does that matter? It ensures a strong standard, like Apple did for decades. Heck, it's what Tesla hoped to achieve in some manner with their superchargers. Some sort of share is how you advance to whatever comes next, as well as growing the market itself. This is a clear effort to move forward; however, there's no good way to really predict how the rest of the industry will respond. We'll see.

- 4-03-2019 Promises.** There are some voices of reason beginning to emerge: *"GM isn't the only company to make promises on press releases and hope people forget about them when they come to fruition."* Most will never remember the big promise Ford made about changing their fleet, the big promise to embrace hybrids. When the deadline was reached, overall efficiency had actually gone backward. MPG averages were worse. All the hype we are getting from VW now resembles that meritless hype. The potential seems real, based on technology available. It's quite feasible what's being promised. But the automaker making those assertions is not one to trust. So what if Toyota gives the impression of moving slowly? At least you know there is movement forward on a massive scale. We see little with regard to changing the status quo from others. Each rollout is basically just a demonstration of potential, not any actual progress forward... since the back end never changes. Basically, it can be thought of as a dog on a rope. The stake never moves. All we get is really loud barking at times and an impressive display of running & jumping. The dog never gets anywhere. Watching from the sidewalk, nothing ever happens for you... from automakers like GM. Considering a dog analogy about Toyota, it is instead on a leash, the owner walks right by you with a pleasant welcome, and you are offered the opportunity to pet. That's quite a difference.
- 4-03-2019 Expected Announcements.** Just like Toyota, we see that Ford was waiting for GM to fall before making any type of statement. It makes sense. Why risk getting pulled into what could be a massive wake from that sinking ship? I didn't realize the wait would be so brief for expected announcements. My anticipation was subdued, a sense of patience strengthened by the knowledge change was inevitable. The industry was an entity with a chronic impediment about to become just a really bad memory. Sure enough, it happened. Today brought about a reveal of the upcoming new hybrids we've known about for quite awhile, but never had any detail. There was only a sense that Ford was working on big change. That is indeed the case. We learned there will be an all new Escape (known as "Kuga" in Europe) which will be offered in mild, full, and plug-in hybrid models. That's exciting news. The plug-in battery-pack is expected to deliver 50 km (31 miles) of EV range from it's 14.4 kWh capacity. Not much else was revealed, though the addition of charge-mode was nice to hear about. Ford is finally making its move... or at least announcing production intentions. It's far more than the nothing we have heard from GM. To think, the technology in Volt could have been rolled out years ago to Equinox or Trax. Instead, there was just a lot of barking. Ugh.
- 4-03-2019 Denial.** Sure enough, someone stated exactly what I had just blogged: *"I still can't believe that GM has had this technology for a DECADE and is going to let Ford beat them to market? Crazy."* I knew that would happen, but wondered how long it would take. Turns out, things can happen very fast. All those claims of leadership have fallen apart and the dogs barking suddenly gone. That vanish effect is remarkable. When trying to be constructive, you get attacked relentlessly from those blinded by hope. It goes on for what seems an eternity. Day after day, they endorse a technology with questionable potential. Nothing ever happens though. You express out *"too little, too slowly"* concern and get attacked for your trouble. Then one day, those in deep denial just vanish. Not a single Volt enthusiast from that nasty daily blog can be found anymore. It's almost surreal. Their absence isn't the slightest bit missed though. Ford is capitalizing on that predicted outcome. Reaction to their announcements have been very well received. News like that is a very, very welcome change.

4-04-2019 **Hybrids.** Speaking of denial, this particular comment caught my eye: "*I can't see any way but down for Toyota sales if they carry on like this.*" It's that one-size-fits-all mentality having transform to a narrative passed along so well, most have completely lost perspective. The technology used for hybrids has become so well proven, it is dismissed as obsolete. That's an interesting place to be when you realize that's confirmation of having arrived at a mature status. It works well... so well, it isn't given any thought anymore. That's great! The advance of combustion engines reaching that point took how long? Remember how unreliable they were in your youth? Look at how that approach become so well accepted, we think nothing of using the technology. It's everywhere and works remarkably well. That's exactly where Toyota strived to get hybrids. Unfortunately, the rest of the industry wasn't able get to the same point... hence the absence of royalties now. The lifting of that aspect of a patent means opportunity for those interested. Not everyone will want to embrace that level of diversity though. Simply offering Traditional and EV choices may be a logistical challenge maxing out their resources. The idea of hybrid or plug-in hybrid models added to the mix is simply too much for those unable to take on that much variety... so, they dismiss it as realistic. That presents serious challenge for legacy adaptation to a world necessitating change. Taking a major step all at once means taking on a whole lot of risk, something automakers will find very difficult for their dealers to accept. That's a very real problem. Seeing hybrids bridge the gap was a realistic solution many automakers decided to avoid. Not embracing the obvious next step could have serious consequences. How will they address the fear? I pointed out the situation by asking a loaded question: The one-solution-only narrative from those afraid to address diversity is falling apart. Show us proof that people beyond the group-think here actually care. It simply makes no sense to not offer a variety of choices. When you see a truck commercial, do you really believe that automaker is sending a message that is all they care about?

4-05-2019 **Ramblings About PHEV.** Discussions of plug-in hybrids are rapidly growing. Despite limited availability of Prius Prime still, it's a sales leader in the category. That's getting attention of everyone. More are looking at the technology as something to co-exist with EV. That narrative from Volt enthusiasts... which is now easy to see as a damage-control effort... was that PHEV was only a bridge to be abandoned as quickly as possible. It's the their way of explaining GM losses. So much was gambled upon a niche offering somehow becoming a strong seller. It never made any sense. Although that helped to prove the technology viable, the approach itself was terrible. More finally see that. It's a bittersweet reality though. Hope was put upon cost falling far faster than it actually did. Hope was also put on the belief that an automaker staunchly endorsing SUV growth would somehow embrace a compact hatchback without sacrificing either of their premiere sport cars.... Camaro or Corvette. It never made any sense. Volt was doomed from the start... hence "*vaporware*" concerns. That lack of desire to truly commit made the lofty goals difficult to accept. So now, after all that time wasted and so much intentional diversion, we are finally getting so proper attention. Phew! That was a painful journey.

4-06-2019 **More Ramblings.** This was a collection of thoughts I ended up posting in one of those recent discussions about PHEV: In terms of appealing to both the wallet of consumers and the inventory of dealers, much lower MSRP is key. That vital purchase-priority is how automakers will be able to reach beyond the early-adopter stage (tax-credits available) to achieve sustainable high-volume sales for a profit. Toyota has that aspect nailed. Transitioning from Prius from no plug to plug would inevitably cause a disturbance in demand. The important part is that it's happening, not the means it took to get there. Keep the goal in mind. Toyota is pushing to electrify without causing chaos for their dealers.

4-06-2019 **Doing It Right.** There's a lot of rhetoric still being stirred. Expiration of tax-credits for GM resulted in the disaster predicted an entire decade ago. There was a dependence on subsidies to such a degree, the technology could not survive without. And sure enough, that's exactly what happened with Volt. That concern for "*too little, too slowly*" was dead on. The situation wasn't taken seriously. All those hostile responses, attacking the messenger relentlessly, become a collateral waste. Now, it's time to finally address the problem. Some are trying. I chimed in today with:

The tax-credit didn't include criteria requiring the vehicle to be something that would actually force phaseout of that automakers traditional vehicles. In other words, there was no clear goal. It was just a vague endorsement of electrification.

We all witnessed GM take advantage of that legislative shortcoming. Volt was not a vehicle targeting its own loyal customers. In fact, GM eventually confirmed they had only delivered a niche for conquest. Had there been intent to change the status quo, those 200K sales would have had an end result of a technology the automaker could utilize for profitable sales throughout their fleet.

This is why a "*STAGE 2*" recommendation is the next move our government should take. To qualify for a secondary round of tax-credits, the automaker must achieve more demanding criteria.

For example, GM clearly didn't care about making their choices affordable. Had they, there would have been an effort to deliver a second model of Volt or Bolt that actually had an affordably sized battery-pack, rather than trying to persuade us that more range is truly necessary. The narrative was spun that smaller capacity was seen as the automaker being a laggard... and much of the EV community got suckered into believing it.

Taking the time to do it right, by delivering a technology which could easily be spread to a variety of vehicle choices in a profitable manner, should be rewarded. Carelessly offering more subsidies without forcing the automaker to reap the appeal of their own guzzlers in the process would be such a waste.

4-07-2019 **Toyota vs Tesla.** The mighty GM has fallen so fast, it's like dieselgate was to VW. All of sudden, no one cares what happens to GM. It will be interesting to see what attention Ford gets in the meantime, since they won't have anything to actually purchase for awhile. Their new offerings are 2020 models. Toyota on the other hand is aggressively working to get their hybrid fleet in place. I rarely mention Avalon hybrid & Highlander hybrid or any of the Lexus hybrids. Already having them in place means focus on the premiere 5 offerings is realistic. That long-term goal of offering the choice across their product-line is progressing well. That schedule played out nicely. So, it should be undeniable Toyota carefully plans out their moves well in advance. That's a fantastic example of preparing the stage for significant change. Anywho, there are some well known antagonists who strongly disagree... which made the topic of Toyota verses Tesla an irresistible draw. I posted the following right away, quite curious how it will be responded to:

Comparing Toyota to Tesla doesn't really tell us much. One is a well funded start-up that made the tax-credit opportunity an impressive means of gaining an audience. The other is a legacy seller required to take a dramatically different path & timeline to get to the same destination. Think about how an entire fleet can be converted, offering a wide range of choices.

Comparing Toyota to GM is far more telling and clearly the constructive means of judging that market they share. Toyota watched GM squander their tax-credits, wasting precious opportunity in conquest rather than focusing on their own customers. That resulted in a disastrous dependency on government subsidy. Volt died as a result without a successor established.

It simply makes no sense for Toyota to not put a lot of effort toward diversification while they wait for the market to settle. So, that's exactly what they are doing. RAV4 hybrid, Corolla hybrid, Camry hybrid, C-HR hybrid are all well positioned for plug augmentation. Each can undergo that upgrade and still be profitable. Isn't that the point?

4-07-2019 **Some Perspective.** This new chapter we have just begun requires reminders that the past is the past. Some are treating the "*game*" as if nothing has changed. It's the drawing a conclusion problem. They don't want to start over with findings, even though so much is now different. That's why knowing audience is so important. Toyota's newest hybrid offerings are now targeted at the same consumers as in the past. So, treating them that way isn't constructive. In fact, it could be considered misleading if you try. I provided some information to hopefully enlighten those who actually take the time to consider it: Look at the sales of RAV4 hybrid and Corolla hybrid for some perspective. Toyota simply sells them with a brief mention that a hybrid model is also available. The subtle approach is working well too, just enough to point out there's another choice offered. The meaning & reputation of "*hybrid*" from Toyota is so well established, the idea of inducing fear or uncertainty doesn't hold much... if any... merit anymore. It's become so ubiquitous, Toyota will be able to quietly phaseout their traditional models without disruption to their true customers... dealers who stock & sale that inventory. In other words, look beyond the misconceptions fading away, toward the plan to get the entire fleet electrified in some manner. Hybrids like RAV4 and Corolla are key to making that happen. Reaching mainstream consumers is far more difficult than the early-adopter (tax-credit dependent) market most are still focusing on.

- 4-07-2019** **Omission Misleading.** We've seen this before, lumping everything into all one category: "*Hybrids are losing share to BEVs...*" I remember having to argue "*not the same*" countless times about hybrids, but that was more of a technical/operational topic. In this case, it's whether or not the hybrid has a plug... which makes a profound difference. Yet, that is blown off as inconsequential. Grrr. Not wanting to listen is bad enough. But this forced narrative is frustrating. I made that clear by posting information to show everyone else his intent to mislead: Omitting the category of plug-in hybrids create a perception that doesn't reflect the actual market. In other words, it endorses the narrative of polarization. In reality, the PHEV is a great bridge to EV that will co-exist for many, many years to come. In fact, we're seeing strong growth potential for them. Those commuting to work in a Prius Prime enjoy the full EV experience. So what if the engine gets used from time to time. A technology which dramatically reduces oil consumption without disruption to consumer or business is a win-win outcome right away. The fact that it also sets the stage for more EV later is an extra win. It's ironic how some portray "*disruption*" as the desired state right now without taking into consideration the negative impact that would have to the current market. We don't want to encourage that by sending the message of it being the desired immediate state. Rapid transition away from traditional vehicles won't happen if EV is the only choice available.
- 4-07-2019** **Disagree.** I found the response to my post rather amusing. He disagreed. That's all I got, a contradictory stance without anything else. That total absence of any substance made my reply quite simple: You cannot disagree without stating a position of your own. A statement of "*continually improving*" doesn't actually tell us anything. Being vague about what you expect to happen leaves a massive gap of uncertainty. Toyota sells over 10 million new vehicles every year.
- 4-07-2019** **Osborne Effect.** Most discussions don't take the bigger picture into consideration. Arguments are worse, forcing the scope to just a single vehicle within a specific span of time. There is some change though. The recent stir from tax-credit loss is breaking the grip on narratives. We don't get much for answers though... not even speculation anymore. The fallout is rather obvious. So, I just keep posting information to keep everyone aware of the situation and asking about what comes next: Volt was an expensive compact hatchback. With Trax, Equinox, Blazer, and Traverse all starting at prices under \$30K, there was simply no possibility of overlap for GM post tax-credit availability. They would remain mutually exclusive. Any announcement of a plug-in hybrid SUV though, even at a more expensive price, would get their customers to take notice. They are willing to pay extra for the pointlessly large vehicle. They would delay their purchase for that choice. Sales would drop in the meantime. At least with Toyota, they are already offering a 219 hp SUV hybrid that delivers 40 MPG. Build up of its reputation, combined with the proven reliability of what the "*Prime*" model of Prius is establishing, makes the choice of a plug-in model much easier to accommodate. It's not a profound redesign like an EV requires. Toyota's design only requires the addition of a one-way along with an increase of battery-capacity and the plug itself. That's it. Having a clear path to the future is vital. Detriment of the Osborne effect is something to take very seriously. How will the other legacy automakers, like GM, handle that situation?

4-07-2019 **Disappointment.** Whenever an argument goes bad or the poster gets called out for misleading, the response ultimately becomes a pivot. We've seen the antagonist change the subject to hydrogen and fuel-cells. It's happened so many times, it's basically pointless. The act of trying to divert attention has become even more obvious with the debate of tax-credits becoming so intense. You know they are desperate when they attempt to treat them as the same. They have virtually nothing in common. The timeline & objectives are so different, it makes no sense in any type of comparison. But being objective is not how online exchanges work. They hit hard & fast, hoping for reward from being quick & clever... rather than thinking things out and providing detail to support the claim. Oh well, that's how it goes. Fortunately, the lack of critical thinking on their part ultimately catches them in the end. We saw that with the extremely drawn out "*vastly superior*" hype for Volt. We'll see more of the same from others later. Some people never learn. I try to provide guidance though, sharing wisdom with the hope some will take it into consideration: Fuel-Cell will co-exist with EV, a reality that some simply refuse to accept. With both, there are applications which it makes sense and applications it does not. Starting with personal vehicles is the easiest and most flexible way to evolve the technology, in addition to having a wider source of real-world data to collect from. It wouldn't be as effective starting with commercial vehicles. Just look at Tesla, who also started with personal vehicles. In the meantime, refinements to electric drive benefit both in the long-term. Heck, we have even seen the tech trickle down to Prius already. Basically, the reason there's so much resentment toward Toyota is a combined lack of patience and the mentality that one solution must fit all. It's a recipe for disappointment.

4-08-2019 **Damage.** It is interesting how some double-standards never get challenged. Whether there is a true similarity or not, the choice to disregard without consideration is obvious. For example: "*When they finally produce an EV, I will remember the damage to the BEV transition and avoid buying or leasing their vehicles.*" This is where knowing your audience pays off. First, it is basically pointless arguing with someone who's poorly informed. Second, understand that anything they argue in third-person will likely not come to fruition anyway. It's that old idiom of "*garbage in, garbage out*". If what they are claiming has weak or no evidence supporting it, odds are quite good their prediction will be inaccurate. We've seen that outcome far too many times now. Noticing that pattern is easy. I don't even have to provide an analogy anymore. I have the real-thing to sight as an example now: So all the "*range anxiety*" campaigning from GM, their anti-EV efforts to promote Volt didn't cause damage? Realistically, GM caused so much harm to the plug-in hybrid market, you have to question the impact it had to EV. Think about the confusing & contradictory messages they sent. Now consider how there has been basically zero influence on mainstream consumers. Those ordinary showroom shoppers that most legacy automakers depend upon for business sustaining profit won't know of this history playing out now. For that matter, they have an expectation of continuous improvement anyway. Look at the studies about consumer awareness. They overwhelmingly confirm the point-in-time advertisements are limited scope and have a very small influence on future sales. There are much bigger issues... like bankruptcies & safety... that people pay attention to.

- 4-08-2019** **The "Behind" Narrative.** We haven't even emerged from the early-adopter yet and we are still far from a tipping point. So, the attitude toward Toyota doesn't hold much merit. Pointing that out is... well, pointless. All you get in return is: "*The idea that they can "leap" into BEV is foolish.*" They see the current narrative of being "*behind*" isn't working, so there's a re-emergence of the leap-frog mentality again. Rather than focusing on mainstream buyers, it's always that attitude of more. Faster, further, and fiercer is that same old push we got from enthusiasts long before the emission & efficiency revolution began. Simply offering something modest & affordable is so unacceptable, all you get is a maniacal response. Returning your attempt at constructive discussion with such callous disdain is quite telling. Some people just plain don't care. That's why it can be best to keep replies to that short & revealing, as I did today: Prius Prime already delivers a massive amount of real-world data, clearly showing how to best squeeze out speed (84 mph) and power from a smaller battery-pack. Mirai already delivers a massive amount of real-world data, clearly showing how to best squeeze an EV drive from a 113 kW (152 hp) electric traction-motor.
- 4-08-2019** **Uncaring Attitude.** From time to time, you'll encounter someone who outright lies. In this case, it was so untrue, that quote isn't worth including. They aren't worth that. I will post my response to the desperation to undermine: Greenwash at it's best, just making stuff up that can easily be disproven. Ugh. As for protecting Toyota, against what? All this early-adopter bickering is simply an effort to divert attention away from the struggle to advance beyond the subsidy-dependent stage. The supposedly "*vastly superior*" Volt wasn't able achieve any type of volume sales, the obvious necessity for growth beyond being stuck in a niche. Hope that speed & power would appeal to the masses failed. So what, move on. Focus on another priority instead. The obvious is that target GM set all those years ago, back when Volt was first being developed... a price "*nicely under \$30,000*". Attacking Toyota for having focused on price from the start is pretty bad, but to mislead about the other development Toyota is also pursuing at the same time reveals an effort to undermine. Notice how most here are fiercely against Mirai but absolutely refuse to acknowledge the 152 horsepower EV drive it provides? That's because they fear the same setup could be delivered in a future electric-only model of Prius. Think about what that sales scorecard really tells us about the uphill battle legacy automakers still face. Shooting the messenger is an act of denial.

4-09-2019 **Online Death.** All posting activity for that old daily blog halted a week and a half ago. It was quite abrupt. The only posters left were the antagonists looking for trouble to stir. I watched as a lurker, wondering what they would come up with undeterred. Without an audience though, that was going nowhere. Topics weren't about Volt anymore anyway. It was just random content at random intervals. A new discussion finally popped up, it was about GM's fate with the tax-credit cut looming and supposed promises of what was to come. My post to that has been in a "*waiting for moderation*" status ever since. Clearly, the website is advancing its prolonged death. Online entities like this can persist for a long time though, even with the homepage feed being abandoned over a year ago and now the blogging no longer allowing posts. There's a small forum there that never really caught on. The old-school format of daily blogging with an anonymous avatar and no accountability beyond just a few days, this death was a long time coming. Reputable websites wishing to retain any type of integrity stopping allowing such activity awhile ago. This one simply lived on because it was an inexpensive branch of a much larger parent entity that would just repost the same content. Becoming a source for fake news was what convinced many to leave on their own. They didn't want to be associated with greenwashing that's so obvious to recognize now. Back in its day though, most didn't have a clue they were contributing to an effort to mislead. They became enablers and didn't even realize the greenwash endorsement they were contributing to. I'm sure glad that ugly chapter in emission & efficiency history is finally over. What a relief!

4-10-2019 **New Tax-Credits.** Efforts continue for some type of renewal. I don't see how something so vague, counter to the rollback efforts of this administration, could ever stand a chance of getting approval... or even recognition. There are some who keep trying. In the meantime, I keep pushing for improvement. New tax-credits should come with improved requirements, as I stated today: It's the response that's flawed. Discussing the point of tax-credits is far more effective than name calling. Each automaker was given an allocation to come up with a means of making their product reach a state that where subsidies were no longer needed. Extending poorly written legislation isn't a good idea. Requirements to be eligible for the tax-credit should be addressed. In the past, they were exploited because the goal was so vague. Why would we want to renew that? Eligibility for the additional quantity shouldn't just be based on participation alone. There should be qualification spelled out. In other competitions you must qualify. That next level of subsidies should be earned. Reward those that push hard to actually reach ordinary consumers.

4-10-2019 **Growing Trouble.** Watching the greenwash grow worse is troubling. His simple-minded view of the world, clearly expressed in his abundant very short posts, resembles that of a troll now. It was just annoying in the past, making constructive posts difficult to find. You know, just innocently diluting content and taking attention away from those who usually don't participate much. Anywho, today it was this: *"I would prefer to see one total number of credits, and first come first serve, instead of wasting 200,000 each on mfgs that don't care, or may show up some time in the future."* That was frustrating to read, but understandable how someone could take that stance. The sentence that followed, concluding his statement, was not: *"But this is better than nothing."* When some posts that often, yet claims to not know of any alternative, it's the sign of not even trying. He's just there to give himself some sense of purpose. Really annoyed, I fired back with: Advocating for a rush to market, rather than show support for taking time to do it right... Ugh. It's really unfortunate that narrative of "faster is better" has penetrated our society so much, most people don't even realize there is a worthy alternative available. Other markets are aware; sadly, we still haven't learned that yet. Think about the example no can deny anymore, Volt. That turned out to be a huge waste. Why invest so much toward plug-in hybrid technology only to abandon it entirely midway through its second generation? GM didn't care enough to implement what they originally pursued, with the aid of that subsidy money, on a platform their own customers would be interested in. Punishing automakers who avoid rhetoric and take some time to rollout something with wider appeal and greater potential in the future is quite backward. Allowing that to go unchallenged is a terrible next step. Your preference has been called out. What do you now suggest instead?

4-11-2019 **Round Two.** Talk of an extension of the tax-credit for plug-in vehicles is heating up. There have been several, but this newest one seems to be drawing more attention than the others. It's not because there's anything impressive about the proposal. It's simply the only one with one Republican and one Democrat. That's all. No committee. No well thought out plan. Nothing more than just a suggestion to extend from a representative of each side. With such a weak approach, it's no surprise the rhetoric has stirred. We almost immediately fell into that same old nonsense again. I sounded off about it, which should be no surprise: It's the response that's flawed. Discussing the point of tax-credits is far more effective than name calling. Each automaker was given an allocation to come up with a means of making their product reach a state that where subsidies were no longer needed. Extending poorly written legislation isn't a good idea. Requirements to be eligible for the tax-credit should be addressed. In the past, they were exploited because the goal was so vague. Why would we want to renew that? Eligibility for the additional quantity shouldn't just be based on participation alone. There should be qualification spelled out. In other competitions you must qualify. That next level of subsidies should be earned. Reward those that push hard to actually reach ordinary consumers.

- 4-11-2019** **Stage Two.** At least I'm getting some kind of dialog: "*So would a car that hundreds of thousands pre-order without seeing it qualify as having appeal? What is your criteria?*" It's really unfortunate though that after so many years, all that comes from this topic is a generic question. Never really giving the topic any thought is no surprise. Many make assumptions without bothering to consider anything beyond a basic anecdotal observation... hence the advice to know your audience. Somewhat annoyed, while at the same time a little encouraged, I posted a lead into my stage-two suggestion: This is basic economics, the 101 first-day intro stuff. Toyota sells over 10 million vehicles annually. Those subsidized sales of "*hundreds of thousands*" only equates to less the 4% of their production alone. Worldwide, the total comes to almost 60 million. That perspective clearly shows us the initial sales are only low-hanging fruit... especially when you try to consider what they would have been without tax-credits through legacy channels.
- 4-11-2019** **Progress?** I'm not sure how well that went. This was the response after a number of short exchanges: "*Define ordinary.*" Not recognizing how early-adopters differ from ordinary consumers is troubling. You'd think that would be obvious, especially when there's a tax-credit involved. My guess is some people never really give the process of purchasing a vehicle much thought. So, you have to start at the beginning and see how productive some exchanges are. Perhaps I'll make some progress with this: That also is basic economics. It's whatever represents a majority of customers. In this case, that's people who go to the dealership of their favorite brand and simply just shop around. They have a general idea what they would like and want if from the source they've grown to trust. Looking at inventory & sales numbers, it's easy to see the outcome. Whatever plug-in is offered should target that same pattern. This is why each automaker was given the discretion of how their tax-credit allocation could be used.
- 4-11-2019** **No Cap.** In the middle of my attempt to invoke some critical thinking, a well known troll jumped into the topic and posted: "*There shouldn't be a cap. Just a set date on when the incentive starts declining for everyone.*" It was only a matter of time before that happened. Those mindless, vague suggestions only serve to stir trouble. It is especially bad when the individual knows the reasons why such a generalized approach is a bad idea. But that is how he provokes posts and fulfills his need for attention. That's unfortunate. Oh well, at least it gives me a chance to slip in a little background information: Turn a blind-eye to what has already played out and just allow the exploit of tax-credits to continue. Ugh. We all witnessed GM miss opportunity after opportunity. Rather than using the knowledge & experience they gained from subsidy aided sales of Volt by rolling out that technology to vehicle types & styles their own loyal customers would prefer, it was wasted on appealing to enthusiasts. That lack of effort to actually change what legacy automakers sell should not be encouraged and you know it.

- 4-11-2019** **Understanding Purpose.** This could be promising: "*Without specifically designing and picking winners it allows a diversity of solutions to be tried...*" It shows an effort to recognize need. The problem is, it doesn't serve as any type of encouragement. Incentivizing a goal requirements stating some type of desired outcome. How do you know who wins? For that matter, is it a pass/fail situation or will the result be graded? There are consequences of being vague. We have witnessed missed opportunity and wasted resources. That's why I propose some type of next step. Now that introduction has been achieved (the first round of tax-credits), what should the next step deliver? Some type of threshold should be defined. Leaving it open-ended is like telling someone to "make it better" without explaining what you had in mind. What do you hope will be accomplished? Needless to say, I get quite frustrated with the lack of critical thinking. Maybe this will be helpful: That's great for stage 1, but offers no suggestion or justification for stage 2. GM never rolled out their plug-in hybrid technology to anything beyond Volt. Their approach died, no successor. Missed opportunity is what the next round of tax-credits should address; otherwise, there's more waste appealing to niche interest. Remember, the goal is to find a way to reach beyond just early-adopters.
- 4-11-2019** **Not Paying Attention.** The effort fell apart: "*Not every company is going to pick a stage 1 technology that leads directly to a stage 2... they may need to backup and try again.*" I've posted the idea of secondary requirements several times now. Clearly, that isn't being recognized as such. This twisted perspective back on the automaker though, forgetting the topic was about tax-credit renewal. I was concerned that the entire effort would fall apart, that the topic was too complicated to address properly online. I hoped for the best anyway, with this response: Please read posts carefully. That's not what stage referred to. Try again. STAGE 1 is the first allocation of tax-credits, that initial 200,000 for each automaker. STAGE 2 would be the next level, which would require meeting new criteria to be eligible for. In other words, if you waste opportunity with the first, you'll have to find another means of qualifying for the second.

4-11-2019 **Across The Fleet.** It's very difficult to assess progress of a discussion, especially when you encounter something like this: "*And the average mpg is dropping. This is basic economics. They are going the wrong direction.*" It implies a step back, attempting to consider the larger problem. But then again, that's what you would do to undermine a specific point. Whatever the case, it did present the opportunity to share more information about how to interpret data of that nature:

Basic economics must include a timeline. You cannot just disregard that part of the equation. Ironically, that "*Losing Ground*" article is a great example of feeding the narrative of shortsightedness. People read something like that and take the contents at face value, without bothering to consider the larger picture and the time involved.

For those who do bother to research, they'll discover Toyota is taking the time to do it right. They are striving to offer hybrids across their entire fleet. Despite the slipping popularity and small profit-margins of sedans, we get a Avalon, Camry, and Corolla hybrids. At the same time, they upgraded both Prius and Prius PHV, while also rolling out a RAV4 mid-cycle update to introduce it as a hybrid. Then just 2 years later, we get a full generational upgrade to both RAV4 and Camry hybrids. Next year, there will be a generational upgrade to Highlander too. Don't forget about the variety of Lexus hybrids either.

Think about how cost-effective it will be for Toyota to augment their RAV4 & C-HR hybrids to also offer a plug. Like Prius, it's basically just a matter of adding that one-way clutch, since the hybrid system in place already has everything else it needs. This is the stage Toyota is setting as they wait for battery prices to reach an affordable point. They are carefully using their tax-credits, while learning from other automakers along the way about what not to do.

So what if there's a slip backward on that journey? Toyota still remains well in front of the old Big-3 automakers, with lots of potential to come from already being well into their effort to phaseout non-electrified vehicles across the fleet.

4-11-2019 **Expectations.** Nope, things fell apart. He reverted back to trying to judge the progress of legacy automakers to Tesla: *"And yet the last 10 years of incentives gave us what, model X and...and...what?"* They have so little in common with one and other, it would be hard to believe anyone would take such a comparison seriously... until you reflect upon hybrid history. Remember how the 2-seat, all-aluminum, manual-transmission Insight was considered direct competition with Prius? Even without taking into consideration how fundamentally different the 2 types of hybrids were, it should have been obvious how drastically different the vehicles themselves were. Yet, we got countless direct comparisons anyway. That's the same problem with this situation now... lack of anything else to compare. That mindset limitation leads to all kinds of trouble. It's how the hope for Volt transformed into hype. Group-Think thrives on absence of critical thinking just like that. Expectations grow out of control without any means of validating information. Meritless claims become facts... hence, fake news. Seeing beyond that rhetoric is quite a challenge. I keep trying to push online readers beyond the crazy though, attempting to interject some sense into the chaos: Toyota, Nissan, and Hyundai are all pursuing affordable choices with variety prior to reaching tax-credit phaseout. Assigning an arbitrary deadline serves what purpose? Again, forcing doing it fast rather than doing it right doesn't make sense for legacy automakers. That's more economics 101. Think about how long it takes for other changes that actually altered the status quo. That history informs us a lot about setting realistic expectations.

4-12-2019 **They Don't Listen.** It got worse, rather than better. Comments like this are how you know the audience has given up: *"Just few years ago hydrogen was the future. And flying cars before that."* Signs of really never having paid attention are confirmed when you read that. It wasn't just a few years ago. It was 15 and that was never what the industry stated. It was GM attempting to divert attention away from hybrids. Remember that bizarre State-Of-The-Union address making the hydrogen claim? Even then, most people were scratching their heads trying to figure out what such a vague statement actually meant. There was no detail whatsoever. Lack of any substance made it nothing but greenwash... and we certainly knew that audience. The administration was strongly opposed to hybrids, going to the extreme of pushing guzzlers. Remember that *"good for the economy"* nonsense and the \$10,000 tax-credit available for Hummer? I was definitely annoyed by having such a comment to reply to. When they don't listen to anything leading up to that point, how do you find a way to reach such an audience? I keep trying: If you listened to the rhetoric... In reality, hydrogen was always a complimentary tech. There are some applications in certain localities where it would work well. Starting with small test vehicles with a diverse set of users still makes sense. The narrative of one solution for all never did. This is why looking at the bigger picture is necessary. EV and FCEV will co-exist, just like other tech of the past... for example, diesel was primarily for commercial use and gas for personal transportation.

4-13-2019 Discussion Distractions. If you stick with a topic long enough, and the trolls to undermine its purpose, the distractions will eventually fade. In most cases related to plug-in vehicles, those distractions are Telsa and Fuel-Cells. With the discussion related to raising the eligible quantity of tax-credits per automaker, we finally got this: "*These are the vehicles that consume the most fuel, so improvements there save the most fuel.*" Comments like that bring us back to fundamentals. That's how you become constructive. It offers material to build upon, rather than distract. I was delighted to respond in detail:

That is how "*Know Your Audience*" came about, from similar statements 14 years ago... way back when Two-Mode emerged as a technology promoted as far superior to Prius... complete with a plug-in hybrid model planned for 2009.

When Two-Mode was finally rolled out, the targeted audience didn't care. Mainstream consumers were not impressed. Large savings of gas in terms of a few MPG improvement wasn't a priority for them. Sales floundered from the very beginning. Rollout was such a disaster, the next-generation design intended for a small car platform was disassociated with the one for large vehicles, showcased as a fresh start. Despite that, it turned out to be a sales disaster for the very same reason. Volt didn't appeal to mainstream consumers either.

Knowing your audience means understanding how to appeal to them. Lesson learned was selling the idea of "*most fuel*" to someone who drives a guzzler with no concern for guzzling simply won't be interested. Gas is cheap and they are unwilling to try something new.

This is exactly why some of us knew from the start tax-credits would be wasted by a legacy automaker like GM. We saw from the early days of development that Volt was being created for the wrong reason. Those that wanted to save the most fuel were not their own loyal customers. That compact plug-in hybrid hatchback didn't target the right audience. It was opportunity missed, intentionally.

It was obvious that a smaller battery-pack would reduce cost, weight, and complexity of Volt without much of an overall loss of MPG. That electric-only drive could reach a much larger audience and could more easily be ported to other vehicle platforms. GM simply wasn't interested. Whether GM was just resting on its laurels or being afraid of the paradigm-shift, outcome is undeniable... tax-credits didn't result in a shift of their basic offerings at dealerships.

That's why this topic of raising the limit for tax-credits is such a hot discussion. Why would we want more of the same?

4-14-2019 **Greater Than 50%.** That magic point of hybrid interest was reached in the first quarter of 2019 for Europe. 51% of the 279,000 sales for Toyota (that's 143,300 vehicles) were hybrid there. This was a goal targeted for 2020. Meeting that already, prior to anticipated by an entire year, is fantastic. Unfortunately, not everyone sees it that way. The spin today was "*Over 50% Of Toyota Sales In Europe Are Hybrids: PHEVs Not Even 1%*". That's the rhetoric I've come to expect. Rather than looking at the market as a whole, they chose to cherry-pick by focusing exclusively on the plug-in vehicles. That selection of only a specific choice is blatant misleading, which I strongly resent. That's exactly how Volt got on its course toward disaster. Enthusiasts couldn't care less about tax-credit dependency or mainstream interest. All they had any interest in was conquest. I'm so glad I took time to document that attitude, as it played out. It's a history of short-sightedness and focus on want, rather than need. I asked "*Who is the market for Volt?*" over and over and over again to draw attention to their own self-destructive nature. They destroyed themselves anyway, shooting the messenger as much as possible to feel better about their mistakes. It all came down to market reach. You don't endorse something with such a limited market potential. So what if Toyota's technology doesn't get a "*vastly superior*" label? That's not the point. You want the masses to purchase the new technology. They are the ones who couldn't care less what happens under the hood. They just want something reliable, practical, and affordable. That's why Toyota's recent emphasis on safety doesn't get much attention, yet helps ensure strong sales. The same is now proving true for efficiency & emissions too.

4-14-2019 **More Rhetoric.** I don't even need to quote the post anymore. Their desperation has become so extreme, there's no denying it. Volt is dead. Tax-Credit dependency is obvious. Toyota's choice to take the time to address the status quo, making an effort for real change, is starting to show. It never ceases to amaze me how people get drawn into hype & hope. They lose common sense. They become out of touch with their own surroundings. It's a dangerous disconnect they just plain don't see. That's why more and more of my posts focus on the bigger picture now. Being trapped on spin is a thing of the past now. What a relief. Phew! I'll take this over that any day: Know your audience. Claiming "*defect*" is rather disingenuous. They are early-adopters taking advantage of the tax-credit opportunity. Why now? It's a good deal and that has no bearing on whether or not their next purchase will go the same direction. Toyota is in it for the long-term. That loyalty isn't being challenged, it's actually helping to establish the industry. We need customers all over for the next stage to take place. Alone doesn't work. Toyota needs allies. Toyota is well aware of this and working to appeal to their future shoppers, not early-adopters. Notice how affordable Prius Prime is, even without any government subsidy? As for claiming under-powered, my Prius Prime merges just fine onto the highway using EV mode. You want more power, you buy something like the RAV4 instead. Heck, even Mirai with its 152 hp motor would make for a nice all-electric model of Prius.

- 4-15-2019** **New York City.** I arrived today for a conference, taking a cab from JFK to Times Square. What an unusual experience. Traffic really was as bad as the stereotypical description would lead you to believe. It was bumper-to-bumper with some very tight & aggressive lane changes. Whoa! I certainly wouldn't want to deal with that, especially on a regular basis like I driver did. He handled that chaos just fine. Stranger though was the sea of SUV within that flow. They are all over the place! With such tight conditions and so much waiting in stopped traffic, it was surreal seeing so many giant guzzlers like that. People who don't understand the draw of size & power really need a wake-up call like that. The supposed logic I have to deal with on a regular basis shows being out-of-touch with what's realistic. That doesn't hold any comparison to what's unrealistic, what I'm seeing right now. The craziness looking down on those streets below is truly amazing. It's remarkable to see how disregard for environment or resources can take you.
- 4-16-2019** **Highlander Hybrid.** Exactly as anticipated, the reveal of next-gen Highlander coming late this year was a short & sweet announcement. 34 MPG from such a massive vehicle is incredible. With such a massive interior and lots of power, this will be the hybrid SUV that quietly crushes other automakers. RAV4 hybrid will get lots of attention, but this is the one to cause fear in the hearts of Detroit backers... especially since it will be produced here in the United States. It's nice to see such efforts to offer a diverse set of choices. This is what both GM & Ford were expected to do ages ago. Remember, it was well over a decade in that they were gloating about how Toyota would be crushed by their high-efficiency monsters. That never happened. They just kept making larger guzzlers without any concern for oil dependency, clean air, or environment impact. For that matter, they weren't even concerned about their own long-term survival. That live-in-the-now attitude can be quite detrimental... and sad. Thank goodness some of that is finally changing, with Toyota setting a good example of what can be achieved. Ironically, I'm reading news of this coming from the New York International Autoshow while being in New York City... a place where SUV traffic is abundant. It's amazing how such vehicles became people movers in a place where their off-road & power abilities are completely worthless.

4-16-2019 **C-HR EV.** Exactly as anticipated, there was a reveal of an EV model of C-HR for the market in China. It's becoming more and more difficult for the die-hard enthusiasts to portray a narrative of Toyota being anti-EV. Being compelled to seek out an enemy is normal. It's commonly how troops are rallied and teams pepped up. It's needs some sort of basis in reality though. For early-adopters who took advantage of tax-credits, but denied that was a primary motivator, are now challenged with explaining how their choice will be appealing to a topic consumer without that generous incentive. Toyota never catered to that audience. GM thrived on it, milking that opportunity without regard for consequence of missing others. Now, we see GM struggling with no audience and Toyota setting the stage for wide-spread appeal. The difference is so drastic, I'm fascinated to find out what comments will result from this reveal. There will be some outright hate, but that's easy to look past. There will be some efforts to undermine, but those are the same old tired posts that stir very little feedback. There will be some sense of optimism. That's what I'll be looking for. Detail will be scarce though, especially since this isn't for the United States and Toyota tends to withhold reveals until close to rollout... quite the opposite of GM. My guess is focus will be on the one-size-fits all narrative. That claim of anti-EV belief feeds on the "*self-charging*" advertisement. I find that quite telling. These same people turn a blind-eye to all the SUV promoting we get from GM on a very regular basis. They desperately attempt to lead you to believe an automaker must only represent one offering, that focus on a diverse set of choices involving a wide variety of appeals is impossible. It's so hypocritical, it's embarrassing at times. The rest of the world wonders how bad complacency of people here will become. It's sad. Fortunately, we have Toyota doing their rollouts elsewhere and well disguised. C-HR is getting attention now, but hiding their EV tech in plain view here is what really blows my mind. Mirai is right there for all too analyze; yet, most only notice the fuel-cell part. The electric-only drivetrain part is getting quite the real-world testing & refinement without anyone taking notice.

4-17-2019 **Air Cooled.** Final efforts from antagonists don't seem to be making any difference. I'm watching their influence fade. Much of that comes from a new chorus of interest, people who were never part of that past rhetoric speaking out with messages of their own to share: "*Toyota said in the past they use batteries in the Prime designed specifically for heat...*" When they make the same information conveyed in the past part of their own statement of fact, it really makes a difference. Antagonists attacking me relentlessly as a scapegoat makes no difference when someone else passes on the same message. There's where knowing your audience makes a difference. Breaking the problem of group-think only takes a few individuals to stop listening. I'm happy to contribute to that, by providing other detail for them to consider: Better chemistry & design is the preferred approach. Necessity of liquid cooling is a complexity & cost that doesn't make sense beyond early-adopter sales. Remember, the sales pitch for EV is simplicity. Avoiding coolant, piping, a radiator, and maintenance is a vital step toward ending the reign of traditional vehicles.

- 4-17-2019** **What Data?** It's quite vindicating when you see something like this posted: "*Sure, it's cheaper to build a car that only attempts to cool by hot air, but the industry's history already shows...*" I know what the real-world data shows. You can manipulate the message of history by cherry-picking, to present a false narrative. But when looking at the bigger picture and taking realistic goals into account, the story changes. This is especially easy to confirm when dealing with data that becomes outdated quickly. I know that. They know that. The hope is to not be called out on it. This is why I ask for detail... and rarely ever get any. Not getting it is an implied confirm that they really didn't have anything of substance to make their claim with. This time, I asked: Shows what? Where is there data with newer chemistry and forced A/C cooling? Think about how primitive the chargers themselves were back then too. You couldn't sustain a 7.2 kW draw, but that is now becoming realistic.
- 4-18-2019** **Recent?** This was a delight to read: "*...and that's where the market has headed recently*" Most people don't pay close attention to the automotive industry. In fact, even when they make a purchase, it only represents a tiny research effort. There's no extensive study or on-going monitor. The typical mainstream consumer is just an ordinary person who wanders into a dealer and starts looking. They do some basic looking at specifications and do some simple calculations. That's it. There's no big picture. There's no waiting. There's only a consideration of immediate impact... usually in the form of, can I afford gas & payments? Hope that consideration for environmental or politic impact is a futile expectation. It doesn't happen. That's why we have had a endless growth of vehicle size & power for decades. It's not recent in any regard. So reading about someone commenting with regard to the shrinking sedan market is maddening... though, quite understandable. Know your audience. Don't get on them about not being attentive. Don't make them feel bad in any regard. However, do let them off the hook either. Ignorance is not an excuse. Make sure you convey a clear message of the true situation, especially when you confirm they really didn't notice what has been happening over all those years: That's the history I'm referring to. Some of saw the "*recent*" trend begin back in 1994, then a massive push into the mainstream back in 2004. What is happening now is that has become the norm, with everything else now an exception or holdback.
- 4-18-2019** **Central Park.** I got to spend some quality time with my wife today. We took a stroll through Central Park. What an amazing part of a truly unique urban environment. It's quite beautiful. We really, really lucked out with weather too. There was a light rain in the morning, which provided a nice sense of exclusiveness. Most people weren't out wandering around. We got to enjoy the sections & trails mostly alone. Early spring made it even more inviting. Anywho, it provides a great opportunity to reflect. The clouds parted. We saw others come out. In fact, after a nice lunch at a local restaurant, there were lots of people to share that great setting with. By the time we got to the other end, crossing somewhat in a diagonal manner, we got to see where the nice location was to watch a sunset on the massive building from that tranquil jungle of trees. To my surprise, right there at the southeast corner was a long line of plug-in vehicles, plugged in. They had setup chargers for city vehicles along the roadway. It was a sweet sight... in a quite unexpected location. There was about a dozen vehicle there... all with charge-ports on the wrong side, requiring the cord to stick out into the street. Fortunately, Prius Prime has its access on the passenger side... but I digress.

- 4-19-2019** **Prius Taxi.** We got a taxi from Times Square to JFK for our flight home yesterday. What a crazy experience... in a Prius V cab. The cab trip my wife had in Rome a number of years ago is no longer her favorite cab story to share. This driver was all over the place. If anyone ever questions the driving dynamics of that car, just express an interest in wanting to get to the airport quickly! The weaving through traffic was remarkable. I would not have been thrilled about seeing him approach in my mirror or watching him merge into the lane opening I wanted. Whoa! It sure was a testament to how well the lower gear-ratio for the bigger Prius combined with the power of an electric-motor can really make a difference for providing small boosts of thrust. What a contrast to the next taxi we got a few hours later. It was a guy with an Iconic model. His Prius had a little over 209K miles on it and had been working great as a cab. Since it was his vehicle, rather than a commercial service as before, the driving & conversation was quite different. He was intrigued that we were both Prius owners and had never heard of the plug-in model. So, we indulged upon arriving at home. I actually showed him my wife's Prime, demonstrating how it was plugged in. That blew his mind. It was an incredible confirmation of how even a well-informed owner who uses his Prius to earn a living, knew virtually nothing of the technology. He simply trusted Toyota's reputation for affordable, reliable, and responsible transportation choices. btw, while in New York City, we saw quite a few Camry & RAV4 hybrids used for taxi service too. It's obviously an excellent choice for that type of driving.
- 4-19-2019** **Posting Comments, change.** It will be changing on the website that has become the authority on all things plug-in. It was starting to become a troll creator, where points-of-view could thrive as propaganda. Moderators were well aware of the growing problem. The owner electing to change the posting format, but remain within the rheum of blogging. That obviously didn't work. People could still hide their identity and easily cover their tracks along the way. As a result, topics would die quickly and construction follow-up remain hopeless. Change was needed, something significant enough to sour the milk. And sure enough, right after today's announcements we got some goodbyes. It was always quite clear that enthusiasts were diligently working to retain the status quo. Fighting efforts to grow beyond the initial rollout stage (early-adopter, which was identified by subsidized sales) became increasingly more difficult... because they stopped caring about being constructive. More and more activity recognized as trolling emerged. Thankfully, they drew the line. In few days, yet another resource online will attempt to establish a voice of integrity by pushing out those who were just enjoying a moment in time at the cost of others.

4-20-2019 Posting Comments, perspective. I was quite happy to join into the discussion topic addressing the way comments will be posted. That website was really struggling for awhile there, not having a good idea how to objectively promote both EV and PHEV for both start-up and legacy automakers. The idea of diversity is compelling. Actually achieving it is quite a struggle though. Fighting to retain the status quo comes from some you would hope would be more open minded. Discovering they really didn't care about the greater good is disheartening... and also a difficult barrier to overcome. I added some perspective with a post of my own: Understand that this next step is necessary as the reach of plug-in offerings grow beside the obvious enthusiast group currently active here. Though many don't see the group-think that's rather blatant from the perspective of someone who just happened to stumble across this site, but it's there and a very real problem to address. Continued improvement efforts like this, are a clear attempt to ensure integrity of postings. Over the years, I have watched the pattern of attacks meant to enforce a narrative. Wanting to witness it for yourself, watch what happens when affordability (discussion of vehicle pricing without tax-credits available) with regard to high-volume and profitability is brought up. You'll see the usual bunch of individuals promote their rhetoric of power & range attempt to undermine those who simply want everyday plug-in... nothing special... just basic electric travel for their daily driving. I welcome this step they are taking to overcome rhetoric and provide a most useful tool for discussion participation. Features like ignore & notify will be improvements many will really appreciate.

4-20-2019 Posting Comments, resistance. I should have expected a gross over-reaction to my post. There's a sense of panic about how comments will be changing, one stirring fear... Recognition of the situation's magnitude should have clued me into the nature tendency for FUD to be used. Responding with Fear, Uncertainty, or Doubt is extremely common. Rather than rationalize or trust, they revert to instinct. Ugh. Anyone, in this case in was in the fear of suppression. To the individual I responded, there was a belief that adding controls will create limitations. It's easy to see how that assumption comes about, but it simply isn't true. I know this well already simply from having observed the same thing already play out elsewhere. It's not even pattern recognition this time. It's a repeat of the same issue. I kept reply to that on the shorter side: Empowering people by giving them a means of discussion participation with expanded abilities is quite the opposite of limiting freedom of speech. Notice how people can currently hide behind just label? Putting a control in place to prevent that lack of accountability is a benefit to everyone. Notice how websites unwilling to require some type of identity have disappeared over time? They lacked integrity by allowing an anything-goes policy and they lost their audience as a result.

4-21-2019 Dishonesty & Misdirection. That's the description rising to the topic of that report about our president's activity coming from his own party. Sound familiar? That's exactly what I dealt with on a regular basis coming from the Volt enthusiasts. It's what set them apart from being true supporters. They'd think anything of saying whatever they thought sounded convincing. That's how I got so detailed with my blogs & video. Their acts to deceive were relentless. They simply didn't care. It was all about feeding hope with hype. Stunning is how I can best describe my thoughts of how blindly optimistic they became. With only a vague press-release, they would spin an incredible wave of false expectation. It was so obvious too. Without any supporting material, they'd make too-good-too-be-claims. It was on a regular basis too... to the point where people would lose touch with reality. The narrative took over, becoming what would be perceived as normal... a con job on an enormous scale. They know at some point the dishonesty & misdirection will eventually catch up with them. That doesn't matter, since their want is to do as much damage along the way as possible. It's an effort to undermine, to keep the status quo from actually changing. Seeing parallels between business & politics is saddening, but not at all a surprise. Power corrupts. That's why I give so much respect for Toyota not giving in to the temptation. They remain true to their values of focus on the mainstream. They build reliable, affordable products that are also responsible.

4-21-2019 **Continued Attacks.** I read through a forum thread about the now completely dead daily blog. Comments posted there included a variety of thoughts. Most have simply moved on, not caring about it no longer allowing posts, despite new articles being published. What I found intriguing were the attempts to stir rhetoric. It was obviously a venue attempts to cultivate attack approach... because sure enough, one of the individuals there jumped on the chance to try out his material on the big Prius forum today: *"What's your new ride going to be? Probably not an EV, because Toyota is now poo-pooing that idea. (probably because they are so far behind the ball on that tech...)"* His choice of where and how made that interesting. It was on an innocent thread where people were posting comments about what they owned prior to purchasing a Prius. I decided to go all out in response. My post was as follows, complete with a nice photo of each of my Prius selected from my album:

That rhetoric is becoming shallow & desperate. We all know Toyota has chosen to avoid the tax-credit game, deciding instead to focus on delivery of choices capable of reaching a very wide audience in a manner not disruptive to their true customers, the dealers. That's why claims of enthusiasts don't matter. They simply feed innovator's dilemma, making the challenge of profitable high-volume sales more difficult. Not only do I applaud that sensible business approach, I also support it.

My first Prius was a Classic model, among the initial rollout here in the United States way back in September 2000.

I traded it in to be among the first to get the next generation, the Iconic model. It was a pioneer package too, so I could easily identify it (in addition to the very unique dent I put on it). And sure enough, I saw it in a parking lot a few months ago, after all these years!

That was the Prius I owned for the longest duration. I had it 118K miles for 5.5 years. It got traded to again be among the first to get a next-gen upgrade. This one, like the others, demonstrated a strong commitment to refining the technology.

That 2010 model got replaced less than 3 years later with a mid-cycle update, the first offering here to include a plug. Since I had driven a prototype of for a few days years before, it was solid assurance that Toyota was striving to deliver a product for the masses.

That first Prius PHV was a great opportunity for Toyota to explore the market, choosing to rollout mid-cycle to limited regions. Seeing how effective that approach was at avoiding the tax-credit game, Toyota continued with the limited rollout. I jumped on board yet again.

This latest Prius confirms Toyota is striving for that wide appeal target. The technology in Prime is an adaptation to the hybrid system allowing it to enjoy the battery-pack with a full EV driving experience, one that China will be seeing as a Corolla PHV. China will also be seeing Toyota first EV offering, a new model of CH-R. Meanwhile, watch how Toyota is quietly road-testing their 152hp full-electric system in Mirai. Wouldn't that make a nice battery-only setup for a next-gen model of Prius? I need something to set my sights on for another upgrade opportunity.

- 4-21-2019** **Label Arguments.** I was pleased to see that the forum isn't able to fuel the fire of labels. A few tried to renew efforts to push "EREV" as an indication of superiority, but it all fell on deaf ears. Things like "*top speed*" and "*certain threshold*" were used to no avail. The even more generic "*extending the range*" reference made no difference. Ultimately, the attempts to stir ended with: "*Describing the difference between a EREV and a PHEV seems pointless.*" That was all nice to see. But what I found most informative was this statement: "*But this is NOT how the Volt works.*" When you encounter that on a Volt forum, odds are quite good they know even less about the supposed competition. I ran into that a lot over time... hence all the videos. They served as proof the label arguments were questionable. They'd attack me claiming I'm bias. I'd reply back pointing that making it personal doesn't change the fact that their information is wrong. Ultimately, it always came down to Volt enthusiasts trying to portray me as anti-GM, when in reality I was just against the approach. It made them absolutely crazy that I would endorse parts of the design stating a new configuration could appeal to a wide-array of GM customers. The idea of diversification messed up their vague definition of EREV. That label wouldn't mean as much spread onto a second model of Volt and an Equinox that could also use both gas & electricity. Most learned from their mistakes and moved on. The few that remain have lost their audience. Remember asking: "*Who is the market for Volt?*" They didn't understand who EREV appealed to. Know your audience.
- 4-21-2019** **Spinning Lies.** Our new resident troll is pushing harder and harder. After attempting to mislead about profit by pretending there's no tax-credit dependency and volume doesn't matter, he moved on to: "*While I generally agree with this statement, it doesn't justify lying to try to persuade 'who'? I'm not quite sure who Toyota is trying to convince.*" It was an obvious effort to disrupt the discussion any way he could, to the point of even frustrating the moderator. Seeing an end coming from such desperate acts, I summed up the situation with: Know your audience. The perception of lying comes from listening to spin and not recognizing who is being targeted. We saw this done extensively by Volt enthusiasts attempting to portray their vehicle as something for the mainstream, a high-volume profitable seller intended for a GM's own loyal customers. That couldn't have been further from the truth; yet, it was the mantra accepted by those spreading a message of change. That was a false hope, just like the demise of Toyota. Reality is, this publication is exploiting the opportunity to draw attention to itself by milking the spin. They directly benefit from the online activity their articles stir. If you take the time to really consider what buyers of each automakers own vehicles seek, you'll see that Toyota is doing exactly what they should to deliver a reliable, affordable, and responsible platform in large quantity... without disruption to dealers... a vital component to change of the status quo most enthusiasts refuse to address. Again, it's important to understand who.

4-21-2019 **Intelligent Debate.** The moderator stepped in when bait from that troll got out of hand. He posts so frequently, often without actually quoting what he's responding too. Sadly, many of his claims are misinformation derived from snap conclusions drawn on little to no actual data. Like most trolls, that identification comes about simply from the desire for attention. That's why facts make no difference. It's act of participation he seeks, not constructive dialog. So, I have to carefully watch what the moderator desires for next steps, to get us back on track. In this case, it was spin about lies. He never bothered to do any research or even try to derive how the quoted value came about. I immediately understood what the "*average*" comment was referring to and how it translated to a monetary value. I shared that detail:

Intelligent debates would require actually reading for context. In the case of that quote, notice how everyone just blew past the word "*average*" without even bothering to consider what it actually represented?

Think about the capacities for an "*average*" vehicle. They have a 15 gallon gas tank and deliver about 30 MPG. That's a range expectation of 450 miles... which most of us would recognize as quite typical. More of a guzzler would have a larger capacity to compensate, to deliver roughly the same range.

Think about how big the battery-pack would have to be to match that expectation of 450 miles. Knowing the "*average*" vehicle is much heavier and much less aerodynamic than a Prius, you have to use something like Outlander as a somewhat practical measure of EV efficiency. Ratings of 45 kWh/100mi are about what a vehicle like that would deliver. Anyone else see the problem?

$$45 \text{ kWh} * (450/100) = 202.5 \text{ kWh}$$

$$202.5 \text{ kWh} * \$150 \text{ per kWh} = \$30,375$$

Then when you add in the longevity capacity buffer, since you won't be stressing the battery-pack by charging to 100% and discharging to 0% to achieve that 450-mile range expectation, the value easily matches up with what had previously seemed a wild estimate of \$34,000.

So much for intelligent debate.

- 4-22-2019** **Ask Again.** One effective way of confirming you really are dealing with a troll and just not someone poorly informed is to watch other thread. If you provide an answer on one thread, then they ask again on another, you have your confirmation. That repetition of questioning the same thing over and over is a dead giveaway. They don't like what they got in return and hope somehow stirring the same pot again will result in a different outcome. Yes, that's the definition of insanity... but online posts can resemble that type of being out of touch. I find the repetition annoying, but it can be tolerated. You find ways of being short with responses and getting others to participate in something constructive. In other words, don't feed the troll by denying them an audience. Remember that daily blog? Loss of an audience helped kill it. That website went from being a premiere "*fake news*" source to a collection of mistakes which had a profound influence on a history most people won't ever be aware of... hence not ever allowing questions to be asked again and again. Those lessons learned should be shared, once you've confirmed you really are dealing with a troll. Take advantage of those teaching moments.
- 4-23-2019** **Not Realistic.** It's somewhat bizarre how the death of Volt has turned into what is basically a push of the reset button. It failed to move beyond niche. No successor means something else will fill the void. What that will be isn't obvious though. My pointing out of the "*450 mile*" expectation has blown some people's mind. Their attempts to explain why such a large range isn't necessary has fallen on deaf ears. Mainstream consumers have come to expect more, period. Not realistic isn't a consideration. They have that much now and see absolutely no reason to settle for less. That's how we got into this mess with the SUV obsession. More was always promoted as better. Whether that makes sense or not is irrelevant. Vehicle purchases are more often than not based on emotion. It's that want verses need problem. That never goes away. Denying it only makes the situation worse... as the Volt enthusiasts learned in a very painful manner. They dismissed clues, refusing to take the situation seriously. It cost them dearly. Now, the rest of us try to figure out how to overcome collateral damage caused by that denial. Conveying the situation is a challenge. I'm keeping my effort to that affect short & sweet: Agreed; however, that's the way it is. Automakers could easily save money & weight by simply using a smaller gas tank. They don't though. Explaining why less is better won't change that. You're fighting the status quo, which isn't always logical.

4-24-2019 **Who?** Watching the lack of excitement for Earth Day this year has been compelling. Financial struggle for Tesla and the absurd self-inflicted problems GM now faces has setup the market for lots of uncertainty. Supposedly, we'll be getting a variety of plug-in choices from both VW and Ford within the next few years, but all that's been shared are snippets of plans without any detail. It's all so vague, there's no real sense of progress actually being made. That's not stopping those who see Toyota's actual progress as a force to fight though, which we do our best to counter: *"No matter what Toyota produces some people will still see negatives: "CVT gearbox, "self charging" hybrid nonsense, not fun to drive."* Unfortunately, most rebuttal posts are long and drown out. They tend to go no where as a result. Much of that struggle in the past was due to the trolls forcing a Prius narrative. No matter what you posted, they'd spin it to be about Prius. I got quite a kick out of that. Post after post would be nothing but GM. Someone would inevitably change the topic to Toyota and blame me. I always found that desperation both reaffirming and tantalizing. It validated their lack of evidence to actually prove their point. Mine was always simple. I asked who. Knowing that a business could not thrive on a single product, the doom GM would face with Volt was only a matter of time. No diversification prior to tax-credit phaseout being triggered meant it would die... and, that's exactly what happened. Seeing Toyota strive to deliver a variety of choices means a very different outcome. They know their audience. Who is their entire fleet, that large collection of very different buyers are pleased with their own particular purchase. It's not just about Prius. It never was. They refused to accept that. I keep reminding them: With the Corolla and RAV4 hybrids so non-Prius like, who would that be?

4-25-2019 **Tesla Trouble.** Yesterday's financial report painted the picture most fanboys feared. Tesla's gamble to stay in front of the massive risk being taken isn't working. Profitable quarters turned into the most recent posting a massive loss. The planned 35 GWh capacity from the Gigafactory in Nevada is only at 24 GWh. Ramp-Up isn't financially realistic either. It looks like a deal with Panasonic to ship cells from Japan is the plan now being explored. That compromises the *"Made in America"* promotion and faces possible import tariffs barriers. Ugh. Another possibility for elevating production bottlenecks is to move vehicle production elsewhere. Building a Gigafactory in Germany is an option now being explored and construction of the one in China continues. Negative net of \$702 million for the first quarter of this year makes those efforts easier. Pain of growing beyond niche is a sign of progress for Tesla that will either establish a true foothold in the industry or bring about surprises. Acceptance of EV is an achievement we all benefit from already regardless. This is yet another reason why Toyota sees no reason to rush to market. Rough times from having to grow beyond initial market are never easy. Trouble confirms you are still in the game.

4-26-2019 Ford Announcements. It was interesting to hear Ford strike an partnership agreement with electric truck startup Rivian... after finding out GM turned down the chance. Ford was happy to provide a \$500 Million equity investment to make that happen. It will add to the growing portfolio Ford has for new choices on the way. It's odd to hear there will be 16 full EV vehicles and 40 electrified vehicles coming worldwide through 2022. Many could be limited market and limited volume; nonetheless, Ford is being given a nod of approval while Toyota is getting attacked. So what if Toyota is planning fewer choices? They stand a better chance of being widely available and more affordably priced. Enthusiasts don't want to hear that. They are enthusiasts because that are not mainstreamists. Endorsing something for the common person goes against the very nature of being a fanboy... which none of them will admit to being. It's a fundamental flaw in their approach... which they hope no one will ever call them out on. Thank goodness Ford has been able to avoid most of that rhetoric. We're expecting to see some new hybrid and plug-in hybrid choices. That will be great... and not "*late*" as so many attempt to spin. Timing & Technology is coming to a point where the choice will be realistic for the masses. I'd say, that's just right. So, these announcements we are getting now seem to be a good plan.

4-27-2019

New Audience. Realization of just how much of a barrier enthusiasts of Volt had created is becoming quite clear. As the dust settles from the end of its production, that death reveals an entirely new audience. These are the smaller, quieter voices of mainstream consumers... which are drawn to Prius Prime, exactly as Toyota had predicted. In fact, we even now have evidence of just how closely they were monitoring that early-adopter market. I always said the replacement of the unused-by-most middle seat in back with a nice armrest & bucket seats was to test appeal. It's undeniable now that the shift to SUV platforms as family-mover vehicles is well into the final stages. Sedans are vanishing and hatchbacks are needing to evolve. What did that mean for Prius Prime, which is now a bit more upscale to keep it relevant? Not much, apparently. That middle-seat will be coming back. Toyota took the risk, quite contrary to claims of antagonists. The 2020 model will bring that layout back, along with the much hoped for (including by me) visor-extenders. I simply bought a set online. Next year's will have them built in. Switches for the seat-heaters will be moved to a more predominate location as well. It's all about listening to potential customers, not enthusiasts. Toyota isn't dumb enough to fall into the trap GM did. Innovator's dilemma is a well known business conundrum that a legacy automaker as experienced as GM should have been able to avoid. That's why Toyota was willing to also take risk with the battery. The original gen-3 prototype had a 5.2 kWh capacity. That pack size was large, making the floor taller... exactly as it is now with Prius Prime. The decision back then was to reduce it to 4.4 kWh to make it fit better. Toyota decided with gen-4 to try the larger. Since a mid-cycle update provides opportunity for change, we may be seeing that floor drop to provide more cargo capacity. That would keep Toyota's mission true to staying affordable and targeting mainstream consumers... who may prefer that over increased capacity. That's why so much real-world data is collected during the first 2 years of rollout... giving Toyota key insight to what the more favorable configuration would be for the new audience... the one that much more be profitable without tax-credit dependency able to achieve high-volume sales competing directly with traditional vehicles. That's a tall order, but realistic if you understand who. Based on my observations of recent posts from new Prius Prime owners, we seem to have reached the point of non-enthusiast interest. I had no idea the problems Volt had created for market interest would fade so quickly upon its death.

- 4-28-2019 Co-Exist.** Every time an article comes up about the delay of EV rollout, someone brings up conspiracy theories about fuel-cell vehicles. They absolutely refuse to acknowledge the reality of economics; instead, it's always turn a blind-eye to token efforts giving them unending forgiveness for selling at a loss. It's no wonder that their short-sightedness would stir cries of lobbying and market manipulation for the sake of killing EV efforts. They just plain don't want to accept a world where many clean solutions could exist side-by-side. It's really sad when so many lose sight of goals. Have they really forgotten what we want to achieve, for who, and when? Unwilling to put up with more of this nonsense... the endless bickering that doesn't achieve anything... I just punched right back with: Are you so naive to think that the oil industry could simply be shut down, that battery-only vehicles will dramatically just end our need for them? That's as gullible as the one-solution-for-all chats we keep hearing. It's not going to happen. Breaking the status quo on that magnitude requires compromise. Deal with it. The best way to get them to stopping fighting change is to give them something else to produce. Taking advantage of the infrastructure they have in place is key. So what if the conversion to hydrogen isn't as efficient as storing electricity in massive battery-banks? At least it is both carbon neutral and clean. Fleet & Commercial vehicles can exploit that opportunity to get us off the dirty, non-renewable fuels. Why do you have a problem with your Amazon delivery coming from a truck using fuel cells?
- 4-28-2019 Dead.** Sentiment over the circumstances was posted as follows today: "*Volt is dead and they don't seem to care much about maintaining a good relationship with Volt buyers anymore.*" That turn on GM from enthusiasts was found on the dedicated forum for Volt. I have been watching the shift take place, observing change as the final sales wrap up. There's a limited quantity available and no hope whatsoever for a future plug-in hybrid offering. Even the future of the Volt antithesis... Bolt... remains uncertain. It was always a strange offering. Gross overkill for speed & power from a compact wagon certainly was out of character for anything normally offered by GM. It's easy to see how some dealers simply didn't want to bother. What message did it send about GM's future or their commitment? This is why Toyota's dedication to hybrids was so important. So what if it wasn't bleeding-edge technology? Mainstream consumers don't want that anyway. Their interest is something of good value, meaning it was safe, comfortable, and reliable for an affordable price. Volt died because it failed with that vital criteria of being affordable. It was far too expensive... but didn't need to be. Remember all that suggestion made by so many all those years ago? It was to offer a configuration of Volt that had a significantly smaller battery-pack. That would have greatly reduced cost, while at the same time free up interior space and lighten the weight. It was a viable solution. Sadly, what seemed a winning combination was never tried. GM never tried to spread the technology to an ordinary vehicle either, something their customers would actually purchase, in Equinox. Remember all that same suggestion for Prius? Remember how Toyota did exactly that, rolling out both Highlander & Camry models using the hybrid system? That later got spread to quite a variety of other vehicles too. It was a winning formula that proved successful. Yet, GM never tried. Many now feel that lack of effort in their sentiment. Why didn't GM try?

4-29-2019 **Compliance Car.** Attacks from within continue. It's been a persistent message for years, passed along by a few Prius owners who absolutely refuse to accept the idea that time isn't vital. So, we get: "*Prime is a compliance car.*" It comes from the mindset of having to deliver something as fast as possible. That message our society sends of needing to be first as the measure of success can have terrible consequences. You are being taught that not being first means you lost. Second place is not a winner as far as our highly superficial beliefs instill. That's really unfortunate. Taking the time to do it right should be the mantra; instead, the need to rush is perceived as necessary. Ugh. That makes drawing conclusions, like compliance, difficult to avoid. Many don't see any other option. You either go all out or you don't. When balance is no longer viewed as essential, problems arise. That's why the crazy attitude toward Volt was accepted as normal. Enthusiasts didn't see themselves as pushing an extreme. GM sacrificed too much to deliver something that wouldn't be looked upon as a compliance car. It proved a disastrous choice. Just imagine how much better things could have proceeded if an incremental approach had been taken instead. Small steps forward is progress. So what if it appears to just be an act of complying at first? I stated the method of advancement this way: That's just spin for those who don't like the concept of phased rollouts. Toyota tests the market by rolling out small allocations to limited areas. That real-world data they collect provides a powerful means of product alignment. The fact that it also meets California requirements is a benefit to the approach, a win-win situation for both.

4-29-2019 **Stop!** It continued. There's a strong feeling of anger coming from certain individuals. This highlights their view: "*Stop studying on it and make fully electric vehicles.*" That belief of having to deliver something right away is a theme we'll always have to deal with. If they don't see the entire vehicle, none of the technology exists. That's sad... and quite impractical. There's no effective means of achieving a rollout of that nature without extreme risk. Successful business requires sensible steps. You improve components, then implement using existing platforms. For example, that's how Prius got its two-speed hybrid system. It started in Camry hybrid. Another example is the AWD for Prius. Same thing, it started elsewhere. Not everything is offered immediately either. The fact that Mirai is using an all-electric propulsion system that would make for a great Prius EV later is further proof of doing things in stages. Imagine how expensive and how challenging it would be to provide that configuration now. Battery technology isn't up to the challenge yet. Facing the expectation of prices directly competitive with traditional vehicles simply isn't realistic yet. In a few years time, when the liquid electrolyte barrier is overcome, things could be profoundly different. That dramatic reduction of heat & fire exposures will really change the reach of fully electric vehicles... hence the value of studying. In the meantime, it's not like the rest of the vehicle isn't taking shape. Sadly, certain individuals are blind to that progress. Ugh. I tried to state the situation in terms immediately understandable. It probably won't to any good though. Some people just like to argue. We'll see: What other legacy automaker is making fully electric vehicles that are profitable, without dependency on tax-credits? Toyota's fully electric platform currently used in Mirai will make a nice EV platform, when battery cost drops to the level of realistic high-volume production. In the meantime, there's continued refinement and the spread of hybrid choices. Remember, that diversification is essential for plug-in offerings... something all the other legacy automakers must also address. In other words, Toyota is not sitting idle as the narrative portrays.

- 4-30-2019 Full-Size Pickup.** Quite vague, though impressionable, announcements about the intent to produce full-size electric pickups really shook the industry yesterday and today. Ford revealed their joint-venture with new partner and GM immediately countered with plans of their own. It was the usual substanceless rhetoric feed. You know, those ambiguous releases that really don't tell you anything. That complete absence of detail is so much a part of our normal approach to accepting plans, no one seems to care anymore. Merit is just freely given out without any expectation to actually be held accountable. That's why all the plans for VW shouldn't be taken seriously until something is delivered in quantity. Right now, it's all just empty hope. There's lot of potential and substantial investment, but that in no way equates to success. It will happen, eventually. Rushing out press-releases doesn't speed up the process. Yet, that's what we are getting.
- 4-30-2019 Blinded.** Sometimes, the hate runs so deep nothing else is seen. In this case, it was yet another attack on Toyota. Rather than actually discuss the topic at hand, there was an obvious diversion of attention. That effort to evade is a undeniable sign they really don't care. All they want is for you to stop posting information related to the discussion. They'll do anything to change the subject. Ugh. I fired back to today's "*Fool Cell*" nonsense attempting to distract from the plug-in hybrid posts with: Really? So blinded by a resistance to diversity that you don't actually see the plug-in advancements taking place? With just an output of 68 kW, we already have a vehicle from Toyota able to drive as an EV. From just that small 8.8 kWh battery-pack, my daily commute in a Prius Prime is entirely electric. Complete with both electric A/C and the industry's most efficient heat-pump, it's a rewarding experience at an affordable price. Toyota simply isn't interested in playing the games you want. They are refining their technology as the market progresses beyond the early-adopter stage. Mirai is a great example; the platform delivers 113 kW of EV power. So what if the current power supply comes from a fuel-cell? Within the next year, a plug-in hybrid Corolla and an EV model of C-HR will be rolled out in China taking advantage of what they learned from Mirai. So what if they also pursue fuel-cell offerings? There's quite a bit of opportunity available for fleet & commercial sales. Are you so blinded by rhetoric of one-solution-for-all that you can't see the value of a business offering a variety of choices?
- 4-30-2019 Attacker Info.** Now that post history is available, the circumstances have changed rather dramatically. You can follow the activity of each participant. That lack of accountability was terrible. Certain individuals would hide behind an avatar. You'd never know who they really were or even what & where they were posting. That's why that awful daily blog for Volt thrived for so long. It attracted those who just wanted to win battles on a regular basis with no concern for winning the war. They only cared about small victories. Since the discussion threads usually died the very next day, it was easy to post the same rhetoric endlessly to achieve exactly that. They'd do everything possible to retain the status quo, learning how to prevent conclusions from being drawn. That type of behavior is what brings down the integrity of a venue. Some of those websites falling victim to such activity clean up their overall message by upgrading software to deter those determined to undermine. It works well. This is the latest example. Moderators made it quite clear there would be no compromise. Either you accept the effort to make people be responsible for their actions or don't participate anymore. Phew! It sure is nice to have improvements like that take place.

5-01-2019 **Trolling Pattern.** It is sad to report that although websites hosting blogs are improving the political environmental is not. In fact, that particular venue is getting worse. The very activity I used to witness and deal with on a regular basis is now playing out in the daily news. We get sound bites of politicians outright lying over and over again. We get the same deceptive messages so often, you lose touch with purpose & direction. The same old nonsense is now repeating there. In other words, the pattern of trolls is easily recognizable in politics. Some simply don't care. They figure if enough join into that group-think, accountability won't be necessary... everyone will agree what is "*truth*" and what is "*fanboy*". In other words, they work really hard to enable dismissal. There's no need to justify your claim. You only have to refer to the next person saying the same thing. Thankfully, there's always a day-of-reckoning at some point. Catch is, a lot of collateral damage can occur along the way. Cleaning up that mess afterward can be a monumental effort. Look no further than Volt for a great example of that. What in the world will GM do now? There's no path forward. Preventing that from happening again with some other efforts starts by addressing shortcomings that allow trolls to thrive.

5-01-2019 **Ice Spin.** Witnessing the anticipation of bad news is always interesting. We should be getting news of April sales today. That's the first month GM faced with a 50% reduction of tax-credits. Everyone knew Volt was doomed, but few enthusiasts were willing to acknowledge the destructive path it was on until the outcome was undeniable. Their hope of a miracle was far too much of a gamble to help with the ultimate goal of change anyway. GM had already reversed course by embracing the very approach they had worked so hard to fight. EREV was to be the "*range anxiety*" solution to EV capacity shortcomings. That never made any sense. Enthusiasts claim this outcome was inevitable, that it was the plan all along... despite overwhelming evidence to the contrary. That's why I documented history as it was occurring. Details written while events are playing out is how you find out what the true story was. There's no other good way to assess what expectations were after the fact. That makes the spin about ICE vehicles taking place right now a great topic to blog about. Who knows, that announcement I'm expecting from Toyota about a mid-cycle upgrade shouldn't too far away. All the signs are pointing to stage setup going well. This is how I stated the reaction to what's happening right now, in the moment, before we actually get the news: Using Toyota as a distraction to draw attention away from the automakers who haven't actually delivered anything affordable... Makes sense. There are many who refuse to acknowledge tax-credit dependency, who treat the early-adopters as representative of mainstream consumer demand. Reality is, even a small battery-pack will offer a dramatic reduction in consumption & emissions... and will make far more of an impact to changing the status quo than a few expensive token offerings. Camry, Corolla, C-HR, RAV4 all provide a means of reaching a wide variety of customers being offered as a hybrid with a plug. What other automaker has such diverse choices available? Toyota is setting that stage and you refuse to acknowledge it.

5-02-2019 **Real Change?** Raising doubt is standard practice for when attempting to undermine. When successful, that sentiment will be passed along by others. For example: *"I am beginning to wonder if these vehicles aren't a publicity stunt or an attempt to carefully impact overall fleet mpg rather than a true vehicle marketing attempt."* This is especially easy to see as the approach of an announcement nears. In this case, we just cleared the fallout related to Volt & Bolt. That first month of phaseout sales were just reported. With the tax-credit no longer an option GM could exploit, it cleared the way for Toyota to take a turn. In simply made no sense getting involved with those actions of the past which clearly didn't pursue real change. Toyota's choice to avoid that is one I wholeheartedly welcome. I spelled out the situation with:

That narrative is making the rounds. It's easy to get sucked into the belief of that being the case too... if you aren't familiar with Toyota's history.

The practice of intentionally limiting rollout is what we saw with Prius even before it rolled out here in the United States. That extremely limited offering, only available in Japan, actually had a plug. It was quickly dropped, since battery-tech of the time offered very little capacity to take advantage of. In fact, the rollout in the United States was came with an entirely new pack... so significant of an upgrade, it should have been called a full generation. Switching from D-cell packaging to prismatic was a really big deal. But back then, no one cared. It was just labeled as a mid-cycle update, despite the pack change, the screen changing from button to touch, the engine gaining more power, and the look itself changing.

That's not even the point of the story either. It was that Toyota continued to hold back. Cruise-Control was intentionally not included, a way of deterring those who weren't absolutely interested in purchasing a Prius. After all, there was no tax-credit back then. You could only get a tax-deduction, which equated to about \$350 for most people. It was a blatant effort to attract only the devoted. We proved it too, by confirming cruise-control was part of the system already, only the stalk with interface buttons was left off... which you could have the dealer add later, if you were so inclined.

Toyota wasn't targeting mainstream consumers yet. They used early rollout as an opportunity to collect real-world data. This is why they felt free to experiment with Prius Prime. Knowing that it would only be offered in specific areas, feedback from those markets could be studied without having to re-educate later, should big changes be offered in a mid-cycle update. After all, Toyota knew GM was using Volt as a publicity stunt by attracting conquest sales with tax-credits, not even trying to draw interest from their own loyal customers. That meant Toyota has lots of time available. So, we saw this first half of Prime's product-cycle with a middle-seat swapped out for an arm-rest with storage and the cargo-area raised to offer more capacity.

That choice resulted in valuable real-world data. All that telematic activity provided a vital understanding of how the system would operate in true driving conditions, but without interfering with upgrade & diversification efforts underway at their dealers. Remember, it's about changing the entire fleet, the whole product-line, not just offering a token vehicle. That has gone well, as we see the upgrades to Camry & RAV4 hybrids and the introduction of Corolla hybrid taking place. At the same time, there's some tweaks to Prius Prime on the way.

In other words, taking the time to consider the bigger picture along a larger timeline, you can see what Toyota is really doing.

5-02-2019 **Expectations.** Sadly, the reply back was one of little substance: "*I do think Toyota's position as the acknowledged pioneer and industry leader in this technology has been diminished by their own doing - to my disappointment.*" This is where knowing your audience is necessary. Posting online among enthusiasts who border on crazy-fanboys from time to time, you really need to be aware how little they represent mainstream consumers. So when supposed controversy comes up, remind yourself how the typical consumer most likely will never be part of any of that. In fact, most what even understand what the supposed problem was. They'll just simply see the outcome as what was an obvious step forward. In reality, it's never that clear. This is why expectations must be set. No clarity about that path forward, no progress can be made. For this, we must define what "*success*" is. That's why I always ask for goals. It helps identify scope & timeline. The topic of "*leader*" is so vague, it could mean anything. We see that too. Different people have different definitions. So, what they expect differs. I made sure it was quite clear from my perspective: How leadership is defined is based upon product life-cycle. Upon the early stages (low volume, high cost), it is a reasonable expectation for a large manufacturer to be a pioneer. But as the product matures (several generations later), the expectation changes. Upon that later stage, it switches (high volume, low cost). Toyota is very much pushing to be the leader in that regard.

5-02-2019 **Change.** Most people simply don't pay close enough attention to notice how change actually takes place. It occurs over a long course of time, but they don't notice it until something grabs their attention. In other words, they don't seek it out. That quest would reveal the components at play, leading to an understanding of influences & barriers. Instead, it is usually something like this: *"Afterwards, when I had time to reflect, I realized at least for me that was a ridiculous adventure to go through to buy a car. One I will never consider again."* That was the comment posted following a chaotic hunt to find a Prime to purchase. It's what happens when you jump without any preparation. I sounded off, knowing he had already made up his mind, but to properly follow up with the on-going discussion and to give others something to consider:

Having mainstream expectations during this early-adopter stage will inevitably lead to disappointment. You need to be realistic about timeline. Paradigm shifts do not happen overnight. The industry is still just introducing first choices, experimenting with configurations while very much depending upon subsidies to get established. We are many years away from the ordinary customer shopping experience.

With the case of Prius Prime specifically, we know there's a mid-cycle update on the way for 2020. That means there's no benefit to ramping up inventory of the outgoing model... especially when you take the Osborne Effect into account. Making matters worse, the industry itself is faced with having to deal with fallout from Innovator's Dilemma... specifically the problem GM created by making Volt too specialized, causing market confusion in the process.

Think about what it takes to build vehicles requiring large quantities of product not scaled-up yet for high-volume. (Toyota sells over 10 Million new vehicles annually.) Think about what it takes to ensure salespeople & mechanics are well informed about the new product you are rolling out. That's a monumental challenge to do it right. Also making it both competitive and profitable requires a lot of time.

That everyday shopping experience you hope for will happen, eventually. Look at what happened with hybrids. You can now go to a Toyota dealer and choose between several different choices. Deciding between a hatchback (Prius), 3 different sizes of sedan (Corolla, Camry, Avalon), and 2 different sizes of SUV (RAV4 & Highlander) is now totally realistic. We will likely be getting the C-HR hybrid here in the not-too-distant future as well. All that took awhile though. The same will be the case for plug-in hybrids.

What other legacy automakers will be offering anything in quantity anytime soon?

5-02-2019 **2020 Prime.** To my delight, the announcements of the mid-cycle upgrade for Prime came right on schedule. Summation of what was to come and when was dead on. That shows I am carefully & comprehensively observing the factors at play and have correctly recognized the patterns. After 20 years, I should have a clear understanding of Toyota business practices and how they reflect upon the industry as a whole. Influence of other automakers' actions plays a big role in Toyota decisions. Unlike what enthusiasts expect, Toyota does not operate in isolation. That's why "EV Market" reference should not be taken seriously. What happens on the larger scale is what matters, not the motivation of enthusiasts. That's why I posted this in reaction to the press-release we got from Toyota just an hour ago: Commuting in mine is entirely electric. I enjoy the EV driving experience and see how Toyota's effort will appeal to the masses. No tax-credits or gimmicks. It's just the next-gen advancement of their hybrid system. 1,259 miles from my current tank, with a 1/3 of it still left. That works out to 198 MPG. In other words, the feelings expressed from a few uptight enthusiasts unwilling to accept Toyota's focus toward offering an affordable solution for their own loyal customers and showroom shoppers really don't have any impact. Toyota is targeting the mainstream market. Prius Prime clearly for that audience. Think of how Corolla and RAV4 hybrids also offering a plug will change the landscape, as well as the posting here.

5-02-2019 **Press Release.** This is what we got from Toyota today: *"New upgrades for 2020 include: New 5th seat for even more room. Standard Apple CarPlay, SiriusXM and Amazon Alexa compatibility. Two additional 2.1A USB ports for the rear passengers. Black interior accents to replace previous white accents for a more premium feel. A new sun visor extender. A relocation of seat heater buttons for front seat passengers for easier usability. New grade strategy that offers LE, XLE, and Limited Grades."* That collection of refinements is exactly what I had expected to hear about. What I don't expect to be told is a change to the battery-pack. There's no reason to draw any attention to cell/stack arrangement. It should go without saying that continuous revision takes place. That's a reasonable expectation. On-Going improvement is how progress occurs, not profound overnight change. Toyota tests the market with limited rollout. Knowing the entire industry is shifting to SUV, where the preference for larger vehicles has already taken hold even though there is still some denial, Toyota took the risk to find out if a change to interior layout would be embraced. It wasn't, so they adjusted accordingly. It's ironic how antagonists claim Toyota is unwilling to try anything new, yet turn a blind-eye when evidence to the contrary is presented. This is why change is perceived so differently for different people. If they don't pay close enough attention, they'll never notice something like the 4-seat arrangement was tried. For that matter, they'll never know that Toyota took the risk with a raised cargo floor either. That's annoying, but quite understandable.

5-03-2019 **Clues.** Some people simply won't ever get it: *"The nutty thing is that they could increase the size of the battery and range at -no cost- to the customer. The federal tax rebate is partially based on the battery capacity..."* Of course, some of that could come from calling it a rebate. That implies everyone will get one. In reality, you must have enough tax-liability to collect the full tax-credit. Some people won't. Consequently, they'll only be able to claim a partial amount or none at all. The passing along of such misleading information is a clue that purpose may not be understood. I watch for clues like that... and pass along my observations: GM proved that gaming the system for short-term gain was a terrible idea. Volt ended up becoming a vehicle for conquest sales as a result, never actually changing the status quo. Loyal GM customers kept purchasing the same traditional vehicles and Volt died without a successor when the tax-credits were used up. Remember, intention of that subsidy is to help each automaker alter their own fleet, making it greener for their own customers. That's why each automaker got their own allocation of 200,000 to use on their own timeline. Adding capacity wouldn't do that. It would simply make Prius Prime too expensive after that 200,000 limit is reached. With a starting price of \$27,600 and that base model loaded with a surprising number of features, Toyota has a long-term winner in the works. It's a design we are already seeing carry over to Corolla hybrid. The same could easily happen with RAV4 hybrid too.

5-03-2019 **Long Term.** Dealing with enthusiasts always meant a forced short-term perspective. They simply didn't care what happened next. It was all about establishing a foothold. Cost of doing so wasn't a concern. That was their downfall. In addition to the obvious monetary sacrifices, they were giving up chances to do more along the way. Most notably was their dismissal of the importance of having an ally. Pride got in the way, causing the loss of purpose. They really would lose sight of what was truly important. That's why I pushed on a regular basis for goals. From time to time, I'd get an answer to my question. Sadly, the objective stated always varied. It was a moving target without any clear progress forward. This summed it up well: *"The Volt was the best-selling EV in US history until it was cancelled. On what basis do you claim that the Prime is a "long-term winner" with even worse sales than the "terrible" Volt?"* Looking backward without anything truly being achieved (measured by the lack of any actual change) makes it all too clear there wasn't any real understanding of what the technology would or should deliver. What were the plans? Not having a vision for the future is a very real problem. In terms of business, that's a warning. Something of substance must be accomplished. All the efforts we saw ended up just being for show. When the tax-credits hit phaseout, GM simply reverted back to old practices. We have a nice selection of guzzling SUVs now and a mid-engine sports car on the way. What kind of long-term plan is that? I'm growing tired of the rhetoric, but fortunately don't have to deal with it too much longer. This nonsense is coming to an end. The voices of enthusiasts are fading and the queries of newbies being to sound like a chorus. I certainly welcome that change. But there's still some reflecting upon what happened to do: Volt never attracted GM's own showroom shoppers, had a MSRP far too high to survive without subsidies, and wasn't able to diversify prior to tax-credit phaseout. Toyota is clearly making efforts to avoid each of those mistakes.

5-04-2019 **Victory.** Sadly, there are a few who keep pushing that narrative of early-adopter sales representing what mainstream consumers will buy. That's because they only see the numbers. The cost of dependency or value of loyalty simply doesn't come into play. They don't consider that an factor to measure. So, comments like this continue to persist: *"Again, Toyota has fewer sales of a less-expensive car in a more crowded market. I don't see how that's a victory."* It makes you wonder how long that will continue. With the audience for Volt now gone, asking *"Who?"* isn't necessary. The vehicle, nor its technology, is being produced anymore. It died... exactly as predicted. GM's obsession with conquest handed victory to whomever was willing to stay true to purpose. Toyota set goals that didn't depend upon subsidies and didn't depend upon attracting outside buyers. Starting with hybrid technology, there was a persistent effort to change their fleet. What could be found on their dealers' lots would transform over time... which is now quite apparent with so many highly efficient, affordable choices available. We'll see them become more and more electrified over time. It will make the decision for carrying more of them and fewer of the traditional choices easy. That's how it should be done. That is what we are now witnessing. Yet, some refuse to see it. I'm happy to point that out: There it is. The same mistake so many others made... not recognizing who the market is.

5-04-2019 **Doing It Right.** That didn't take long. I wondered if the wait for an incoherent argument in defense of Volt would come soon. There simply isn't anything left to support a plan that made no progress after all those years. With every possible excuse exhausted, a feeling of defeat is taking over. Phew! What a waste of opportunity. So much could have been accomplished. Oh well. Now it is time for true leadership, not conquest. I was happy to provide the detail:

Timing & Circumstances tell us the real story.

Volt-1 failed. Hope had been that it would become a huge sales success, a technology to "*leap frog*" the leader, Prius. Sales just barely scraped along (averaging 1,600 to 1,700 monthly). So, effort to postpone that victory began. Volt-2 fizzled too. Sales remained flat. Reach never grew beyond early-adopters. GM's own loyal customers simply weren't interested.

Hope to become a technology to replace traditional offerings faded quickly. Spin was that GM remained a leader, despite heavy dependence on tax-credits and an abrupt change of strategy. All that work to promote "*EREV*" as a solution was abandoned in favor of its own antithesis. Bolt never achieved that needed growth either.

Since way back when the Two-Mode plug-in prototype was being promoted, we had expected GM to diversify their technology to offer it on a platform they could actually sell in high-volume. That would be an Equinox or Trax using Voltec. It never happened. The government subsidy for that very purpose was squandered on conquest instead.

This is why the approach Toyota used to transform Prius to plug-in Prius is so important. It's an affordable design that can be easily applied to its other hybrid offerings. In fact, later this year, it will happen for Corolla hybrid. So, it's reasonable to expect we'll get a RAV4 hybrid with a plug in the not-too-distant future... which would indeed draw interest from Toyota's own loyal customers.

Toyota is taking the time to do it right.

- 5-05-2019** **Leapfrog.** It's remarkable how many times you see someone make a statement like this without any follow up: *"So instead of barely, almost, kind of catching up Toyota should have leapfrogged."* I posted my response just 12 minutes after it had been posted. So, I'm quite curious if I'll get anything constructive in reply. In this circumstance, the comment was about Toyota's choices related to the infotainment system. It could have been anything. We see examples all of the place routinely. I posted: That term *"leapfrog"* has become meaningless rhetoric. It's easy to understand why too. Just ask anyone who's serious about improvement what improvement actually means. That absence of detail and lack of agreement make it all too clear the path to an upgrade is a very real problem. Want a different example of the same problem? Look at the mess we have with public charging-stations. After all these years, there is consolidated message about how they should be used and who should use them. You'd think the answer to that would be obvious. Digging for information, you end up with many conflicting messages. Please tell us with a level of clarity, as if you were funding the effort, what you would like. As a software engineer, I've discovered asking that question tends to end complaints. The user comes to realize they don't actually have solid requirements for me to program. This is why partnership with business customers is so vital. You need an ongoing exchange of information. With the case of Toyota, this is why they have employed a phased rollout. That approach really irritates some enthusiasts... to the point of them acting in frustration like trolls... but it is a proven method for achieving actual progress. Watch for detail and try to pass it along.
- 5-05-2019** **Facetious.** I was really hoping this new member on the big Prius forum was just being facetious. That kind of obnoxious behavior, showing no interest to consider what others are sharing, is frustrating to deal with. When I got this, I was done: *"You expect the customer to write the spec for you?"* He simply didn't care. I posted and moved on: To complain without providing any constructive feedback is a waste of everyone's time. Ever notice how the act of asking what a consumer actually wants will often result in something that isn't well articulated? It simply makes no sense for you to assume the provider will be able to accurately guess what you expect. That's why extensive study of consumer behavior takes place. Toyota, just like other providers, will collect and carefully observes massive amounts of real-world data with the hope of figuring out what you don't bother to take the time to explain. With over 25 years of experience trying to understand what the user actually wants, verses what they claim to want, I can tell you that anyone who makes an effort to describe what their need actually is will get taken seriously. Those who don't are just looking for an audience to vent upon.
- 5-05-2019** **Listen.** Even though some new voices are obnoxious, far more are simply looking for somewhere to share thoughts: *"It sounds like Toyota is betting that they can quickly turn something like a Prius Prime into a full electric quickly rather than investing in all-electric design now."* Stuff like that is welcome. They tend to stay open-minded, asking for more information so they can draw their own conclusions. For them, I'm happy to contribute little nuggets of detail to help that process along. In this case, I could even do in with respect to the sound theme: Listen to the whisper, not the rhetoric. That all-electric 152 hp drive system already in use by Mirai would make a nice setup for the next-gen Prius.

- 5-06-2019** **2020 Timing.** Accurate predictions come from careful & meticulous study. Both the 2001 & 2012 rollouts were mid-cycle upgrades, though they could easily be labeled as generations. People don't recognize change easily, so that's a rather pointless debate. I was an active participant with both though, so my perspective is quite different. I recognize how Toyota performs their study and what they look for. Knowing their goal of sustainable high-volume profitability being of major importance, it's easy to see beyond rhetoric. They don't find disruption to dealers acceptable. Dumping a profoundly new technology without any clear direction, as GM did with Volt, upon them is totally against what they've demonstrated over the past 20 years. That's why I saw a mid-cycle upgrade as a very realistic expectation to set. Limiting availability and the obvious burn down of inventory should have made it obvious to everyone watching, or at least those actively participating online. Instead, I got quite a bit of pushback from sharing my observations and declaring a prediction of a very short 2019. It made sense that Toyota would stay clear of GM fallout, being well aware of tax-credit dependency and the long-term damage that results. 1 day after 1 month of phaseout sales, we get news of the upgrade. Today, we got news that the path is wide open for what looks to be a wait of just a little over 1 month until 2020 deliveries begin. Sweet!
- 5-07-2019** **Opportunity Missed.** Some people just never learn. Ugh. It's not even worth quoting the nonsense anymore. Here's my reply: Yes, repeating the same mistakes... Volt was never targeted at the masses, even though it was marketed that way. The configuration was too expensive, overkill for what was actually needed. Hope was the "*it's worth it*" reasoning would catch on. Affordability is a requirement that enthusiasts turned a blind-eye to, hence so many problems... notably, the way to market Volt. The nonsense of EREV really screwed up the message to consumers. Simply sticking with "*plug-in hybrid*" would have been a wise move. It's over now. Voltec didn't get diversified prior to tax-credit phaseout being triggered. That opportunity was missed.
- 5-07-2019** **Superior.** There's a small amount of rhetoric still, but not much. Overly generalized claims like this are all that's left: "*Volt proved GM could make a superior Prius.*" Watching the endgame play out has been interesting. It was undeniable that they long hoped for miracle wouldn't happen. Rather than actually change the status quo, the outlook of enthusiasts was conquest. Their focus on bragging-rights was shallow and self-deprecating. Such a perspective cannot be sustained. Realities of business eventually become too much to evade. It's like building up debt. You can really enjoy yourself for awhile, but at some point it all falls apart. Some take much longer to learn that lesson than others, as I was happy to point out: That definition of "*superior*" is one of only enthusiasts. Checking with the true customer, GM dealers, you get a very different reply. They'll point out importance of the vehicle having a competitive cost. Volt was never affordable, period. GM's pricing goal of "*nicely under \$30,000*" was never reached. Toyota, on the other hand, nailed it with Prius Prime at \$27,600 nicely loaded for the base 2020 model.

5-08-2019 **Reminder.** Stuff like this reveals how little effort is made to look at the bigger picture: *"Don't worry, it will run out eventually as more and more Prius owners get converted to other brands."* It comes from the mindset of conquest. The early-adopter perspective is that automakers are competing with each other. They absolutely refuse to look at the situation from the point-of-view where tax-credits have all been used up and those offerings are then competing with other choices on the dealer's showroom floor. That idea of competing directly with traditional vehicles had been fought against with such intensity, it was truly remarkable. Volt enthusiasts were the worst, absolutely refusing to acknowledge a market where Equinox was their greatest foe. That level of denial was amazing. They have been paid the price. Seeing them welcome their own destruction was an interesting experience. I patiently observed, reminding them along the way of goals. What mattered was shrugged off though, sometimes intensely fought, never taken seriously. I asked a lot of questions along the way... and still do: Which will other brands offer to compete with plug-in model of RAV4 hybrid? Remember, it's all about diversifying the technology. Spreading it to other vehicles, like Toyota giving Corolla hybrid the PHV treatment, is already underway. That's the fundamental mistake GM made with Volt. Success requires rollout to other choices... like a SUV. Again, what can we expect from automakers to compete with that?

5-08-2019 **Tidbits.** Reaching new audiences means dealing with a hodgepodge of information. Often, a fact will be sighted incorrectly. That misunderstanding can spin out of control at some point, if not properly addressed. When it comes to efficiency, that's common. Many make the easy assumption that greater battery-capacity equates to greater efficiency. In reality, the reverse can actually be the case. If that range isn't actually utilized, you're carrying around unnecessary weight. How the electricity is consumed is what matters... which is why *"gas consumption"* was always a hot topic. People would misunderstand MPG as a result. That's why MPG isn't used as a measure of efficiency in most of the rest of the world; instead, others elsewhere state consumptions in terms of how much fuel is consumed to travel a specific distance. Our own EPA introduced that approach for electricity, but the market is far too premature to recognize the importance. So for now, we are stuck on the MPGe rating. That stands for "Miles Per Gallon Equivalent". Few understand how it works either. Making matters worse is when the two get confused with each other, as it was today. I pointed out the error: Mixing up MPG with MPGe is a common problem. Prime's 133 MPGe wins hands down over Clarity's 110 MPGe. Being more efficient with EV drive is a big deal in the overall equation of both production cost and ownership cost. Remember overall goals. For Clarity to deliver higher MPG results, you have to drive further routinely between charges. Otherwise, you'll end up with a Prime that's difficult to compete with. Mine is at 1,529 miles with the current tank, resulting in an average of 189 MPG. Also, you don't seem to be aware that Prime became a 5-seater a few days ago. Production of the 2020 just began and shipments are expected to begin in a little over a month.

5-08-2019 **Schooled.** Sometimes posts are so confusing, you wonder if the person has any clue how the system actually works. Of course, some wanting to undermine will intentionally confuse matters by posting outdated information and facts unrelated to the subject of discussion. It's all fairly maddening. That's why many online are either lurkers or pushers after awhile. You end up forming an opinion of some sort if you hang around long enough. This is what brings about turnover, especially when a new generation rolls out. So, I provide background from time to time. Never really knowing who you are dealing with necessitates reminders. Though on some occasions, you know you are dealing with a person hell-bent on stirring trouble. That was today, when I punched back with some education: Toyota's approach is clear evidence of planning well ahead, establishing a design that can easily be augmented without requiring major changes. To make Prius into Prius Prime, a one-way clutch was added. This allows MG1 (which is normally used as a generator) to be used for propulsion, adding to the output from MG2. Combined with the larger battery-pack, far more EV power becomes available. It really is that simple. Each of the hybrids, like RAV4, will be able to take advantage of the same approach. It's a cost-effective means of reaching a very large & diverse audience.

5-08-2019 **Desperate.** Watching a troll become desperate is interesting. They all eventually back themselves into a corner. Some figure out how to wiggle out of that situation. Some end up losing attention to the point of giving up. Whatever the situation, you just need to remain true to goals and never lash out. I enjoy the effort to find constructive rebuttal material. They push you to searching for clues where you wouldn't ever consider usual. For example, the relentless attacks on Toyota's fuel-cell program overlooked what is now so obvious. Mirai is an EV platform that would provide a great template for a Prius without a gas engine. The size of its electric propulsion system would be ideal for that. It's just the right balance of power & cost, when you connect it to a battery-pack. Antagonists quickly recognized that fact when I discovered & shared that information. It was an oops on their part on a colossal scale. No one had bothered to step back far enough to notice. Being the one to point it out was a delight. For the most part though, I don't need to pull out argument material on that scale. It's still effective to keep focus on hybrids: With the mid-cycle update a little over a month from first delivery, it's pretty clear the old narrative has fallen apart and new spin doesn't have an audience. Toyota's larger hybrids offering more power and more space for batteries demonstrate it's a waste of time bothering to respond. We all see Toyota setting the stage for a major push away from their traditional choices by providing a variety of hybrid options that will all easily transition to plug-in hybrid. It's a simple path for dealer & consumer to follow... something all the other automakers are scrambling to also deliver... hence the obvious attempts by some to distract & confuse. Yup, desperate.

- 5-09-2019** **Non-Hybrid Plug-Ins.** This was wonderful to read: *"The only narrative is the one spun by a Toyota fanboy who makes up story about how Toyota would extend its non-hybrid plugins to PHEV."* The post came from not just an antagonist, this was an outright hater. He just plain doesn't care. Posting anything possible to undermine Prius is his goal. It's quite obvious too. I wonder how much longer he'll survive with the new discussion approach. That structure makes attacks easy to avoid and trolls easy to ignore. For me personally, I was amazed at his level of anger. That confused message made that a very real problem to retract. It made no sense. He backed himself into a corner and revealed desperation... which I called him out on: Your own spin of *"non-hybrid plugin"* is truly bizarre, worthy of being such a blatant attempt to undermine PHEV progress, it should be bubbled up to the top of the discussion thread rather than buried in a long string of replies. Toyota already offers Camry, Corolla, Avalon, RAV4, and Highlander as hybrids in this market. That's a large portion of what you find on dealers lots here in the United States with hybrid models. C-HR is also available as a hybrid in other markets. Prius got the PHEV treatment 2.5 years ago and it is already getting a mid-cycle upgrade. Corolla will become available as a PHEV later this year in China. Right before our eyes, we are seeing the progress forward with greater electrification taking place. The most recent tank in my Prius PHEV (aka Prime) is almost complete. That 1,573 miles so far equates to 190 MPG. Spinning that to whatever you want won't change the outcome. We are seeing Toyota's fleet advance forward in a way no other legacy automaker has been able to achieve.
- 5-09-2019** **Observation.** This type of assessment of market potential is quite common: *"It's great that the 47-mile electric range Clarity PHEV is giving the 25-mile electric range Prius Prime a run for its money..."* It comes from just watching sales. No study or understanding of the larger market is a very, very common problem. People just report what they see, making the assumption that pattern will apply to everyone. It's a grave mistake... one that played out entirely with Volt. Remember all those *"Who?"* asks. Each time I posed that question, there was a flurry of rhetoric attack as an answer. That was a dead giveaway their stance was or soon would experience trouble. And sure enough, GM killed Volt. That premiere technology expected to become a choice for many never reached beyond niche buyers. Those early-adopters taking advantage of tax-credit opportunities were never a reflection of the market to come. Mainstream shoppers are very, very different. That's why offerings like Clarity must be carefully studied for potential, looking beyond the configuration available today for what is clearly a limited market. How will the technology reach ordinary consumers? I put it this way: Anecdotal observation doesn't equate to much. While the tax-credits are still in play, all we are really seeing is just pre-game trials against other new entries. The real game starts when plug-in offerings must compete directly against the true competition... traditional vehicles. Once the showroom floor of a legacy automaker, it boils down to the price on the sticker. Without any subsidy available, you quickly find out who prepared well and who was just working the crowd. Toyota is clearly setting the stage for mass acceptance. That low MSRP for Prius Prime and the affordable means of also making the other Toyota hybrids plug-in models is a formula for success with a great deal of potential. We'll see Corolla hybrid become a Corolla PHV this year. Following that could be RAV4. Few will care about more range when an entry-level choice can deliver so much. Don't forget how incredibly efficient the hybrid system is following depletion of the plug-supplied electricity... and how well proven the reliability is.

5-10-2019

Spoiled Market. When Volt was first revealed, people feared that reception of delight would turn into an introduction of disaster. Reason for that was simple... but an easy lessoned-learned to forget or overlook. It's origin was not a subject of debate. Decades back, GM had rolled out their solution to the gas-price crisis. Rather than focus on small cars to compete, they went all out on diesel. Trouble was, their diesel engines were horribly unreliable... so much so, it spoiled the market. That appeal was soured so bad, other automakers abandoned their own diesel plans. That's why there was a concern from the beginning that GM would do the same with Volt. I saw that trouble brewing immediately. That's how the "*vaporware*" posts ended up with me providing contributions. Seeing that goals were set well above what was realistic for that calendar and well above what cost would reasonably justify, there was to possible was to deliver so much in such a short amount of time. It was the "*over promise, under deliver*" problem ramped up to a whole new level rhetoric. It was if nothing had been learned from the Two-Mode disaster. We now have evidence the Volt disaster has indeed risen beyond that, to the scale of diesel fallout from decades back. Evidence of that is undeniable. VW will not be offering their first from-the-ground-up EV here in the United States. They see this market as disinterested in the technology, not worth the bother. GM failing to achieve a successor to Volt is a big factor in that decision. It was regarded as the prominent technology for legacy automakers. Being able to diversify the offering for high-volume profitable sales would have opened the door to opportunity for others; instead, Volt was discontinued without a successor. The supposed replacement of Bolt as withered on the vine, a fitting cliché for expectations of fruitful growth. This is why Toyota worked so hard to avoid fallout. I'm quite thankful it worked. After so much rhetoric, there was risk of collapse across the board... especially with the magnitude of political influence. Being left to build up our own market isn't so bad either. It's not like Prius supporters don't have a history of that to provide a guide to doing it again.

5-11-2019 Bird Crap. Discussion of a constructive nature is emerging. To watch things fall into place after so long having to deal with online nonsense is rewarding. Of course, that's what I've done at work for decades. You don't build great software overnight. It takes an enormous amount of study to get it right. But after countless upgrades and lots of feedback, you achieve that long-term goal. That's why I felt so fulfilled upon reading this: *"Spending most of my days at a dealership, I can firsthand tell you that Prius' in general are nothing more than bird crap collectors right now..."* It was objective comment inserted into a thread about 2020 inventory. The upgrade to Prime is getting serious attention from outside the group-thinkers already. That's the sign I've been looking for. Those unfamiliar voices are wonderful. The same old spin from the same old daily posters is just a waste of time and a distraction. Comments like this one today confirm the landscape is changing. Toyota is reaching a new audience. Yeah! Anywho, this is what I posted in reply:

We've known about Toyota's intent to transition Prius to a plug-only offering for an entire decade.

Back with the gen-2 prototype, it demonstrated battery technology was simply not there yet. Even though the system could deliver 100 km/h (62 mph), the return simply wasn't realistic. Capacity was too low and cost was too high.

The gen-3 offering was the first to actually be offered as a choice to consumers. Toyota intentionally limited it to very select markets though, knowing it would be best to stay as a real-world data-collection vehicle rather than something for the masses. That's why there was no reason for high-volume production yet. After all, it was rolled out mid-cycle.

Prius Prime (the gen-4 plug-in model) is the first with potential for the masses; however, Toyota kept it limited too. The goal was to get feedback about what it would take to drop most of the regular Prius models so the plug could be favored instead. That's why quantity & scope was limited... until this mid-cycle update.

Notice how we have no information whatsoever about how the 2020 battery-pack fits? What are the odds that Toyota didn't allow their engineers to indulge. Restacking the pack for a cell arrangement capable of fitting better while at the same time squeaking out a little bit more profit was quite realistic.

Key to that success though was to invest heavily in the rest of the fleet in the meantime. Getting Camry, Corolla, RAV4, and Highlander all upgraded was an essential part of the bigger equation. Allowing non-plug Prius choice to be reduced to AWD and Limited Edition models pave the way for Prime. You want a regular hybrid, just choose one of the others instead.

You'd think those plans would be obvious. Turns out, that's not the case. Most people only have a basic understanding of micro economics and have no idea what macro economics even is. So, we have to deal with a lot of incorrect assumptions and even more rhetoric about Toyota intentions.

Keep in mind, dealers are Toyota's true customer, not consumers. When you start to see

that picture, it becomes easier to understand the relationship regions & country have on supply & demand. This is why there was a burndown of 2018 inventory and 2019 inventory was so limited. In fact, some of us recognized that pattern and stated there would be a mid-cycle upgrade this year with potential for a very short 2019 offering. After all, late Spring rollout for mid-cycle is nothing new. That's how I got my 2012 Prius PHV.

Being able to compete directly against other vehicles on the showroom floor is a massive undertaking. Don't fall for any claims that don't take that essential component to successful business into account. We aren't dealing with an "EV market" only. That terrible early-adopter perspective has proven a grave mistake... quite literally, since Volt is now dead. For a plug-in hybrid to sell in high-volume without any dependency on subsidies, it must appeal to the casual shopper. Prime's design with heavy attention to low MSRP wasn't easy for Toyota to achieve.

Watch how interest is stirred for the 2020 Prime. Expect that paradigm-shift intent to finally get noticed.

5-12-2019 **Acceptance & Balance.** The ability to fail quickly and move on (the "Agile" method) is not something certain enthusiasts will ever embrace. They fight and fight and fight for a cause that sounds good, but doesn't actually have a viable business path. That's what sets them apart from supporters. If something doesn't work, you acknowledge the lesson learned and confirm goals are still sensible. Instead, we get excuses & blame. Ugh. That's still what a few are doing as damage-control for Volt. They just plain don't want to accept what happened... the very thing that sets them up to repeat the same mistake, yet again. In this case, it was refusing to acknowledge this comment on a discussion about Honda's effort to offer a plug-in hybrid: "*How is/was the Volt in any way better than the Clarity? Volt is too small, cramped.*" I was obviously annoyed. So, I jumped in with: It doesn't matter. The problem with Volt was always GM's attitude toward the technology. Configuring a niche was fine for initial rollout, but betting the farm on it becoming the source of sustainable high-volume profitable sales with a recipe for disaster. GM never planned to diversify. That's an essential next step in any type of effort to change the status quo. Initially, constructive feedback was to simply offer a second model with a more affordable configuration. Enthusiast pushback turned that into the suggestion to offer that technology in Volt on a more appealing platform for GM's own customers, like Equinox. Instead, GM focused on making Volt even more appealing to enthusiasts. They ended up rolling out a next-gen Volt, which clearly emphasized traits showroom shoppers would have no interest in paying a premium for. They also rolled out ELR, an even more expensive version of Volt. It was the problem of "*Innovator's Dilemma*" playing out exactly as supporters expressed concern about. Thankfully, other automakers didn't follow GM. Seeing Honda favor a layout that isn't cramped is great. The potential for Toyota to do the same with their Camry or RAV4 hybrids adds to that sentiment of balance. What did GM's choice to push an enthusiast favored niche accomplish?

- 5-13-2019** **Subaru Hybrid.** Spotting a new purchase (no plates yet) of a Crosstrek on the road today left me wondering. I couldn't for the life of me remember at that moment if there was a hybrid model prior to the plug-in and what to look for on the upcoming plug-in model? Fortunately, I was able to capture the moment with my dashcam. Afterward, I looked up badging on internet. Turns out, it wasn't the Subaru with Prime's tech in it. So, I still haven't seen one yet. From such a small automaker, that's no surprise... though, I have noticed quite a number of Crosstreks on the road. It's only a matter of time... and I now know exactly what to look for.
- 5-14-2019** **\$1,000 Fee.** Imagine getting hit with that each year when renewing registration for your vehicle. That's what owners in the state of Illinois are now facing. It's an extreme for collecting funds in place of what would ordinarily be accounted for simply through gas-tax. The logic of EV miles not paying for road repair & replace is sensible. But with an amount so massive, that's nuts. What makes such a huge amount realistic? A traditional vehicle getting 35 MPG over an annual travel distance of 15,000 miles will consume 429 gallons of gas. If the typical tax is \$0.25 per gallon, that only comes to \$107.25 for the entire year. How can nearly 10 times that amount be justified for an electric-only vehicle? That's absolutely absurd to think it could be looked upon as reasonable. Talking about extreme overkill. Why not a fee of \$125 instead? Such a proposed effort to provide proceeds for maintenance... which are very difficult to account... is clearly a move to discourage the switch to electricity. You can easily imagine some type of oil-industry lobbying to influence a political proposal do drastic
- 5-12-2019** **EV Support in Japan.** We get comments like this on a regular basis: *"Ironically, Japan is way-low on that list, because of their insistence upon developing FCEVs over BEVs."* That often comes from jumping to conclusions using limited to no actual data to support them. Many only see references to hydrogen support and have no idea what actually takes place behind the scenes in technical decisions and public releases. It's very easy to cherry-pick information too. Simply filtering what's shared is how misconceptions are intentionally spread. In other words, some people feed narratives. Whether that is done with purpose or unknowingly doesn't matter. It's all about making sure specific facts aren't ever shared. For example, not having 240-volt service available for most homes in Japan is a vital tidbits never mentioned. That would obviously impact decisions related to the size of a battery-pack offering. What benefit is there to a capacity larger than what an owner can reasonably recharge overnight. With standard voltage lower in Japan than our lowest here in the United States is a really big deal... yet, rarely acknowledged or even known. I kept my response to the misconception feeding short: That would be an anecdotal observation leading you to decision based upon incomplete information. Most households in Japan only have 100-volt lines available. Imagine how inconvenient it would be to have that as your only means of recharging an EV. It would take forever. That shortcoming is why Prime over there has CHAdeMO as an option.

5-16-2019 **Short-Sightedness.** If you pay close attention to the rhetoric, sometimes a shortcoming to their line of argument will be exposed. In the case of constantly trying to push a narrative portraying Toyota as unwilling to embrace EV... which is long-term... I came to realize no one was addressing mid-term. It only takes a moment of thought about what those plans could be when you recognize the importance. Toyota has a clear path to get from here to there. GM never did. Watching Volt trapped in the past, never advancing forward eventually got noticed. That's how Bolt name about. In fact, that's how the similar sounding aspect was derived. It was obvious right from that moment it was announced confusion with those similar names would help conceal the dramatic change of plans for GM. Failing to have anything capable of achieving the next step in terms of spreading Volt technology to some mainstream vehicle with the intent of competing directly against traditional vehicles (the undeniable next stage for any initial rollout) meant giving up and trying something else. Abandoning that technology was a rather drastic move, one that does not have any path forward. It's incredibly risky to expect customers to embrace something so unfamiliar. Sure, early-adopters don't mind. But for ordinary people who no little to nothing about how their current vehicle operates means a world of unexpected consequences to deal with. There's simply no way to set realistic expectations. Fortunately, not all automakers are that short-sighted. Hopefully, most of the enthusiasts will wake up to reality too. There are consequences. Leading by example is the most effective means of change. Perhaps this will help: People who complain about "*self-charging*" are not acknowledging or recognizing Toyota's effort to phaseout traditional vehicles. When that is achieved, there will be two fundamentally different types of hybrids available. Use of the "*self-charging*" label makes it very clear it is different from the "*plug-in*" model. Planning ahead like that is good business. Contributing to confusion by fueling enthusiast rhetoric is unfortunate.

5-16-2019 EV Owners Meeting. This evening's (here in Minnesota, where our group is quite large and quite diverse) was quite informative. I wasn't aware that the effort to provide a state-level tax-credit was still active. \$2,500 for each new purchase would be great. Unfortunately, that is being fought against really hard. Making matters even worse with respect to political lobbying is a proposed \$200 fee per charging-station. Imagine owners of a store or resort facing that payment each year for each charging their offer for their patrons. How is that even being considered? For what purpose? There's no benefit to what will clearly be looked upon as a discouragement. Sadly, our group is keenly in tune to how much the general public is oblivious to these happenings. The year's legislative session will end this week without them being any the wiser. Most people still know very little about electric vehicles or charging. Even fewer know anything about the detail related to politics. Fortunately, we recognize the potential. That's what we are trying to teach others about. For example, I routinely hear that our grid is incapable of serving a large number of vehicles for charging. That's pure nonsense. We already see that type of demand each summer. A/C power is readily available. We manage just fine. That same load can be provided for homes needing overnight vehicle charging. It's not a big deal. Our infrastructure already supports it... no upgrade needed. In fact, that provides opportunity rural areas are hoping to exploit. Those co-ops know they'll have a very difficult time getting local businesses to offer chargers. But in homes, there's a great deal of potential. So, we get many exchanges with their representatives about how to achieve that. Appealing to customers is a win-win situation. They'll get to sell more electricity, even for those with solar. Our effort now is to spread the word about things to come. In the meantime, we're establishing relationships with those who can spread the word. For me, I have an interview scheduled with a national representative and I'll be organizing a discussion panel at a local library. I'm also looking forward to starting up gatherings again, now that availability of Prime is looking to ramp up. In other words, it's all about being proactive. Finding a group of supporters to make that happen is great.

5-17-2019 GM Progress? Remember all those claims of "*vastly superior*" to that resulted in a position of supposed leadership? I heard so many "*behind*" insults it was truly remarkable... and never made any sense. GM demonstrated you could have a great performing electric-vehicle if you brushed aside concerns of cost and just squeezed in as much battery-capacity as possible. What did that accomplish? It certainly didn't result in any progress with regard to changing the status quo. Just go to a GM dealership. Do you see any difference Volt or Bolt made? How can Toyota be so far behind when their hybrid technology has become so prolific? The new RAV4 hybrid is extremely popular. It's a platform that can inexpensively support plug augmentation. How is that in any way "*laggard*" indication? It's undeniable effort to avoid the Osborne Effect. When the market nears mainstream interest toward plugging in, transition away from traditional vehicles across the fleet will be well underway. This isn't manipulation of attitude via press-release. It's a solid business plan. As for GM making progress, there we spy-shots of a supposed plug-in SUV posted online today. What was most interesting about that was the lack of interest. In the past, we'd get enthusiast hype stirred to an extreme. Now, there's barely a whisper. People have clearly moved on, given up on GM. The reputation of "*over promise, under deliver*" has become a burn for so many, there simply isn't an audience anymore. This is why I kept asking the "Who?" question... knowing someday this would be the outcome. Sustainable business cannot survive on conquest alone.

- 5-17-2019** **Attacking Imports.** During that long series of rhetoric for Volt, there was often a lot of flag-waving propaganda. We'd get claims of "*American*" vehicle support for a car that was nearly two-thirds foreign. So much was imported from Korea, it was difficult to have any type of constructive response. Nothing was effective to those who simply dismiss facts. The same problem persisted with Bolt until recently, when everyone stopped paying attention to GM. Focus was has become directed to Tesla, which isn't as American built as thought. There are some essential components coming from China manufacturers... which makes it subject to tariffs. The recent application for exemption from that was rejected too. Cost to American consumers is skyrocketing overall with so many sources now faced with higher prices. How do you deal with a self-imposed problem that ultimately will cause harm? Our president just plain doesn't care about the consequences. Today's announcement made that behavior even worse. The idea of superiority is reaching a scary level. There was an executive proclamation that declared a 25% tariff will be imposed on imports from Europe & Japan. Making things worse, he's attacking the brand not the product. I suspect news of fallout from this will be fresh online first thing tomorrow morning.
- 5-18-2019** **It's Getting Ugly.** This was the opening sentence on the first article I came across: "*President Donald Trump on Friday declared that imported cars represented a threat to U.S. national security...*" It's truly disturbing to see fear used in such a way. That type of manipulation of people, making them feel insecure when there isn't actually anything to fear, is a practice those well informed know all too well. You appeal to emotion, telling them what they want to hear. That version of reality is fake news. It's a narrative used to undermine... and is often effective for those who simply don't pay attention or don't want to get involved. It's group-think with terrible consequences. Needless to say, there was a press-release from Toyota about the attack. This was how they responded: "*Toyota has been deeply engrained in the U.S. for over 60 years. Between our R&D centers, 10 manufacturing plants, 1,500-strong dealer network, extensive supply chain and other operations, we directly and indirectly employ over 475,000 in the U.S., and have invested over \$60 billion in this country, including over \$1 billion in philanthropic and community-outreach efforts.*" In addition to all those American paychecks, there are over 36,000,000 vehicles from Toyota/Lexus on our roads still. What a mess. Consumers here will end up with fewer choices and those choices will be more expensive. How is that helping American families? How is that helping anything related to improved security? Think about how much better the country would be with imports helping to change infrastructure, encouraging the move away from imported oil? It's an attack on the wrong industry. How stupid can this supposed leader of ours really be?

- 5-18-2019** **Climate Denial.** I stumbled across an article today about a giant coal company filing for bankruptcy. It was Chapter 11, so there will be some type of reorganization effort. That process is revealing. Much can be learned about how the business got into that situation. That's key to understanding what the future holds. What should you expect? What will actually happen? How long will it take. This is what I had to say with regard to this particular situation: It's interesting when you have some family that actually lives in Gillette. Driving around there with my Blue Magnetism Prime, especially when back on the dirt roads, sure provides an acute awareness of how much certain areas of the country fight to retain the status quo. You see signs there proudly supporting that industry... which is extra poignant during the holiday, when you see one reminding you that coal in your stocking is the ultimate gift. There's opportunity to embrace change. The potential is obvious. Just imagine how such unfarmable land that's always windy could take advantage of turbines. Generating lots of electricity to supply other areas of the country seems like something they'd seek out, knowing that coal is doomed. Perhaps this bankruptcy file will serve as a wake-up call. It certainly has revealed that some have been well aware of the problem. At some point, they need to finally address it. Soon would be nice. So many resources have been wasted on the denial. Evidence of how it impacts climate is obvious. Solutions to that are too. It's so reminiscent of tobacco. Their fight to prevent the inevitable was remarkable.
- 5-19-2019** **Charging Questions.** We are getting a lot of them now. For example: "*40A (overkill for Prime) EVSE. Plugs to 40A 240v circuit. Charges the Prime from 0 to 34 miles (reported) in 2 hours flat.*" There is a lot to contribute. Basically, any information is a good means of getting constructive discussion. Many people have little to no background. So, even just sharing personal experience stories is helpful... which is precisely what I did today: We have 2, both the Wi-Fi enabled model. They work great for our Primes. Being able to check status, adjust settings (like maximum draw and maximum charge), and view history is really nice. A full recharge takes us 1-hour 50-minutes. Keep in mind that a 40-amp line (sustained delivery of 32 amps) will provide 200 miles of range in 8 hours. So, a 40A setup is really overkill for most of your need is overnight charging. Remember, you'll almost certainly want a second charger for your household at some point. That means taking into account now how much your service-panel can provide for capacity overall. You'll also want to consider how to take advantage of your local electricity discount opportunities. In our case, we were the very first customers for our Co-Op to request dual time-of-use lines. With that, our billing lists activity from each vehicle individually, showing the quantity of kWh usage for each pricing category (based on timing when electricity is drawn). It's quite nice. All we needed to do was pay for the extra meter (\$75) and can (\$70) during installation of the line. Another thing to be aware of is the 240-volt outlet type. Having such a standard outlet is important when shopping for a charger (adapters are available). NEMA 14-50 is by far the most common for new installs. But that's likely not what you have currently for other appliances, like a clothes dryer. It can support a maximum capacity of 50-amp, but the line doesn't need to be that powerful. In our case, we have 8-gauge wire connected to 40-amp breakers. There isn't much else to consider technically. All you really need to know are those basics. The electrician providing an estimate for cost for running line(s) is the only thing that will vary for individual homes, since service-panel access and where you would like to physically locate the charger will obviously differ.

5-20-2019 **Local Trolls.** His posting have grown so bad, it has really become a problem. Today, we got this: "*my ev estimate always goes down after driving hv. no idea why.*" It's just a flurry of worthless posting. Everything is lowercase without ever referring back to any specific message. He doesn't quote what he's referring to. There's just interjections of brainless posts without any context. There's clearly no thought involved. No one could be so active for so long and still not have any clue. I pointed that out too, as well as provide constructive comment: After nearly 78,000 posts here and 14 years of participation... let's try to use that experience to help us all advance to the next level. It's really important at this stage to engage in the more informative discussion. We are the ones who make that progress forward happen, by posting messages that are constructive. Think about how poor of a job salespeople at the dealership do for actually selling the technology. We all get frustrated by their "*no idea why*" responses. Doing the same here puts us at the same level of disinterest. The more we share our understanding with others, the better off everyone else will be. In this case, the answer to why is simple. The system takes an average based on the outcome of how the battery was recently used. Electricity shared with HV is less efficient than just using it with EV. The traction motor (along with associated components) isn't being used to its full potential, which is optimized for efficiency.

5-20-2019 **The Bigger Picture.** I found my own quote from a little over 4 years ago which applied well to the topic: "*25 miles (40 km) is a worthy goal.*" It was a prediction that turned out to be remarkably accurate. I posted this on the long-dead thread it had originated, hoping to stir renewed discussion on the topic: I was looking for a recent comment about the wish that Toyota had made the mid-cycle upgrade of Prime to deliver more EV mile, so I could point out the importance of looking forward... seeing the bigger picture. I couldn't find it, but did stumble across this look forward from the past... which never lost sight of the bigger picture. For example, there have been quite a number of complaints related to Toyota's use of the "*self charging*" label in their hybrid advertisements. Anyone notice how not a single one of those posts mentioned Toyota quest to phase out traditional vehicles? Having established that "*self charging*" identifier makes the identifier of "*plug in*" so unambiguous, there's no uncertainty what the difference is. Look forward, not backward... as my own quote above did from 4 years ago. Notice how I nailed the expectation for Prime long before anyone else had any idea why Toyota would do such a thing? Back then, there was quite a stir that Toyota was giving up plug-in support entirely as a result of PHV production ending. Those were the words of some spinning their own narrative. Don't listen. Pay attention by looking forward. In this case, I'd like point out an important reason why the capacity for Prime wasn't increased mid-cycle. It's quite simple. Toyota places a very high value on the used market. They go out of their way to appeal to the early-adopters, making the upgrade so compelling some trade-in for the newer model. They provides inventory for the used market. An important aspect of that used market is support. Changing capacity would have resulted in a loss of value in 2 regards. One is obviously less EV miles. The other is simply replacement coverage. If you want a vehicle to last a freakishly long time, don't make it's parts so unique they become difficult & expense to replace. That leads us to the next look forward. Would it be cost-effective to have the engineers restack the cells to make them fit better? Resulting increase in cargo area without any change to operational specs would be a benefit to both new & used sales. Doesn't that seem a worthy goal for mid-cycle?

5-21-2019 **Confusion.** The topic of marketing confusion for Volt came up today. Needless to say, I had much to contribute in that discussion:

Depends upon the audience. GM catered to enthusiasts, thriving on the attention from their early-adopter niche. Toyota is focused entirely on mainstream buyers. That fundamental difference means very, very different messages.

With the case of Toyota, the forward-thinking aspect tends to get overlooked by everyone. They're effort to phaseout traditional vehicles requires setting the stage long in advance to avoid confusion when that final happens. The first part is what antagonists absolutely love to spin, the "*self-charging*" promotion. That marketing taken out of context can be used as undermining material. But when you come to realize that "*plug-in*" is the second part, their approach makes sense. That's how they will distinguish between the two very different types of hybrid offered.

On the other extreme is GM. There is no message or even a clear plan. Heavy investment was made into refinement of their plug-in hybrid tech. But rather than rollout what Volt demonstrated into a popular GM vehicle, like Equinox, the effort was just abandoned in favor of Volt's own antithesis: a full EV. Sending such mixed messages to their customers without any obvious next-step forward explains why investors are now so upset.

Knowing that business-sustaining sales (profitable & high-volume) require appeal to shoppers on the showroom floor, advertising detail of how a system operates is pointless. It comes down to the basics... size, price, features, power, handling, etc. The means of propulsion isn't really ever primary purchase criteria. Dealers (the true customer for automakers) simply weren't interested in what early-adopters wanted.

5-21-2019 **Campaign?** As expected, the discussion got rather heated quickly. This really stirred things up: "*GM campaigned on range anxiety.*" It was the result of the enthusiast claiming hybrid owners were the target for Volt, which makes no sense for an audience already quite familiar with dual-powered systems. Why wouldn't you reach out to those who have been waiting for an EV instead? The arguments had little substance. It was just more of the usual rhetoric. I chimed back in with: No, the problem was GM had a solution looking for a problem. Reality is, there's a huge PHEV market in the waiting and Toyota is prepping for it with deploys of a wide variety of hybrid choices. Each is which is setting the stage by replacing their traditional counterpart and making way for a plug-in model. Your own reply repeated the same mistaken message by focusing solely on Prius owners and conquest. Deciding to completely ignore the large sedan and SUV market was a profound error by GM repeated by enthusiasts. Looking now, it should be obvious how much GM messed up by not marketing Volt as a platform for other vehicles to adopt. Just imagine what that message had sent. People would be expecting an Equinox or Trax with that technology. Instead, loyal GM customers just replace their old GM guzzler with a new GM guzzler. What will GM campaign on now?

- 5-21-2019** **No Market.** The effort to avoid anything constructive continued: The major mistake made by Volt enthusiasts was to treat the technology as a competitor with other automakers, rather than GM's transition away from its own traditional offerings. That made conquest sales the focus. It wasted the limited supply of tax-credits, achieving nothing in returns. GM's status quo remained intact. This prevented the benefits of plug-in hybrids from ever being addressed. Attention was constantly directed to minor conquest. Volt won a few battles, but lost the war. Enthusiasts enabled GM to fall into the innovator's dilemma trap. So, no amount of advertising would overcome the misdirection. Volt became a product without a market.
- 5-21-2019** **Futile.** They say hate blinds. They are right. When a person makes up their mind you have an agenda, they stop listening. That's especially problematic if they assume incorrectly about what it is. For example: *"It (Volt) failed because people in EV community like you who hated it just because it is a PHEV from GM."* That sentiment of not being able to be supportive of more than a single automaker is a difficult self-created barrier to overcome. Some people believe cooperation is impossible. That's absurd. We have shared goals for many things. Why couldn't electrification be among them? Ugh. I asked: The point is to change the status quo, right? Targeting EV supporters was a fundamental mistake. Yet, it continues. That *"wrong audience"* lesson was not learned. The goal of appealing to showroom shoppers wasn't taken seriously. It failed because enthusiasts didn't understand who the market for Volt was. Trying to sell a performance compact to loyal GM customers interested in a SUV was a waste of time & money. It was doomed to fail. Looking back, it's amazing to recall how hard certain people truly believed that would work and to what extremes they'd go to defend that risky hope. Reality is, the path forward for GM will require finally acknowledging need over want. Priorities for ordinary consumers don't view the divide between PHEV and EV the same way. Treating the situation as such is futile.
- 5-22-2019** **KISS.** The arguing about how marketing was or should have been continued. Distortion of history is rampant at this point. Not remembering the timeline correctly and simply just forgetting all that influenced decisions is an all too familiar problem. That's why I documented that history as it was playing out, capturing as much as I could while it was happening, to properly represent it all these years later. I just look back through the blogs to get an accurate picture of the situation at the time. It's far too easy to look back with bias once you know the outcome. Not knowing is what leads to the behavior that unfolded. In a way, it's not so bad that they forget. It can sometimes present an opportunity to reintroduce an idea which had been brushed aside in the past. For example: *"I drove over 1,600 miles with my most recent tank of gas."* That was my marketing suggestion to the discussion. I further added: What more can be effectively said when you have the attention of a random person for just 30 seconds? That simple sentence addresses all concern without getting into an detail. It's marketing that actually works. Ironically, GM teased that very idea. Enthusiasts fought it though, not wanting to acknowledge the reality of Volt not actually being vastly superior. Other PHEV would be able to deliver the same thing. That's how the self-destructive EREV identifier came about. KISS really is the best approach.

- 5-22-2019 Competition.** The best word to describe today's situation is "Ugh". It was a staged competition to compare the MPGe of an AWD Prius to that of a Tesla Model 3 AWD. See the problem yet? If you've read my blogs from the past, you'll recognize the MPG issue. Yup, just like that coast to coast drive of Jetta against Prius, it was a measure designed to focus specifically on just a single trait and dismiss all else. The video repeated that mantra over and over again, as if that's all that ever matters in terms of understanding the ownership equation. To be unbiased, you avoid ever doing such a thing. This is why those trying to honestly represent true usage always report their lifetime value. That measurement takes everything into account... daily driving... seasonal changes... vacation trips... running errands... holiday shopping... family gatherings... entertainment stops... you name it. To attempt to make a specific test representative of true performance is a common undermining technique we've seen all too well. So whether the video posted was intended to be bias, that's what it ended up being. Perhaps if they follow up with a variety of other drives, then it would balance out. But this first one was not appropriate as presented. And I didn't even mention the huge price difference. Since when is comparing vehicles with such a large price difference a reasonable representation of competition? Ugh.
- 5-22-2019 Cry Spin.** Attack is the theme. Rather than deal with the issue at hand (effective marketing and a path forward), it's better to declare the messenger the real problem. Ugh. Fortunately, I don't have to put up with that nonsense anymore. Toyota's plan to diversify has been going really well. Progress of that goal is obvious. Sweet! This is how I responded to the troublemaker who clearly isn't ready to face reality yet: 6,556 RAV4 hybrid; 2,128 Camry hybrid; 1,403 Corolla hybrid; 1,104 Highlander hybrid (next-gen coming later this year). All are examples of popular vehicles adopting the hybrid technology and selling well. Those numbers are just from April alone. Think about what that's doing to interest in their traditional counterparts. That's a solid path forward... non-disruptive... an approach dealers will embrace... exactly what's needed for electrification to reach the masses. As the hybrid models become more popular, a plug-in variant will be added. Cry spin all you want. It won't change the reality that we still don't see any fleet plan from GM.
- 5-23-2019 Evade & Bash.** Feelings related to defending GM are still quite high. With a loss so blatant, the damage-control effort is daunting. Those few still holding on to unwarranted hope have literally nothing to work with. Tax-Credit phaseout is underway and there isn't any path forward. Stubborn resistance from dealers is as strong as ever. Why change? Bolt is simply far too different from ordinary inventory that's stocked for salespeople to bother. This is why it was so important to get a clear message of purpose. After an entire decade, we still don't have that from GM. What is their next step? Needless to say, there's no interest in actually addressing that issue. Instead, the response is to evade & bash. Doing everything possible to change the topic. Where have I encountered that? Anywho, this is how I dealt with that nonsense: Toyota is demonstrating a clear path forward that is proving to be very successful. Dealers are pleased with the results and there's a great deal of potential for growth. That wide variety of hybrids, each on a platform that can affordably & profitably offer a plug, is the solution GM had always hoped for.

- 5-23-2019 Marketing.** This is how the long string of posts about how GM messed up with Volt came to an end: "...*marketing strategy aimed at the general public.*" Since it was something I had blogged (and complained) about for an entire decade, it should be no surprised that I sounded off about price. Way back in 2007, it sounded quite unrealistic to set a target so low for a return so high. That proved quite true too. Concern about that was blown off though. Criticism was twisted as claims of undermining attempts. Enthusiasts just plain did not want to hear anything constructive. Question is, now that those enthusiasts are all gone, what do those participating online at this point think? With Volt dead and the possibility of that technology containing unlikely, it's an interesting thing to ponder. I didn't. I just posted: GM should have stuck with its own strategy. That "*nicely under \$30,000*" goal still stands true for appeal to the masses.
- 5-23-2019 Entertainment.** I'm tired of certain individuals who use the forum for their own entertainment. In this case, it's a retired person who apparently has nothing better to do. It wouldn't be so bad if his many scores of posts each day (sometimes even exceeding 100) actually included some study. They don't though. In fact, we see repeats of the same thing frequently. There is no progress, despite such active participation. Posts never included a quote, are always all lowercase, and rarely haven't anything of substance. That's the same thing a troll does. For example: "*toyota can barely sell 2,000 a month at the current pricing.*" It wasn't even on topic. It was an comment completely out of context. We were discussing what brought about GM's most recent disaster. Like a troll, his purpose is to provoke. You know, anything to get someone to provide entertainment. Being engaged in discussion is all he desires. Progress is never made. I see the pattern repeat over and over. Sometimes, I do actually push back to draw attention to his activity. Vague posts are what tend to do that. Today, I kept it brief: That's highly misleading. Toyota has clearly been delaying both promotion & rollout until the mid-cycle. Toyota has also done all it could to avoid getting caught up in GM's fallout.
- 5-24-2019 Tradeoff.** Another thing I find annoying is when luxury vehicles are compared to ordinary mainstream offerings. How is that constructive? Like other pointless efforts, it happens all the time. That can be an effective means of undermining a discussion. Again, this is something we often find coming from one of those individuals who use the forum for their own personal entertainment. Today, it was: "*The 2019 BMW 330e loses 105 liters (3.7 cubic feet) for its 12 kwh liquid cooled battery.*" Even though this topic presents the option to expand upon the topic being discussed, it really wasn't helpful... since the topic has been beaten to death already. They like to repeat. That's key to their entertainment. Preventing progress is something they work hard at. After all, not many have a domain like that at their disposal. We can do much to prevent their posting. Their distractions continue, endlessly. Like usual, I keep my replies to such individuals brief: Liquid cooling adds cost & weight. To be a mass-market leader, doing the same as a luxury brand doesn't make sense. GM learned that lesson the hard way. The tradeoff isn't worth it.

- 5-24-2019** **Priorities.** This is why I so often say "ugh" to some of the stuff posted in the forum threads: "Yes, yes, exactly..." That was a vague agreement just for the sake of moving on to a preferred topic. It's what happens when you nail down an element of importance. Those efforts to keep things active can't be interrupted by a logical point. The last thing they want you to do is draw a conclusion, since it will end their entertainment. Annoyed, as usual, I still took the time to reply with something constructive: With all that, you completely evaded the topic of MASS-MARKET sales. That means MSRP near the consumer mean (not average) without subsidies, since it must be able to compete directly with traditional offerings. The goal is mainstream volume with several models for each automaker. Remember, the ability to achieve both profitable & sustainable requires a balance of priorities.
- 5-24-2019** **New Audience.** It never ends. Spin from long-time antagonists always emerges as some point. I was actually a bit surprised it took so long this time: *"It shows that GM is serious enough about making a long-term commitment to electric vehicles to cast aside the Volt, GM's most successful electrified vehicle to date, and embark on an uncertain all-electric future even if it means some near term sacrifice."* That was amusing to read... since there hasn't been any long-term commitment actually made. GM simply abandoned Volt when the tax-credits were used up. It ended up being a waste of opportunity. What was the point of joining an engine to a motor, especially with gen-2 refinements in hybrid efficiency, if the goal all along was an all-electric future? Why not just do what Nissan did instead, just start with the preferred approach? There is no justification to spend so much, then cast it aside. Sacrificing such a massive engineering investment doesn't make sense if there's nothing to switch to. GM itself told use profitable EV sales are still several years away. Cutting losses is one thing. But when you know that technology would work great in a Trax, why wouldn't you offer it? Think about the size of that particular SUV. Think about the convenient height for adding batteries. Think about the propulsion configuration. Trax uses a 1.4-liter turbocharged 4-cylinder engine to deliver 138 horsepower. Volt used a 1.5-liter 4-cylinder engine to deliver 149 horsepower. Doesn't that seem an ideal platform for the propulsion system to have been transferred to, rather than just abandon? Anywho, the Volt enthusiasts have a new audience now. They are trying to somehow convince them that's a terrible idea, that simply endorsing only Bolt makes more sense than leveraging all that refinement GM already delivered. Huh?

5-24-2019 **Jumping Ship.** There aren't many Volt enthusiasts remaining. Yet another just revealed he's jumping ship: *"I'll be trading my 2017 Volt for a M3 in the coming months."* The hypocrisy is amazing. They absolutely insisted conquest wasn't a problem, that GM was building loyalty with their commitment to EREV technology. That fell apart to such an extreme, they cannot distance themselves fast enough. Remember all those attacks I got on the EV blog, when I started posting there after the Volt blog died? Even those came to an end. It was futile defending a technology that had been "*cast aside*" without even so much as a tear. To be told this would never happen... Looking back at the nonsense I had to endure. What was the point? They fought and fought and fought without ever doing what I asked, to state goals. I was about winning something, not actually getting the status quo to change. I saw that from the start. My question changed to "*Who?*" when it became apparent their was no interest in mainstream sales. Appealing to ordinary consumers wasn't of any interest to them. Just about all of them have jumped ship at this point. Many followed glory, hoping to find it elsewhere. The rest faded into nothing. It's a strange victory.

5-24-2019 **Sales Graph.** Someone animated the sales chart for the United States over the past 7 years. It shows month-by-month changes, allowing for a rather clever means of representing progress of the market. It doesn't actually show progress of the industry though. That limited scope is very misleading. The fact that it also divided gen-1 and gen-2 of the plug-in Prius into two separate categories was rather blatant misleading too. Enthusiasts would have screamed bloody murder if that had been done for Volt, but it wasn't. Worldwide sales were completely omitted too. It was obvious cherry-picking; nonetheless, it did stir some constructive discussion. People are avoiding the topic of GM progress though and this was yet another example. Playing the victim card for Volt isn't even happening anymore. Bolt is just there, but nothing is happening with it. Tesla was the rising star in that animation, but there's a gray cloud growing over its future. With the final reduction to 25% just 5 weeks away now, that dependency on tax-credit for sales is obvious. No one seems to want to discuss that though, just like what we saw with GM. So, I reminded everyone of that recent history to be ready for some type of change on the horizon: GM's heavy dependence on tax-credits only resulted in trivial sales with respect to the true competition, traditional vehicles. That meant it was doomed once phaseout was triggered. GM should have diversified long before reaching that obvious cliff. No Trax or Equinox with tech from Volt was a terrible executive decision.

5-25-2019 **Cattle Cliché.** I hadn't ever actually heard this one, but it fit well into the sale graph discussion. So, I added more in response to it: That "*all hat and no cattle*" is an excellent way of describing the situation. It doesn't matter though. The first stage of rollout doesn't represent what will happen later anyway. That graph is rather misleading too. The separation of Toyota PHV gen-1 from gen-2 is rather blatant misrepresentation, since the same was not done for Volt. But then again, the graph only tells the early-adopter story, since all the sale were subsidized. That's a lot of low-hanging fruit, which is pretty much all gone now. It's time for the cattle. Think about how the market will look once those tax-credits are completely phased out. After all, that quantity of 200,000 vehicles is much when you consider annual sales in the United States is still somewhere around 17,000,000. Consider the extremes. We have Tesla who strived to establish a profitable foothold prior to expiration and GM who simply exploited the conquest opportunity. As a result, one built up some rather fierce loyalty and the other struggles to retain attention. Realistically, it's how the dealers embrace change, not those who end up owning the vehicles. Showroom shoppers are what bring in the sustainable profit. That market has yet to be tapped. There's a lot of potential, but a graph like the one provided doesn't represent how that entirely different audience will respond.

5-25-2019 **One Solution.** Most people have little background in business and pay attention to the market even less. That absence of understanding makes seeing the bigger picture a hopeless battle. All you can really do is provide information when that unknown is detected. For example: *"What I don't understand, though, is why they are spending so much on developing fuel cell cars..."* It makes sense that to be so uncertain. After all, look at how few EV owners actually really understand the EV market. There's just so much to be aware of and the perspective of United States information sources has undeniable bias... a narrative of what is hoped for, rather than what actually is. Some of that comes from the aforementioned lack of understanding. Unfortunately, some also comes from the political efforts to misrepresent. With the hope of providing some useful view, I posted:

One solution for all, especially with so many markets to serve, doesn't make sense. Hydrogen won't be everywhere, but commercial fleet use has strong market potential. The electric drive system can be shared anyway. So, there's a win-win. Heck, even battery advances can be used by both. So, delay with full EV and maturing the FCV tech in the meantime isn't a futile waste as many spin it to be. We reap the benefits for PHV use along the way too.

Basically, it's Toyota thinking long-term & high-volume facing critics obsessed with limited scope returns. After all, who's to say all the investment VW is doing will put them anymore ahead? Look at Tesla, so much spending in charging infrastructure has left them very short on sales & support infrastructure. Balance of risk necessitates diversity. Notice how little Volt accomplished for GM. That major investment in plug-in hybrid tech was just abandoned. Was it good to cut-bait like that?

The answer to that GM conundrum comes from whatever the next step delivers. If their learning experience results in profitable & sustainable sales from whatever Bolt becomes, then yes, it was good. If GM just flounders and is unable to fortify their foothold in the plug-in market, then no, it was a waste. That same logic can be applied to Toyota.

It all boils down to market impact. What really affects the status quo? Most of the hype garners much praise, but really doesn't achieve any real change.

5-26-2019 **Change Precedent.** It is especially intriguing when someone with a constructive demeanor posts something like this: *"The Volt was not abandoned. GM is selling it in China under the name Buick Elite -- they have a new model this year and an electric model (based off the Bolt) called the Velite 6 MAV."* His message was clear & concise. It didn't play by the rules of engagement though. That approach of logic without context can be brutal, as I pointed out with the hope of some constructive feedback:

Volt enthusiasts established the precedent of separate markets, absolutely refusing to acknowledge worldwide efforts. They fought and fought and fought for over a decade, fiercely attacking anyone who attempted to include Japan or China in activity that took place in the United States. Now, they must reap what they sowed. Making matters worse, some got to the point of hostility (offensive online posting) to divide the market here in the United States. They fortified the narrative that *"EV market"* was all that mattered, that *"mainstream consumers"* would simply follow suit following expiration of tax-credit.

That was a brutal history I will continuously remind people here of... because we've seen that cycle repeat. It started with attacks on Toyota's hybrid system with Two-Mode. That went on for years and years, then finally collapsed when the technology proved unworthy to compete with traditional vehicles. Sound familiar? The very same thing played out with Volt, despite all the reminders and the *"too little, too slowly"* concern expressed over the bankruptcy recovery about the technology.

And sure enough, failure to spread the technology from Volt to something capable of sustainably returning profit is undeniable. The opportunity to use tax-credits as intended (to help with the spread) was wasted. Now, if GM really hasn't abandoned Volt for this market, the technology will have to compete directly against GM's own traditional vehicles (the true competition) without subsidies.

Remember, the point is to change what is offered at dealers, here. Take a look around. Each automaker faces their own set of challenges to change purchase choices for their own customers. Notice how Toyota is doing an absolutely incredible job of pushing out traditional vehicles? RAV4 hybrid is proving extremely popular. That's paving the way for plug-in models.

So what if the narrative that *"Toyota is still balking on EVs"* is what you hear from enthusiasts? They set a terrible precedent that is now coming back to haunt them. Anyone who takes the time to look for true change will find it on Toyota dealers' lots. It may not be the speed or approach that's excited, but it is an undeniable large-scale shift away from traditional vehicles setting the stage for more change.

5-27-2019 **Yawn.** The emoji response was pretty lame. I shoot back with:

That yawn response is an excellent example of a passive-aggressive enthusiast. Showing indifference to such a serious situation is how we identify enabler activity. That's what becomes a part of group-think, the very problem that contributed heavily to Volt's downfall. Those sharing that attitude invited innovator's dilemma. Essentially, they sabotaged GM's efforts by encouraging the niche. It was progress, but the wrong direction and no one was willing to call out the mistake.

It was an error on a monumental scale. All that money invested went to what? Remember, the intent with Volt was to be a high-volume seller. It's not like Toyota's investment in Mirai that is produced at low-volume with clear intention to only sell at that small number and only in limited markets. It's kind of like Tesla back when Roadster served as a real-world research vehicle. Toyota has stated there is no mainstream intention yet with that generation. Decisions will come later, exactly as their all-electric rollout has been presented.

So what if you don't care about the well-being of an automaker? Very few actually do. Most focus on what they see at auto shows, which has little reflection of what they end up purchasing. Tesla offers premium vehicles. Whether or not you want to call them a "luxury" automaker makes no difference anyway. Each automaker has their own audience. Toyota's is much more reflective of mainstream consumers. Their vehicles are ordinary... something most enthusiasts would yawn at.

5-27-2019 Warm Up. It took quite a bit of posting from a number of active constructive posters to finally get this: *"If 'warm up' is a thing in the past, then the term 'warm up' should not even be mentioned anywhere in the manual."* The new Prime owner wants to have a engine-startup remote installed, but not for the sake of either warming up the cabin or warming up the engine. It was bizarre. Why? That quote became the missing clue. He read that *"warm up"* was necessary. I was revealed to provide the final puzzle piece:

Now, we are finally getting somewhere. You made the assumption that *"warm up"* for a traditional vehicle is the same thing as *"warm up"* is for a hybrid. It is not.

For a traditional vehicle, the term *"warm up"* means to get the engine up to a temperature with enough heat so that the output of the propulsion system is normal. A cold system will be sluggish. Engine oil, engine coolant, and steering fluid all work better when there's some radiant heat energy circulating through the propulsion system.

That same definition most definitely doesn't apply to a hybrid like Prius. It uses 0W-20 synthetic oil in an engine designed for rapid heat distribution. The steering doesn't even have fluid, since it's electric. Most power provided during the initial operation of the engine comes from the electric traction-motor too. In other words, none of that heat is needed for driving.

The *"warm up"* with respect to Prius is related to the emission system. For the catalytic-converter to cleanse emissions thoroughly, it must have heat to make the chemical conversion to take place... hence *"gasoline engine may not stop"* mentioned in the manual. Remember, cleaner emissions than traditional vehicles is a priority for Toyota's hybrid system. Engine warmth is used for that, but is clearly not necessary for propulsion.

So, what you see in the manual is a misunderstanding. For Prius to be cleaner than traditional vehicles, it requires heat from the engine... hence the *"warm up"* mention.

5-27-2019 Too Soon. I liked this particular question: *"How is the Volt being 'Canceled' a way to rationalize that it's too soon for Toyota - when in fact plug-in's growth has been at a much faster rate then hybrids market begin to grow?"* Since it was the obvious cherry-picking to limit scope, answering was easy; As mentioned countless times by me, the *"EV market"* narrative is not representative of what we will see once this early-adopter stage (clearly defined by tax-credit availability) comes to a close. Statistical misrepresentation is a really easy trap to fall into, especially with generous subsidies involved and an ample amount of low-hanging fruit. That next stage in rollout process is far more difficult and Toyota much better positioned to address that. Anyone can build an expense electric-drive system. Making it affordable and available on a wide variety of platforms is an entirely different matter. Toyota's distribution of HSD is an undeniable example of that. Remember, the upgrade to deliver the full EV driving experience only requires the adding of a one-way clutch. Having the rest already in place provides a simple next-step forward. Since there is no other platform using Volt technology available, Volt itself is no longer being produced, and no hybrid version of any SUV offered, whatever term you want can be used to describe situation GM customers now face. Semantics is a moot point. It is obviously *"too soon"* for GM.

5-27-2019 **Someone Asked.** I responded to inquiry with: Once upon a time, there was a blog for Volt. It innocently started out as a fan website, but over time became a source for fake news. This was long before the term had ever been coined or the understanding of how much damage such a entity could cause. It was a group of enthusiasts who became masters of hype. Making ambiguous automaker releases into unrealistic expectations people would believe became a daily ritual. They would fight anyone who questioned their ways. The ability to hide behind an anonymous posts made it especially inviting for those who just plain didn't care about integrity. Fortunately, it was doomed to ultimately fail... and finally did.

5-28-2019 **Marketing.** This is difficult to understand: *"Perhaps if Toyota made some sort of effort to sell their hybrids?? What would happen if the Toyota marketers got with some of us here on PC and we could coach them on these amazing cars?"* So, providing the response got a little involved.

They are! This is why *"know your audience"* is so vital.

2019 brings about 4 new hybrids. Prius AWD was introduced early in the year, but has a focus on winter driving... which won't arrive until late in the year. RAV4 is a next-gen rollout, so it's facing sold-delivery & back-order situations. Corolla is a brand new hybrid for this market, so there's a lot to address simply from the dynamic that introduces. Highlander next-gen won't be available until later this year.

With all that going on, in addition to the mid-cycle upgrade of Prime and the introduction of the new look for Prius, we can see that Toyota's effort to sell is well underway with dealers... who are their primary audience, since they are the ones who actually purchase Toyota vehicles. The dealers will be working to get their salesperson trained to handle marketing later done by us... who are the secondary audience, since we'll be doing a bulk of the promotion.

Near year end, we'll very likely be getting ordinary advertising. Getting all that in place in the meantime is a major undertaking, to even just properly address the final audience... who will be driving home in one of those new hybrids.

Remember, there's a major shake-up in the EV sector right now. That will most definitely impact the rest of the automotive market. So, steering clear of that... simply by doing other stuff (like dealer prep) in the meantime... is a wise use of that beneficial delay.

- 5-28-2019** **Paradigm Shift.** This troll just keeps at it: "*yes, but the sales weasels don't. they only see the bottom line*". His style was reflected well with that... never change. It's quite annoying, as is his approach of all lowercase, never quoting, and being exceptionally vague. This is one of those situations where anything different is unwelcome. In other words, he just likes to complain. You know the type. Fortunately, the world around him is changing. This time, it's going to be rather big too. The pattern of stereotypes & misconceptions only lasts so long. I pointed out: That misconception of "tough sell with little to gain" needs to finally be squashed. RAV4 hybrid is proving the very assumption you just contributed to incorrect... hence the next class. Far too often, we see discussions online focus entirely on micro-economics with no regard to macro-economics. They focus on doings of the automaker only with respect to a very narrow scope... like a single vehicle for a limited audience. At this stage, that's harmful. It holds back the work needed to grow the market. In other words, don't be an enabler of the status quo. We now need to move beyond the stage you had been part of. This next one... mainstream acceptance... is very, very different. That means really making an effort to understand the new situation, known as a paradigm shift.
- 5-29-2019** **Ford Escape 2020.** We actually got a little detail today. This new upcoming hybrid from Ford will use a 2.5 liter four-cylinder engine and will have a starting price of \$29,350. The estimated efficiency is 39 MPG combined. Sounds like they'll have a popular choice. Hearing that is on the way provides a glimmer of hope. Such silence from Ford was painful. Nothing seemed to be happening. It made sense though. Why do anything that resembles GM behavior? Not having anything green whatsoever in the SUV category was an indication of trouble to come. There's simply nothing to argue about. No attempt to change the status quo is a very real problem. Something at some point will give. This is good news.
- 5-31-2019** **C-HR EV.** There was an unveil today. That ended rumor, speculation, and doubt. It leaves antagonists in a pickle. Of course, they'll come up with something else to complain about. Losing their favorite scapegoat leaves damage-control efforts a mess. It's all about setting realistic expectations. They don't... hence being enthusiasts. A true supporter won't do that. They'll make a sincere effort to really understand the market. They don't operate on hype & hope. Toyota doesn't either. We'll eventually get that C-HR or something similar here. That's the way Prius started. In a less fickle market, shaking out refinements takes time. There are tradeoffs which need to be measured in real-world driving. Both engineering & management have choices to make based upon that feedback. It's how you reach the wider audience, beyond just enthusiasts. Toyota doesn't want a niche disaster that GM had with the now dead Volt and still has with Bolt. In other words, we're in that limited rollout stage. Think about how much that did for Prius PHV, since it was just a mid-cycle offering and only made available in 15 states. We're witnessing the same now with Prius Prime. Toyota limited rollout to select regions, without any real push. It was clearly an effort to collect real-world data for the mid-cycle upgrade. Once that is in place (the 2020 model), we should see it nationwide and in much greater quantity. Patience pays off. Unfortunately, few online are willing to practice such waiting. They want it now. Gain in the short-term is an unfortunate expectation with sometimes terrible consequences. Thankfully, Toyota doesn't play that game. Being "*late*" to a party you don't actually want to be part of isn't so bad.

6-01-2019 **Uncertain Future, part 1.** Constant attacks on Toyota make it obvious those enthusiasts lost without that daily blog are struggling without a plan. Having been caught in lies to cover up reality crashing down on them clearly had the long-awaited impact it should. Each time a goal was missed, there was downplay & deception. It was nasty at times. Focus on just engineering alone was a flawed approach. Combined with the overkill attitude, precedent was set. Failure to deliver business need was inevitable. I was annoyed from the start. There was such an obsession with speed & power, the claim of leadership was nothing but vanity. I coined it the "*trophy mentality*" problem. Want clouded judgment. Their desire to project beliefs they had were actually needs for everyone never had merit. That doom took a very long time to play out though. GM milked it for all they time they could drag it out. 200,000 sales is quite small, especially for such a large automaker. I still remember Toyota setting their annual hybrid goal for 300,000. It was for 2005, which was 8 years after rollout. That was not only achieved, it was exceeded. There was no tax-credit available here in the United States back then either. For the 10-year anniversary, the goal was bumped up 40%, to a level 430,000 annual. It seemed quite realistic, since 2006 sales actually reached 315,000. When the goal for 2007 was achieved in late 2007, we were told by Toyota about their next goal: 1,000,000 by 2012. Well, you know how the story goes from there. That goal was achieved and annual sales continued to grow. Now, we have a vast array of hybrid choices and a stage set well for plug-in hybrid opportunity. Meanwhile, we haven't heard anything at all from GM. Even the enthusiasts are dead quiet. The daily blog has resumed posting too. So, I'm going to find out what's going on by attempting a post myself. It's difficult to tell if that will be allowed. There are only 4 messages and those were from hard-core participants. We'll see.

6-01-2019 **Uncertain Future, part 2.** Here is that post:

Rewind to the end of 2008, back when GM was preparing their bankruptcy recovery plans. At that point, the Volt concept was 2 years old and this blog was quite active. I was among the top participants (as listed on the homepage statistics) and was known for my concern about GM not actually following through with their intent to deliver a high-volume profitable plug-in technology. In fact, I shared the same sentiment later expressed by the bankruptcy recovery task-force: *"too little, too slowly"*.

Enthusiasts of Volt assured me there was nothing to worry about, GM was investing heavily in Volt and believed strongly their approach would squash both HV and EV offerings. It was to be the industry leader, that technology would grow to levels of acceptance yet to be imagined. I continued to push concern, raising issues over the years about the absence of diversification and catering to niche interest.

There was only a finite quantity of tax-credits available, opportunity was being lost. So reason for the push to move forward was genuine. Volt rollout proved to be a disastrous misalignment of priorities. It was impressive technology poorly implemented. The form & function didn't appeal to GM's own loyal customers. That path to sustainable sales for their dealerships has been jeopardized for the sake of image.

The promise of that push to develop a portfolio beyond Volt wasn't going to happen. That was overwhelmingly confirmed upon learning what gen-2 of the technology would deliver. GM followed the path of praise rather than taking the business situation seriously. No variant in a form similar to their current fleet was to be delivered. Status quo would remain unchanged.

8 years following rollout, word was shared that Volt production would come to an end without any successor. No progress would be made by GM to advance their plug-in hybrid technology. It was to be abandoned in favor of the antithesis they had promoted so hard against, full electric vehicles.

Say what you want about this summary, from a participant who was their on the front lines from long before Volt's concept reveal. Call it online spin. Claim it is a narrative. There is no hiding the reality that a plan forward from GM is still needed. How will the automaker quickly transform a bulk of their fleet to something other than guzzlers without any type of battery-pack?

After all these years, the efforts to electrify haven't resulted in actual change on the showroom floor. Loyal GM customers go to dealers to replace their aged traditional vehicle with a new traditional vehicle. No hybrid. No plug. Nothing by the same old guzzlers.

- 6-03-2019** **11-20 Years.** I found this quote today intriguing: "*People now care much more about reliability & resale value for years 11-20 of a car's life.*" It is pretty much just a moot point though, as I explained: There's an interesting twist to that. Yes, they do indeed care. But when it plays out, they don't actually keep the vehicle that long. It is statically extremely low (at least here in a northern state) for vehicles to survive that long. The seasonal changes age the vehicle to the point where upkeep to keep a guzzler going simply isn't worth the expense. There's also the reality of human nature. Desire for something newer compels many to replace, even if there are a few years left on the vehicle. Those end up in the used market, skewing the ownership trail. Dealers will sometimes dump those vehicles on buyers who purchase in bulk for resale elsewhere.
- 6-03-2019** **Real Change.** This was another that caught my attention: "*Dead-cat bounce? Follow the number back a decade or so, hasn't it slowed appreciably.*" People look at sales from various perspectives. I'm often dealing with the difference between micro & macro. That, in itself, represents enormous variance. Each has its place, yet still related, while telling stories of outcome that conflict. Since most online don't ever bother to take the time to really understand and even fewer make an effort to be clear & concise, it's basically a hopeless battle. Opening eyes to see what could be requires that. Most don't see the problem until it's too late though. Volt was the ideal example. Enthusiasts fought and fought and fought, claiming I was making up stuff with the intent to undermine. That took an monumental amount of denial. They worked so hard not to see what was obvious to so many. Oh well. That's over now. GM failed and will hopefully move on. The effort to actually make an impact isn't just a matter of squeezing in a much battery as possible. Did they really think that would actually work? Anywho, I posted this as my reply, pointing out a great example of progress: Very, very, very different market back then makes direct comparisons impossible. The measure of success is based on the progress of traditional vehicle phaseout. RAV4 hybrid is reaching a new audience. That impacts the status quo. Real change is happening.
- 6-03-2019** **Nonsense.** This closing statement was a real head-scratcher: "*...and a lot of the advantages of a pure EV are lost.*" It was supposedly a rant about PHEV being nothing but a short-term bridge to the future. Remember all that "*stop gap*" nonsense years ago? I wondered if that was more of this. Unfortunately, none of the paragraph preceding it provided any clarity. What could possibly be a strong argument point? It eluded to nothing and Volt enthusiasts worked hard to demonstrate there was nothing lost. So, I really wanted to know what in the world he was referring too. The answer to follow my post was a big disappointment though. Turns out, he had mixed up the two terms and not even noticed. That left me wondering about context. Something still wasn't right. But like many who get caught posting something misunderstood or in error, you rarely ever get constructive follow up. So, I didn't bother. This is what I originally posted: My entire commute in my PHEV is entirely electric. I enjoy the silent cruise on the highway in total comfort without using any gas. Advantages of the all-electric drive is quite obvious. Claims about that EV experience somehow lacking something is nonsense.

- 6-04-2019** **Between?** On that same thread as the nonsense post, we got this: "*Now that the Volt is all but gone, it is a greater separation between EV and PHEV.*" It was apparently an effort to push the two apart, kind of like the failed effort to define EREV. Posts on that topic were both vague and contradictory. They changed over time too. So, any lack of clarity on it now meant future replies would be even weaker. It's yet another attempt to market by clever wording rather than clever engineering. Ugh. When you look at deal, even if vague, those categories will stir discussion to reveal shortcomings. I started my rebuttal with: That's just nonsense. PHEV like Prius Prime have EV up to 84 mph, electric heat-pump, electric A/C... what more do you need? Reality is, the PHEV has a much smaller capacity battery with charging that isn't a fast. The driving experience is no difference.
- 6-04-2019** **Codependent.** What happens when 2 automakers become dependent upon each other? Turns out, that has been playing out right in front of us. I questioned how Tesla was able to keep funding new builds. It seemed bizarre that so much capital remained available. How many stock was actually being purchased? Similar suspicions came about for GM. What had the automaker been ok with the abrupt abandonment of plug-in efforts? It seemed bizarre that emission requirements were somehow still being fulfilled. Remember all the clamoring of Volt related to HOV stickers? Each sale resulted in some carbon credits. Without those sales now, how was GM getting enough? Bolt certainly wasn't going to deliver and there aren't any hybrids for that. Guess what. Tesla has an abundance and was more than will to exchange them for money from GM. Eek! That's not a sustainable business model, knowing Tesla is still investing heavily and Model 3 is starting to see hints of market saturation at its current pricing. It's a relationship likely to be strained and with no guarantees. This situation is bound to get interesting.
- 6-05-2019** **May Sales.** That fall I had been talking about for years is now playing out before our eyes. Every time a Volt enthusiast brought up affordability, they would always include the tax-credit. Portraying it as a guarantee for everyone with no expiration was a doomed approach. If somehow the price of batteries ever dropped so low it would make Volt competitive with traditional vehicles, the benefit would also be true for EV offerings. It was a lose-lose situation. That's why Toyota's effort to squeeze out as much efficiency as possible from both HV and EV operation was so important. That was a win-win. In other words, it could compete. We're seeing evidence of that stage being set now. It's all about preparation. You don't gloat & promote. You quietly get everything in place. I keep telling them to get ready. May sales just brought about more rhetoric though. They don't want to hear this: 2020 model-year brings about a mid-cycle upgrade. That should open up availability to the whole country. The current limitation to just selected regions has demonstrated the potential for significant growth. 917 miles on my current tank. Only used 1/8 of the gas so far (about 1.25 gallons). That's 90% of the driving EV. Works great, highly efficient, no effort.

6-06-2019 **Terrible Mistake.** Seeing this was rather vindicating: *"It's brand loyalty...nothing more. If they had a Prius before they don't even check to see what else is out there."* That type of generalized assumption without any actual data to support the claim is a clue they don't really have any idea what they are talking about. At least with others, you get some sort of anecdotal observation. In this case, I knew there was nothing... because the discussion leading up to it was completely absent of any history. Watch for clues like that. In the meantime, consider how I responded:

What you carelessly dismiss about Toyota has been a very hard lesson learned for GM.

The disastrous end to Volt came about because GM didn't understand the power of loyalty. Rather than create a plug-in hybrid targeting its own customers, focus was entirely on conquest instead. That's why so many abandoned their Volt when the leases expired and traded up for a Tesla. Those tax-credits were supposed to be used to establish a technology for dealers to embrace, something to appeal to showroom shoppers. In other words, GM did nothing to build loyalty.

All these years later, Toyota has built up a reputation that contributes heavily to both the millions of Prius owners considering the purchase of a new Prius along with a massive armada of Toyota shoppers considering the purchase of a RAV4 hybrid.

Note how easy & obvious the next step for Toyota is. They have a clear path laid out. RAV4 hybrid with a plug is quite realistic. Meanwhile, GM has no expectations set. Neither dealers nor consumers have any idea what GM will do next. In other words, dismissing loyalty is a terrible mistake.

6-06-2019 **Timing.** Toyota announced a partnership with Subaru. The joint venture is expected to result in an EV platform to share. Since Toyota is the biggest stakeholder in Subaru (17% holding), it's a sensible step. There's a mutual benefit for the emerging plug-in market. Of course, some feel the effort is never fast enough: *"Would have liked to see this announcement 5 years ago."* Naturally, those comments are coming from the same crowd who praised GM not too long ago for being so far ahead of all others, showing leadership among the automotive industry beyond anything we could ever imagine. Well, that certainly wasn't true. GM has fallen to still being roughly 4 years away from having something competitive with traditional vehicles. Ugh. It never ceases to amaze me how some cling to meritless hope, wishing for miracle instead of being practical. Oh well. They can look back at this announcement 5 years from now and wonder how Toyota managed to get everything in place. In other words, you won't see much... since there is no specific "time" to really attribute the word. Preparation is quiet & subtle without ever ceasing. In fact, sometimes so much must happen on such a wide scale, the state of those continuous & numerous small improvements go unnoticed. I put it this way: Other automakers have made announcements and come up way short. So, the timing is a wash. Toyota already has lots of experience to leverage. So not only is the likelihood higher, the probability of it being profitable and competitive with the true competition (traditional vehicles) is quite realistic.

6-07-2019 **Competition & Goals.** There are a lot of clueless people who participate in discussions online. For example: *"It is not just Tesla cars. Other cars like I-Pace, E-Tron and Taycan will be in their second, maybe third generation by then. That means they will be facing a lot of competition..."* That seems innocent enough, until you did for detail. There's nothing of substance. That's literally all some have to contribute. Not having any idea how that is actually achieved is a very big problem. That's why I start by asking *"Who?"* When you discover they don't even have an answer to such a fundamental question, the lack of understanding intent is revealed as a major barrier unlikely to be overcome. Think about what that *"generation"* reference actually means. What must an automaker do for the next step? For that matter, what is the purpose of that next step? Most of the time, you confirm they really don't have any clue... because they have neither the background nor make an effort to find information. It's just a gibberish of guessing and gut reaction. Ugh. I kept trying to get them to think these things through. I rarely makes any impression though: Toyota will be using well proven technology, heavily real-world tested for many years before rollout. Mirai already has great 151 hp traction-motor that would work well in a the shared C-HR/Prius platform. Prime already has an extremely efficient heat-pump. Prime also great use of carbon-fiber. There's also the work done with the variety of hybrids to refine their lithium chemistry. Lots taking place behind the scenes positions Toyota well for competing with the true competition, their own traditional vehicles. So what if other automakers offer different configurations? Conquest isn't the goal.

6-08-2019 **Taking the Bait.** I found this quite amusing: "*His point whizzed right over your head.*" That's when you really know your audience. Someone tried to set me up and another tried to take me down. Both end up disappointed. I don't play that game. It's all about the bigger picture, winning that overall war, not battling online for a tiny victory. In other words, they really don't take the matter seriously. It's just like the daily blog. Many find it satisfying to be part of something, even if it really doesn't accomplish the goal they had hoped for. That's why we see participants disappear. They give up upon discovering a mistake had been made. How is that constructive? Why not just course correct instead? You are supposed to learn from mistakes. I always hope some lone individual will heed the advice & observations:

That's called not taking the bait.

Going forward, there will be multiple types of electrified vehicle, one with a plug and one without. Using the term "*hybrid*" simply doesn't make sense anymore; the technology has changed too much over the past 2 decades. So, Toyota being well ahead of everyone else in the hybrid category, coined a new name for the non-plug hybrids.

Ironically, the more you post about the "*self-charging*" category, the more you are doing to help promote it. Drawing attention is exactly with Toyota wants. It's a page right out of the negative-publicity handbook Microsoft so successfully used. Your contribution is appreciated.

Think about how meaningless "*hybrid*" is now. There are so many different types, coming up with a new identifier is a wise move for the entire industry. After all, other industries do that as the technology advances. For example, the Wi-Fi successor to "*ac*" has been named "*6*". The need was there, just as it is for "*hybrid*".

If you still don't like "*self-charging*", start promoting something else instead. Otherwise, you'll be stuck with it to differentiate between non-plug hybrids and those referred to as "*plug-in*".

6-08-2019 **Bandwagon.** Hearing that Toyota officially has plans to deliver EV offerings is taking some aback. They are spinning it as if there is now a rush to jump on the bandwagon. One individual trying to help bring some sense to the wild discussion stated it this way: "*People seem to think that it just finally occurred to Toyota that electric is a thing.*" My statements that there was an effort already underway in China to target an EV model of C-HR for next year basically fell on deaf ears. Acknowledging that meant nothing more to complain about, that they'd have to admit their scapegoat no longer exists. It makes them feel better being able to say the entire industry could have been much further ahead if Toyota had made such an announcement (actually a 45-page presentation released today, with some video) years ago instead. They never want to recognize the reality that there's far more to just increasing production capacity for battery cells. The reality of the market not being ready and Toyota striving to rollout both platform & technology upgrades in the meantime is just ignored. They don't see all that extra work required to actually setup the business part of the infrastructure as anything more than an apologist attempting to distract from the actual issue. Ugh. Needless to say, I expect the posts to spin out of control. Enthusiasts don't deal with change well. For that matter, enthusiasts don't recognize it. That activity can take place for years and the best they'll do is deny it has any relevance to their demands. I simply stated the situation as: It's like the musician who gets praised for being an "*overnight success*" even though they worked hard for decades to achieve their goal.

6-08-2019 **Desperate Spin.** I suspect the discussion is already spinning out of control, that no aspect of being constructive can be stirred at this point. It's what happens with most of these blog topics. They simply become a venue for self-validation and spreading rhetoric. That mantra of Toyota being cast as a "*laggard*" helps them deal with the reality now crashing down as a result of tax-credit expiration marking the death of Volt. That expensive niche was far too dependent on government incentives. Not rolling out the technology to other platforms... any SUV model... market its death long ago. That is what the investment in Gen-2 should have been. Making their niche hatchback even more of a niche was an obvious sign that interest to continue had faded. In fact, that would have been the ideal endorsement for Volt. Dealers would take carrying it in stock with the knowledge that another offering would be on the way. That would have been a great way to prepare salespeople for an upcoming SUV with a plug. Experience with the technology prior to wide scale rollout is essential. Does that approach sound familiar? It's exactly what Toyota is doing... which is exactly why those in favor of GM are against it. They don't believe in cooperation. There isn't even a spirit of shared goals. All they do is desperately spin the situation. It's really sad. I pointed out that situation will the cold reality of being a for-profit business: Bottom line is none of those BEVs have demonstrated the ability to sell well with subsidies. In fact, most didn't even sell well with subsidies. The claimed growth is still far under what's needed for those businesses to achieve & sustain profit. Treating early-adopter outcome as if it is representative of how ordinary consumers will respond is a grave error... as GM just showed us with failure of the technology from Volt to achieve & sustain profit.

- 6-08-2019 Behavior Repetition, Whoa!** I had no idea that same behavior of enthusiasts on the daily blog for Volt would emerge on the large general audience EV blog. It is virtually an exact match. My assumption of that audience taking the time to be open-minded and being better informed due to the wider variety of content was quite incorrect. I was wrong. Gasp! They are making the very same mistakes. These are basic errors you'd think they'd be aware of. Clearly, that's not the case. Ugh. It's just like whenever I'd point out to the Volt enthusiasts how I recognized the response pattern as frighteningly similar to what Two-Mode enthusiasts did. Their reactions were a match too. It was amazing. Now, it's happening again! People who don't learn from history really are doomed to repeat it. This blog spanning nearly 20 years of that activity overwhelmingly confirms it. Whoa! Anywho, after a day of crazy posting, I started a new thread with on that blog topic with this: It has been interesting to read the opinions of early-adopters who don't have an understanding how much change is needed to appeal to mainstream consumers. They look at the situation through a micro economics lens not realizing how different macro will be. They also turn a blind-eye to history, remembering only that fits their preferred approach. Well, too bad you don't like the reality that Toyota isn't taking a different path to the same future. The market is plenty big for that diversity.
- 6-08-2019 Behavior Repetition, Obsolete.** My post was quickly responded to with an attempt to undermine the sales growth of hybrids: Rhetoric claims of hybrids fast becoming obsolete are rather desperate at this point. We're seeing very strong demand for the new RAV4 hybrid. 40 MPG from such a large AWD vehicle with a base MSRP of \$27,850 is all Toyota customers need to know. They are placing orders and waiting for delivery. It's quite impressive to see such excitement. Meanwhile, there's the new Corolla hybrid. Well loaded with safety features and with a starting price of \$22,950 it is also a compelling draw for those shopping for a well-balance purchase from a Toyota dealer. There is a next-gen Highlander hybrid coming later this year. 34 MPG from a 240 horsepower system will make people take notice, especially with such a competitive market in that size category. Obsolete, not a chance.

6-08-2019 Behavior Repetition, Business. It never ceases to amaze me how narrow the scope of focus is on discussions like this. Participants will obsess with a particular aspect of the technology and disregard the rest of the business. That's such a fundamental mistake, I cannot believe it happens so frequently. They either don't understand or don't even recognize how the rest of the business works. It's not about engineering alone! Ugh. Failing to grasp the reality that legacy automakers must maintain a continuous and reliable flow of revenue is apparently beyond their grasp. Simple matter of accounting boggle their minds. Why? It's not that complicated. Dealers must purchase inventory they know their salespeople will easily be able to sell. Each sale must return enough money for that cycle to continue. These are all people expecting to be paid. They aren't motivated by doing what's better for our world. So, extra effort to make the purchase happen or a reduction to the monetary return is a major deterrent. That shouldn't be difficult to acknowledge. Yet, it happens all the time. Those online fighting me fiercely resist any type of acceptance for that aspect of the automotive business. They just plain don't care. It's sad. The result is a lot of spin. The most comment is to portray Toyota as being "*late to the game*". Ironically, their treatment of the situation as a game shows it isn't being taken seriously. This isn't a game. This is a for-profit business. Even the engineering itself is far more involved than they'll even admit. Knowing that, I kept my reply to the latest response short: Toyota is already producing motors, invertors, pumps, etc. for electric drive in high volume. So what if they associated battery-packs are smaller? Instead, there are the same cells stacked together as a longer range vehicle. "*Late*" doesn't hold much merit, especially when you add in profitability to the equation.

6-08-2019 Behavior Repetition, Audience. The truly remarkable aspect of some of the nonsense I have to deal with online is the obsession with more being better. There's no sense of balance. The vehicle must deliver more distance and more power, period. That's absurd. You don't attract ordinary consumers that way. They look for a variety of purchase priorities. In fact, this is why the popularity of online comments posted about products has become such a powerful means of solidifying demand. Remember all those years ago how Toyota got ridiculed for doing little to promote Prius? It was all about empowering their own consumers. Toyota knew long ago that owner endorsements were far more influential than anything they could do. That's precisely why they reached out to that group online leaders. We each had captured & maintained an audience they didn't have the means of effectively tapping. It was the key to growth... something that became a fundamental barrier to Volt. Those enthusiasts always reverted back to GM, never actually taking an action to promote as owners. It was strange to watch such great opportunity passed by. They obsessed with the daily blog, not even bothering to explore what the forum venue had to offer. Ironically, I got attacked routinely for hosting my own personal website to share my experiences. Taking about not understanding audience. Ugh. Needless to say, that same nonsense continued in today's post. I kept my next reply to it short too: Who are you trying to convince about Prius Prime range & performance? Enthusiasts here is the wrong audience. When people hear that I effortlessly drive for many, many weeks without refilling the tank, they want to be told more. When I tell them that equates to over 200 MPG, they ask if charging at home is difficult. I tell them the 25 miles of EV can be achieved with nothing but an ordinary 120-volt outlet. In other words, you don't stand a chance when I finally mention the base MSRP of just \$27,600.

6-08-2019 Behavior Repetition, Naming. Confusion for the naming of Bolt, being mixed up with Volt, was no accident. It was clearly an intentional act to provide damage-control ahead of time. GM already knew Volt was in trouble. Calling attention to their abrupt and rather drastic objective was something to be avoided at all costs. Bolt was the antithesis of what Volt had been designed to compete against. Promotion of Volt shows that extremely well. Remember all that "*range anxiety*" advertising? The discussion today certainly didn't. In fact, someone attempted to take advantage of that damage-control mechanism by trying to mix up my reference. My focus has been entirely on Volt; yet, he claimed I had referred to Bolt. The hope was that slip would go unnoticed. It didn't. I called him out on it too: Interesting how even you mixed up a Bolt and Volt reference. Some of us called that problem out right away, seeing that GM would benefit from the confusion later. And sure enough... As for what I actually did say, I did indeed point out the mistake GM made with Volt. They fell into the innovator's dilemma trap by catering to enthusiast want rather than striving to understand mainstream need. It was the very same mistake they made with Two-Mode. Had GM really wanted to "*out Prius, Prius*" the approach would have been different. Gambling with an overkill design set to an expectation of achieving high-volume profitable sales by mid-cycle was nuts. That simply was never realistic. Pushing out the expectation to gen-2 could have worked if the design had been altered to appeal to their own showroom shoppers. GM didn't do that though. As for the abrupt decision to abandon the technology in Volt to pursue its antithesis instead, that doesn't make sense. There is clearly a market emerging for a Trax or Equinox as a plug-in hybrid.

6-08-2019 Behavior Repetition, Forest. Much of the conflict I deal with online is those participants tend to only see a single tree. When you're in a forest, that's a very bad problem. Ignoring everything else around you is a terrible mistake. Yet, that's what they do. In fact, they argue it's all that's important. Ugh. It's that single-mindedness I keep referring to. They refuse to acknowledge more exists. I do my best to point out there is far more to recognize & consider: Looking at just the hatchback market creates a very distorted view. The next-gen RAV4 hybrid is selling remarkably well and the newly introduced Corolla hybrid is showing lots of potential. As Prius transforms from predominantly being a hybrid to just a Limited and AWD offering with the rest PHEV, we'll see those others sour appeal for their traditional counterparts. Have you noticed how nice the 52 MPG Camry hybrid? Right now, effort is being focused on Toyota's primary customer, their dealers. Those are the ones who need to be convinced the automaker is committed to wide scale change. Toyota is a for-profit business after all. Enthusiast obsession with conquest is not a wise path to follow. GM learned that lesson the hard way with Volt. Rather than diversifying their technology as Toyota has done, they catered to niche interest. That was a terrible mistake. That midsize electric sedan you predict will be shipping at 500K per year isn't a realistic forecast. The market will be saturated and the tax-credits used up. It will make that expectation of continued market growth far more of a challenge... even without taking into consideration offerings from legacy automakers. Tesla sales will plateau or even fall at some point in the not too distant future. In other words, the time will be right in a few years. In the meantime, there is a very hard push coming from Toyota to phaseout traditional models. Getting their dealers to favor hybrid choices will give Toyota a major advantage over the other legacy automakers hoping to skip that step. Think about how each automaker will need to entice consumers to purchase a plug-in. There's a lot more to it than just rushing out a one-size-fits-all solution.

6-09-2019 Behavior Repetition, Oblivious. The situation is not only dismissed, it's claimed as an extreme: *"If you read the Innovator's Dilemma, you would realize Toyota's approach is 100% wrong."* That was the response to the ongoing discussion about Toyota's announcement 2 days ago. There are a few who will deny what they witness, doing everything they can to distort reality. It's quite an act of resistance to observe. They'll never admit to not recognizing something. When an important aspect of a situation is overlooked, they'll just outright dismiss it. If I push the issue, I get personally attacked. Their purpose is to win arguments, not to actually address the topic. Ugh. This is how I dealt with that dilemma claim:

Toyota has diversified their technology. We now see it taking 3 paths. RAV4 hybrid, Camry hybrid, Corolla hybrid are all successful implementations of the original Prius offering. Each is contributing to the goal of traditional vehicle phaseout. Prius Prime demonstrates how effectively (simple & profitable) each can be upgraded to offer a plug. C-HR hybrid is a raised Prius platform, offering the height required for more battery-capacity.

None of that shows any sign of innovator's dilemma. Toyota carefully studied their dealers & consumers, then responded accordingly to serve that extremely wide audience.

You want an example of a legacy automaker who did the opposite, look at the disaster Volt became for GM. It started out as a risky approach, one that didn't make sense for the business. How could such an expensive design, one that clearly exceeded requirements, attract & sustain profitable sales? Gen-1 didn't even remotely achieve that goal. GM made the problem worse with Gen-2 by listening to enthusiasts (their own early-adopter customers) rather than finding out what people on their dealers showroom floors would be interested in... hence, falling into the trap. Taking even more risk resulted in a production abruptly ending midway through its product cycle. That's a very expensive problem. The technology died without a successor. All that promoting of EREV as the solution rather than EV fell apart as a costly mistake.

Toyota has a clear electrification path, as the 45-page presentation spells out. They are striving to appeal to dealer & consumer every step of the way, which is very appealing to stockholders. Everyone will see a strong commitment to phasing out traditional vehicles by offering a variety of electrified choices.

Again, none of that resembles being 100% wrong.

6-09-2019 Behavior Repetition, Silly. This is what I got when in reply to the audience post: *"That's a really silly argument. The charge time is related to actual battery consumption. The only reason the Prius Prime can be recharged overnight is because it has a pathetically small battery."* It was the typical type of rhetoric I had dealt with for years from Volt enthusiasts. Some just plain don't care about mainstream sales. Their niche was "vastly superior" and any less was a target of insult & ridicule. Ugh. I was annoyed, if you couldn't tell: You're calling Toyota's effort to appeal to ordinary consumers silly? \$5,920 lower base MSRP for Prius Prime than Volt is clear evidence of striving to do that. No dependency on tax-credits, which is very much what contributed heavily to Volt's death and no EREV successor. It's a sound business approach, especially when embracing change on such a large scale. As for claiming "pathetic" to the size of that battery, that's a obvious effort to conceal the reality that Volt's is too large to be practical for a 120-volt connection. 13 hours for a full recharge is a very real problem. If you start recharging at 6 PM, you'll be good to go at 7 AM for the morning commute. That means you'd have to charge during peak load and wouldn't have a car available for going anywhere after dinner. Remember, adding a 240-volt charger and line to your garage add to both cost & complexity. People want an affordable plug-in choice that's simple to purchase. Know your audience.

6-09-2019 Behavior Repetition, Vague. Typical response to getting cornered is to change the topic, being extremely vague in the process: *"The problem with Toyota's analysis is that once supply of BEVs is sufficient there is going to be a wave of government regulation essentially banning the sale of IC engines for everyday use. The health impacts and the environmental impacts will force their hands."* I'm quite familiar with that tactic. It usually doesn't equate to much. That basically just serves as confirmation to me that they have nothing to argue with about my point and have given up. Despite that, I do ask for detail: Who? When? Where? If you think other legacy automakers have a more comprehensive and faster plan, dish up. Let's here about GM's plan to rollout hybrid, plug-in hybrid, or EV offerings for their primary product: SUV. Toyota is already deep into RAV4 hybrid (which is easily adaptable to offer a plug) and the new Highlander hybrid is coming later this year. Ford is going down a similar path. It's expensive and takes a very long time to get in place for high-volume production & sales. Vague claims about "regulation" don't mean much. Bans are extremely difficult to implement... especially when "health & environmental" impact is involved, since Toyota hybrids already directly address those issues. In other words, what is the goal? Without that clarity, investment in the needed infrastructure to support whatever regulation is proposed won't happen. Change cannot happen in a vacuum.

6-09-2019 Behavior Repetition, Downplay. Becoming absolutely desperate at this point, I got this: *"That's just a HEV, a mild hybrid; that's old tech. Toyota has been remarkably resistant in pursuing plug-in EV tech, let alone BEV tech."* It's just like nonsense of the past. Repetition of the same old behavior with the hopes of impeding the progress Toyota continues to make is something I'm all too familiar with. Ugh. It's such a recognizable pattern. You'd think there would be something to make it different over time. That's not the case though. Over and over again, with nothing new, really surprises me. I'm in dismay at this point. There's no way they can get away with the deception. In this case, it's an attempt to downplay. With such impressive offerings now, how does anyone think it could work? I punched back with: That attempt to downplay a 219 HP system delivering 40 MPG plus AWD plus 1,750 pounds towing capacity for a base price of \$27,850 is quite telling... and ironically, fitting. Reality that the technology is designed for plug augmentation simply by adding a one-way clutch, just like what was done for Prius Prime, is clear evidence of Toyota planning ahead... forward thinking, not backward. They'll be able to advance their entire fleet with little to no disruption of business. It's a sensible plan... hybrid to plug-in hybrid to electric. That's the fastest way to get large-scale change for a extremely diverse audience accomplished.

6-09-2019 Behavior Repetition, Late. It's getting to the point of being unbelievable: "*The only way to make EVs price competitive is to actually start making and selling them in large numbers.*" Dealing with individuals that have no background related to business is difficult enough. But when they don't even bother to try to learn what's involved, it's like shooting fish in a barrel. They set themselves up for failure. It's impossible to actually win an argument when you don't know what the argument is about. Ugh. Now I'm in dismay. How can certain people be so blind to what actually makes a difference? I tried to point out the lack of understanding and provide some reasoning why. The behavior repetition doesn't provide any hope though. This same old nonsense will continue elsewhere with someone else. My old foes are long gone now. They death of Volt silenced them. Now, it's new misleading to deal with. Not even trying to understand... Here's how I replied:

That grossly over simplistic claim is why each time there's a "*Toyota is very, very late to the game*" post, it is validation of either being poorly informed or being disingenuous.

Of course, who here is gullible enough to believe that anyway? We know there's far more involved to making a vehicle price-competitive than to simply building more of them. Volume does not equate to being a better product.

Toyota is using their current electric deployments to make the future ones better. That 151 HP motor in Mirai would make the next plug-in Prius really nice. The carbon-fiber already in Prius Prime is proving extremely durable for the hatch. Using it elsewhere in the next-gen offering would be a nice improvement, since reduced weight means better efficiency by not needing as much battery to travel the same distance. The improved aero-dynamics from the dual-wave glass is another efficiency benefit. Then there's the heat-pump, an impressive use of electricity for keeping the cabin warm that other automakers have yet to use.

In short, Toyota is already working hard to get costs reduced. Each time they refine the motor, inverter, or software in their hybrids, that gain is transferred directly to EV efforts. The same goes for any improvement they come up with for lithium chemistry used for those battery-packs.

Put another way, the spin that Toyota is woefully behind just a lame effort to mislead.

6-10-2019 **Tundra Hybrid.** Someday, it will actually come. The whole world is waiting for that day, when a full-size pickup actually gets a full-hybrid offering. Toyota is a strong contender to fulfill that desire. The latest rumor comes about from some spy photos of what appears to be a mule. The photographer claimed acceleration that was silent until about 30 mph. It gave the impression of being a hybrid. Knowing that the Lexus LS 500h sedan already implemented a comparable propulsion size requirement (354 horsepower from a 3.5 liter six-cylinder hybrid system), that isn't too far fetched of a hope. That setup delivers a 33 MPG rating. Seeing the same thing in a pickup delivering around 30 MPG would be remarkable. It's fairly realistic for efficiency. We expect the next-gen Highlander coming late this year to deliver about 34 MPG. When you look back at Toyota's big picture plan, the entire fleet getting a hybrid choice was an expectation. After all is said and done, that is the outcome you'd want. Within the next year or so, that's reasonable. Despite all the problems other automakers have, it's not a problem for Toyota to invest heavily and relentlessly try until they get something competitive to offer. You may not hear much along the way, but results speak for themselves. The latest victory... RAV4 hybrid... make it clear that never giving up is their mantra. That slow & steady of the tortoise means crossing the finish-line at some point. Being able to pass others along the way is a nice reward for the effort.

6-11-2019 **Unsustainable.** How long can that terrible repetitive behavior be sustained? At some point, there's no audience left. The pattern of deception becomes noticeable. And even for those who are not bothered by such terrible practices, they don't want to waste their money on garbage. They will seek out a better deal. This is why virtually all the GM enthusiasts jumped ship. It is no surprise that so many of those who leased a Volt are now driving a Tesla Model 3. As much fight as there was about my claims of Volt only appealing to a small audience, there's no doubt anymore that I was correct. That asking of "Who?" was a sincere effort to raise concern about the terrible direction GM had turned. It was movement, but not advancement forward. Racing off on a tangent to serve a niche was a massive waste of opportunity. After the tax-credits are gone, there's nothing to show for them. The fleet remained unchanged. You go to a dealers lot and look around. What's different after all these years of Volt sales? With Toyota, you see a wide variety of hybrids. So what if only a single model currently offers a plug? The next step forward is easy, a simple move that customers will readily understand and dealers will need little effort to sell. It's a logical approach to traditional vehicle replacement. The chaos stirred by GM with Volt was just a smoke & light show. What did it really accomplish? The rhetoric amounted to a time & resources lost. Ugh.

6-12-2019 **Up to \$11,500 Off.** Today was a strange day. As the attacks on Toyota settled down, we got news of extreme discounts for Bolt. The advertisements said up to \$11,500 off MSRP from now to the end of September... which coincidentally is when the tax-credit phaseout reaches its final phase (only 25%). Naturally, there was a wild amount of spin. None of it made any sense though. We're seeing the same fallout we do every time from GM. On the third year, hope can no longer be saved. The market is saturated at that point. Any enthusiast interested in a purchase already purchased. And since GM does nothing but appeal to enthusiasts, there's nothing left. Notice that pattern? Two-Mode. Volt-1. Volt-2. Bolt. Each one suffered the same fate. In year 3, the mess became so unmanageable, drastic steps needed to be taken. At this point though, what is there to save? I found it amusing how someone interjected: "*GM is stockpiling ZEV credits (it has enough for meeting requirement now) in anticipation of the future.*" Reading the news, you'd discover it was actually preemptive damage-control or intentional misleading. Either way, GM announced a \$150 million investment to ramp up production for Chevrolet Silverado and GMC Sierra. It's like the current administration lifting restrictions to allow sales of E15, as a move to help out farmers struggling from the new tariffs. What you aren't told is that entities are being granted waivers so they will not be required to purchase more ethanol. It's a scam to make you feel better... much like GM's ruse by offering EV sales. There are really only token quantities, but most people never notice. They praise GM for doing more, when in reality, they are not. Just think of how pleased those new owners will be with such discounts. Their customer-satisfaction rating will be outstanding. Environmental impact though will be negligible, since those loud voices will actually be so few. Such discounts do nothing for a business being profitable either. Long-Term sustainability must be achieved through actual advancement forward, not markdowns to get rid of old inventory. Who knows, perhaps this is a move to clean house. A new offering that's far more realistic should eventually be taken seriously.

6-13-2019 **Dead Blog.** My first clue that the daily blog for Volt was destined to turn into a sight to feed antagonists (now more affectionately referred to as "*fake news*" websites) was the response to a Toyota presentation. None of the totally unrealistic expectations being set for GM could stake up to simply lying about what Toyota said. Volt becoming yet another "*over promise, under deliver*" example paled into comparison of outright misleading like that. Toyota had shared their intentions for the future, highlighting how expensive lithium battery-cells were still. It was all about being affordable. Those enthusiasts turned antagonists immediately spun that to an interpretation that Toyota feared the dangers of lithium chemistry. Word spread quickly about those claims of fear, even though people could look up the presentation itself to confirm nothing of the sort was actually stated. Sound familiar? That's exactly what this administration is doing now. They refer to a report and just make up information about what it is claimed to have said. Those are outright lies that enablers are all too happy to endorse. It's blatant greenwash. Attempts to undermine like that are dishonest and will ultimately come back to haunt those who spread such nonsense. I saw how that was a cover to conceal Volt shortcomings. Rather than endorse the technology, they attacked supposed competitors. That's why I constantly had to fight back whenever I shared information about the technology. They feared detail would reveal Prius could continue to stand up against misleading, that the design was an excellent balance of want & need. It was a fundamental mistake. Had they understood the "*Who?*" question, their beloved blog may not be dead now. We keep getting new articles, but almost no one posts anymore. Rather than the old routine of over one-hundred posts daily, there are only 2 or 3 now and sometimes none. What they held most dear was false promises and meritless hope. I'm glad to see it finally dead. They brushed aside the sincere "*too little, too slowly*" concern... which now the consequences of are undeniable.

6-14-2019 **Review Misleading.** It's starting up again. There are articles being published that pose as reviews by credible reviewers. In reality, this is "*fake news*" material being created to spread the narrative of shortcomings. The death of Volt appears to have emboldened some hoping to undermine progress. Seeing their blatant lies in print again sends a renewed message of desperation. This reminds me a lot of the diesel trouble. When the threat from Prius got intense, they'd fight back with efforts to mislead & misinform. That lack of integrity and at times outright dishonesty speaks volumes. I've learned how difficult it is to combat such activity; however, I am now armed with better online combat weapons. My videos continue to evolve, becoming even more informative while delivering even higher quality. That provides a means of reaching audiences those deceptive articles serve to confuse. Watching that level of detail will make those uncertain question what was claimed. All that sparring I did with Volt enthusiasts prepared me for this reach to mainstream consumers. I knew there would be an onslaught of attacks to come from those fighting to retain the status quo. I knew my audience. It was not a bunch of early-adopters taking advantage of a generous subsidy to purchase a niche. This is serious. Getting an ordinary shopper to take interest in a plug-in Prius means overcoming the endless stream of attempts to impede the reach beyond anything any of those GM defenders were willing to actually face. Change isn't easy. Reviews like the ones we are seeing now reveals some of the many barriers they continue to erect.

6-15-2019 Toyota Op-Ed. It was very nice to read a comprehensive op-ed submitted by a rather outspoken Prius Prime owner. The article was published on the big EV blog. Knowing how much potential Prius Prime has among that overwhelming jungle of EV choices, it was an especially big deal. The reason should be obvious at this point. The market for EV choices is saturated. Early-Adopters jumped on the tax-credit opportunity. Tesla emerged as the short-term winner, but there is no sense of certainty or direction now. We'd like to hope momentum will continue, but that's not how the mainstream market goes. Those buyers have very, very different priorities... which the op-ed pointed out, highlighting Toyota's recent presentation. I waited 2 full days before posting anything on that topic. It was important to find out what others had to say before chiming in. When I finally did, here's what I posted:

We all watched GM game the system for conquest while Toyota quietly used their hybrids to refine their technology. So what if those electrification refinements are used to benefit both EV and FC offerings? Driving needs variety dramatically and diversity is good business. Token efforts from other legacy automakers haven't many any impact to their own showroom shoppers.

Notice how Toyota is striving to reach a very wide audience now? They've captured some market with Prius, now they will capture more with RAV4 & Corolla hybrids. It's a sensible approach to set the stage for plug-in hybrid rollout. As this op-ed points out, the path to a profitable upgrade from hybrid to plug-in hybrid is only a matter of adding a one-way clutch and increasing battery capacity.

Toyota is a legacy automaker with a strong production, distribution, and sales. That means taking the time to ensure they truly meet their own customer needs is well worth it. No rush from early-adopter expectations will fulfill long-term goals. This is why Prius Prime was only rolled out in limited quantity to limited markets. Responding to feedback with a mid-cycle upgrade is a sensible approach to mainstream acceptance.

There's also the consideration of legacy fallout. Volt had such a heavy dependency on tax-credits, the opportunity for growth wasn't possible. Notice how their reveal immediately followed GM phaseout? Toyota patiently waited continuing with refinements to reach a very large audience every step of the way.

The potential is enormous. Traditional vehicles much quickly be replaced with cleaner choices right away. Toyota is leading that effort to transform their entire fleet.

6-16-2019 Prime Time. We got a video share last night featuring the first known 2020 Prius Prime available for sale. This is what I had to say about what I saw:

Takeaway from this first dealer video is the reveal that Toyota stayed true to their objective of reliable & affordable. Since they are now setting goals for the next-gen design, it only makes sense that they know far more than we do. We've seen this many times already. Toyota carefully studies the market as a whole and adjusts accordingly. That "plan way ahead, but remain flexible" approach makes some people crazy. I think it's great, especially when they take risks. Ironically, antagonists are the ones claiming Toyota doesn't take risks, yet they work extremely hard to hide the fact that it actually happens.

Trying a 4-seat configuration is the "Prime" example. It made sense back then to experiment with layout, knowing the "car" market was on a major decline. Prius needed to be redefined to retain an audience. That's normal next step after being a top-seller for several generations. In this case, we learned the middle seat remains an interest draw, despite the fact that several alternatives are available... Corolla hybrid, Camry hybrid, RAV4 hybrid. Toyota had originally targeted aged families for Prius Prime. Remember? They no longer need that middle; however, new uses... like Lyft & Uber... have emerged since then, raising the question of need again. Toyota adjusted accordingly.

Key is keeping design both reliable & affordable, while still remaining a draw. By adding back that extra seat, it makes phasing out the regular hybrid realistic without upsetting the balance of the overall fleet. It's now easy to see Prius being offered as just 3 variants... Limited, AWD, and Prime. That's what we hoped for all along... Prius turning into a choice that highlights the plug. In fact, that reinforces the "self-charging" promotion. Toyota is setting the stage well in advance. It's their forward-thinking that often takes a beating from "anti" rhetoric, but triumphs in the end.

Beside the seating decision was the battery-pack configuration. That was another big risk. Toyota had the choice between cargo capacity and kWh capacity. The decision for initial rollout was to bring back the raised floor. It's what we saw back with the prototype for Prius PHV that ultimately didn't make the cut. Knowing Prius Prime would be a limited rollout until mid-cycle, it was realistic to try the approach again. Why go from 2 to 4 stacks when you could squeeze in a 5th stack? They were designed to be extremely robust with a heavy emphasis on being affordable.

We now see that Toyota liked the results of their real-world testing. Data collected has so far proven those stacks are very reliable. And since reputation for reliability far outweighs cargo capacity, I back that as a wise choice. As much as I would have liked a better fit, the fallout related to Nissan's reliability decision reinforces taking this route by Toyota. After all, affordability is a difficult tradeoff and fitting cargo into Prius Prime hasn't actually been an issue. Remember, affordability also includes warranty coverage. Toyota's focus is on long-term and we know for a fact any increase in EV is a draw to the Prius audience.

With RAV4 hybrid selling exceptionally well and the fallout of GM continuing to get worse, we see Toyota's effort to position themselves to ready Prime for primetime could

really pay off. The market attention on legacy automakers to deliver something now is getting intense. Early-Adopters may praise "in the next few years" announcements, but that's not what ordinary showroom shoppers want. Seeing dealers embrace Prius Prime for 2020, because it fits well into their inventory and basically sells itself, is an expectation we can realistically see happening.

Very long story short, it's time!

6-16-2019 Public Charger. Asking for advice like this is great. A new Prime owner will be taking a highway trip and wanted to know what specific service for charging would be best. It doesn't actually work that way, as I explained: Signing up for just one service is like shooting yourself in the foot; however, that will be changing... not yet, though. The reason why quickly becomes obvious after you've tried a few. Even among a specific network, you'll find the experience varies dramatically. It comes down to each charger owner choosing how the equipment is used and how it will be paid for. I've seen quite a variety. Some are entirely free. Some are free for just the first hour. Some have a per/kWh fee. Some have a few based on time. Some have a flat fee. Some have an unlock fee, then add a per/Kwh fee. It's set at the discretion of the owner, not the service. I suggest using a cover-all-chargers type app, like PlugShare. You'll get reviews & photos from users. Those can be extra informative, especially since presence of particular services can be limited. You'll discover a more generic location finder will tell you more.

6-16-2019 **Understanding Dilemma.** It took me 2 days to finally answer this attempt to argue: "*I see you failed to provide examples. Just give us the top 5 from your writings.*" I wasn't about to give him the satisfaction. Having been through this countless times over the last decade with many others, there was no point doing it again. The repeat really wouldn't serve any purpose... though, I was intrigued by his "100%" claim. Here's what I ended up posting:

That reveals a failure to recognize the nature of the situation. This isn't a product priced at a only few hundred dollars that's expected to last only a few years. This is roughly 2 magnitudes more expensive (100 times) and should remain in service for over a decade.

In other words, this is a new category of problem. Comparing something with so little in common from either a business or consumer perspective makes no sense. Think about the logistics involved for automotive production, all the very large components requiring third-party suppliers. Heck, just the profit-margin alone makes the perspective profoundly different. The reality that automotive production gets so involved with politics adds a dimension of complexity too. There simply aren't issues on that scale with dilemmas of the past. This is breaking new ground, new territory... a new chapter involving innovation.

Your claim that "*Toyota's approach is 100% wrong*" doesn't have substance to support it. You certainly didn't provide any examples. In fact, even your "*old way of doing things*" reference falls short. We can clearly see that rollout of new tech in the past went just fine. We've seen fuel-injection & anti-lock brakes of the past and a slew recent safety features all change the fleet without issue. The transition to hybrid, plug-in hybrid, and electric won't be a big deal either. It's a natural step forward for Toyota dealers and Toyota shoppers.

Remember, the issue I brought up was GM's failure to recognize their own audience. Toyota isn't making that same mistake.

6-22-2019 **Video - Summer EV miles.** Warm weather is back. I haven't filmed anything since the extreme cold. Time to take advantage of better video hardware & software. Here's what I did, then shared:

It's very easy to exceed the 25-mile rating for EV miles during the summer months. Armed with a new tablet for better aftermarket data capture and 2 upgraded cameras since the original drive 2 years ago, the time was right for a new video to show that.

Watch for the commentary added to highlight specific points. Like before, you'll see me drive out to the coffeeshop twice. That route just happens to be the perfect distance, 15 miles total. So driving it twice to demonstrate the 30-mile EV range available under the ordinary circumstances I'd see on that drive, it's a good real-world example to share.

In this case, the temperature was mild but the wind rather strong. Being a round-trip, that influence of push or pull doesn't matter. You witness all the factors impacting efficiency in great detail. At the bottom, you see my dashboard. To the right, you see output from an OBD-II device presented on a phone app. Notice the wide range of information available while you drive.

In the end, the drive went just a little over 31 miles before plug-supplied electricity was used up. At that point, the gas-engine started and the system switched to HV mode (regular hybrid driving).

View the video at this link: [Prius Prime - Summer EV miles](#)

6-23-2019 New kWh Meter. A recent update to the aftermarket app for monitor extra vehicle data has me yearning to capture that drive again. Having a gauge now that displays a total kWh consumption/regeneration value is quite empowering... so much so, it will kill discussion threads from going on and on without certainty... just like the one where I posted this:

I'm at the coffeeshop now, the quarter-way mark, looking at the resulting captured data. It's 7 degrees cooler and I got hit by an extra stoplight, so battery capacity (actual) was at 70% rather than the 72% in the video. (That's an estimate of 79% rather than 80%.) It's all real-world data regardless. The more, the better. In this case, that's 23% of EV capacity available ($87\% - 13\% = 74$; $17/74 = 23\%$). The value shown for consumed/regened overall for the drive was 1.215 kWh. Now, this is where things got messy...

I consistently measure 5.75 kWh as a "full" charge from my JuiceBox Pro charger. That's a complete restoration of EV capacity, including losses from charging and whatever overhead there may be for cycling overhead during the charge and excluding sessions that pre-condition. Some would argue that's not the entire usable EV capacity based on the 8.79 kWh measure of the cells all added up. But my drive often doesn't end as fully depleted (13%), despite being in HV mode. That's due to the long regen I experience just prior to turning into my neighborhood. \Sometimes, it's enough to actually show a little bit of EV available. We know that low values (such as 0.8 mile) will often be suppressed from display. So, you must have an aftermarket gauge to really know what SOC the battery is actually at. But then again, a single percentage point that's truncated falls into margin-of-error territory. With all that being said, I could use a higher value as the measure of "full" for EV capacity. But including a from-the-plug value makes no sense when you are only measuring against consumption/regeneration results. So, I stick with 5.75 kWh.

So doing the calculation.... 23 of 5.75 is 1.322 which is not 1.215 kWh. However, it's close enough. We have a means of collecting & analyzing data that's more comprehensive than in the past. Combined with consistent capture approach, it's as accurate as you can get in real-world conditions.

6-23-2019 EREV is Dead, position. The fall of Volt has brought about a recognition of problems. Naturally, that means a round of shoot-the-messenger exchanges. It's different now though. Rather than rhetoric from enthusiasts, there's the actual death declared by GM itself and the obvious positioning of Toyota to take the market by storm. Nonetheless, dealing with stuff like this is a pain: "*How do you and John 'infer' what Toyota's position is... with the BEV trash talking video ads and all?*" I'm far from being alone now. These exchanges are taking place in new venues too. Those days of the daily blog are long gone. Here's what things have evolved into:

There's nothing being inferred. We look at the big picture. Those articles feed rhetoric by cherry-picking. Portraying the current Lexus position as the entire long-term plan for Toyota is just plain wrong. Yet, many choose to enable the antagonists spreading that spin.

You cannot deny that the "*self-charging*" promotion is an attempt to overcome the confusion related to "*hybrid*" labeling. It is a clear attempt for Toyota to set the stage for "*plug-in*" promotion. They are readying the market by trying to establish a new term to more accurately inform their audience. Again, this is why the KNOW YOUR AUDIENCE aspect of advertising is so vital. Toyota doesn't have any concern what a group of online enthusiasts think. That's not who they are targeting.

That's a fundamental mistake GM made with Volt. The essential question of "*Who is the market for Volt?*" was dismissed as unimportant. GM continued on with their own trash talking of BEV, but not in a limited scope as Lexus has done. Volt was a Chevy, intended for appeal to the masses, not a Cadillac. Those who doesn't recognize the difference between luxury & mainstream consumers hope to take us as fools, spreading nonsense about position.

It's really sad when that message is spread. But that's how spin works. Notice how vague the message actually is? That lack of detail is the message people pass along a message without any critical thought.

We study what Toyota has done over the decades and recognize the pattern. We also recognize the mistakes others have made and continue to repeat. That's how we get the big picture.

Think about how chaotic the market has become as a result of tax-credit phaseout. Those weak offerings heavily dependent upon subsidies are now showing their weakness. We saw that coming by looking beyond the cherry-picking. Others "*inferred*" that wouldn't be a problem. They were wrong, very wrong.

6-23-2019 EREV is Dead, looking back. In addition to the anti-Toyota position, there's the anti-everything-that-is-not-an-EV position. That can actually be even more of a problem. It's when an early-adopter loses touch with the market. They found a means of overcoming obstacles and doesn't recognize others as not having the same priorities or resources. That makes them a terrible source of feedback. Yet, they are the ones we hear most from. For example: *"You buy a hybrid if you really need or want to pay for two engines. They are more expensive to produce, the worst of both worlds, battery has to pull a stupid ICE around, ICE has to pull a heavy battery around. 20,000 miles in a Leaf never looked back will never go back."* That's the same old argument we've heard for a decade. Only, the technology has been significantly upgraded and the market much changed. Remember back when GM was first promoting Volt and the term EREV was coined? Pretty much no one does. That lack of background is how mistakes are made by repeating history. I pushed back with:

That's a blatant misrepresentation of what *"hybrid"* actually can deliver. It implies optimization isn't possible and neither is a plug. The example of Prius Prime demonstrates that Toyota can affordably deliver the BEST of both worlds. You get an extremely efficient HV system in addition to extremely efficient EV driving. With the addition of a plug, battery-capacity, and a one-way clutch any of their other hybrids can deliver the same thing.

Think about how popular a RAV4 plug-in hybrid would be for both dealer & consumer. It's a winning solution for Toyota's business. Everyone wins. Dealers get a product that's easy to transition to, with little to no interruption to process or profit. Consumers get an affordable plug-in that will deliver EV without any change to their driving habits. All they have to do is take advantage of the standard 120-volt outlet they already have in their garage.

Never looking back means not acknowledging the challenges still faced by most of the industry. Expecting everyone to just abruptly abandon old technology without any means of bridging to the desired long-term end-result is madness. It doesn't work.

6-23-2019 **EREV is Dead, cleaner.** Back when Volt was doing everything it could to retain attention, the idea of "*cleaner*" was pushed aside. Use of electricity didn't count. It was all about not using gas. That obviously fell apart once EV choices became the focus of being green. GM's gamble of that not happening, that EREV would dominate the market for generations to come, was a senseless risk. Now, the idea of EREV is becoming an associate with guzzling electricity in a costly manner. Volt was an expensive vehicle that inefficiently used electricity. EV propulsion focused on power, using an unnecessarily large battery-pack to compensate for losses. The decision to use a resistance-heater for electric cabin warming only made the problem of electricity guzzling even worse. So with it's death, we can now have constructive discussions about hybrids... well, kind of: *"If you were really looking at a more effective way to reduce emissions, at least in the US where average fleet mileage is 24-25 mpg, you would set a minimum vehicle mileage limit on all vehicles to 50 mpg. This cuts the emission they are counting in half."* I was a bit annoyed to see that. But you never know. This newer post-Volt audience may be receptive. So, I gave them a chance: Setting an arbitrary MPG minimum won't actually change the status quo. Powers resistant to change will simply fight it, as we now have countless examples of. What they'll struggle to counter though is upgrade mandates. Toyota is leading the way with across the fleet upgrades. Their upcoming next-gen Highlander hybrid is a great example. 34 MPG is quite remarkable for a SUV that large. With regards to pickup offerings, their hybrid system currently in a Lexus is the rumored to be what will end up in Tacoma. That would deliver an expected 30 MPG. So even before consideration of adding a plug, Toyota would have already achieved a significant reduction of emissions & consumption.

6-23-2019 EREV is Dead, math. A big part of the propaganda related to the "EREV" label was to avoid detail. The category was ambiguous. The definition kept changing. The accountability was missing. It was very much a marketing scheme conjured up to promote a product unable to actually compete. It's the name-recognition concept twisted into a plan to lead without merit. Fortunately, after 2 generations of deception, the effort fell apart. Substantial growth was needed. Dependency on subsidies made that far too unrealistic to continue. It was a terrible gamble, one that produced too many losses to be competitive. Remember, automakers are for-profit businesses. The show of a trophy vehicle would only take them so far. I continued my awareness raising by emphasizing origin, drawing attention to the recent sighting of hybrid impact:

btw, that assumption of "*This cuts the emission they are counting in half.*" is the outcome of successful greenwashing. You've been misled. Measurement of Miles-Per-Gallon has been exploited to conceal the reality that there's an aspect of diminishing returns. Even under the best circumstances, the approach is commonly misunderstood.

This is why the rest of the world has been using a quantity/distance measurement instead. In fact, that's why our own EPA now includes "*2.0 gal/100mi*" in their published materials. Notice how that now appears next to the "*50 MPG*" value on the window-sticker?

The reason for this is simple. An improvement of 5 MPG for a vehicle that was only getting 25 MPG represents far more gas than one that goes from 35 to 40 MPG. Just take a moment to do the math to see why.

For 15,000 miles of driving, the 25 MPG vehicle will consume 600 gallons. The jump to 30 MPG reduces consumption to 500 gallons. That's a 100 gallon improvement. For 35 MPG, the quantity is 429 gallons. That upgrade to 40 MPG changes it to 375 gallons... which represents only a 54 gallon improvement.

Adding a 25-mile rating EV capacity to that 40 MPG vehicle gets messy to standardize. But real-world data coming from Prius Prime reveals their driving to be around 75% electric. That makes the 15,000 miles of driving only 3,750 that depend upon gas. The result from a 40 MPG return in HV mode would come to 94 gallons. That's an improvement of 281 gallons.

See the problem? The temptation is to simply divide that overall distance of 15,000 miles by 94 gallons. What does that resulting 160 MPG actually tell you?

Now consider what the impact to gallons would be if EV range was either 20 miles or 30 miles. Not only does it get confusing, but there's also the reality of diminishing returns. None of which most people (even those here) take the time to consider.

To complicate matters even further, there's the fact that gallons only reflects the reduction of CARBON emissions. So, even if that better way of measuring consumption is used, it doesn't have any reflection upon SMOG related emissions... which means you have to ask what "*cleaner*" actually represents.

In other words, no crazy study necessary. Heck, no emissions target even needs to be

set. It all comes down to replacing the fleet with electrified choices. Putting emphasis on using more and more battery should be the goal, but not until much later. At such an early stage, just getting rid of vehicles without any battery-pack should be the concern.

After all, we have already seen how easy the transition is from hybrid to plug-in hybrid and how much that contributes to the desire for the next purchase to be an EV.

6-23-2019 EREV is Dead, personal. It was nice to see a complete lack of substance in the most recent reply. All he could do was go after me with attempts to discredit. That's the most telling clue of having nothing left. Death is confirmed in every regard. It's not damage-control at this point or even trying to feel better about making such a colossal mistake. It's plain old vengeance. I find that amusing... and quite ineffective, as my reply back should reveal:

Shooting the messenger, rather than even bother to address the issue of consumption & emissions... nice.

Toyota has a solid plan for advancing their entire fleet forward. From dealer to consumer, they address the impact change of among all beyond production who will be affected. This attempt to stir old rhetoric is just a final desperate act to distract from your preferred approach. It failed. Get over it. I remember those posts. In fact, that's how some of my videos came about. I used them to shot back.

Losing many battles puts you where on the "*dragging*" claim? It's easy to see how GM has no plan whatsoever to actually deliver something compelling anytime soon. Toyota on the other hand is pushing forward, showing undeniable progress in war as a whole to replace traditional vehicles. RAV4 hybrid and Corolla hybrid, the latest rollouts, show just how wide of an audience Toyota is striving to appeal too. Those are very much mainstream vehicles, both of which their hybrid systems could easily offer a plug model for later. We also see the push with larger vehicles. Highlander hybrid will have a next-gen rollout by year end. Rumors of Tacoma hybrid mule testing continue too.

What I find especially vindicating from all that is your irritation with "we" references. Knowing that there is power in numbers and that failed legacy automaker efforts are quickly becoming just a footnote in history, there's no reason to worry about shooting from that direction anymore. The industry simply isn't interested in that approach. Toyota is moving forward by offering a very wide range of hybrids, expanding to PHV offerings with Prius & Corolla, while also exploring EV models with C-HR.

Again, no amount of "*dragging*" nonsense will hide what everyone else sees.

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In this case, the temperature was mild but the wind rather strong. Being a round-trip, that influence of push or pull doesn't matter. You witness all the factors impacting efficiency in great detail. At the bottom, you see my dashboard. To the right, you see output from an OBD-II device presented on a phone app. Notice the wide range of information available while you drive.

In the end, the drive went just a little over 31 miles before plug-supplied electricity was used up. At that point, the gas-engine started and the system switched to HV mode (regular hybrid driving).

View the video at this link: [Prius Prime - Summer EV miles](#)

6-23-2019 **New kWh Meter.** A recent update to the aftermarket app for monitor extra vehicle data has me yearning to capture that drive again. Having a gauge now that displays a total kWh consumption/regeneration value is quite empowering... so much so, it will kill discussion threads from going on and on without certainty... just like the one where I posted this:

I'm at the coffeeshop now, the quarter-way mark, looking at the resulting captured data. It's 7 degrees cooler and I got hit by an extra stoplight, so battery capacity (actual) was at 70% rather than the 72% in the video. (That's an estimate of 79% rather than 80%.) It's all real-world data regardless. The more, the better. In this case, that's 23% of EV capacity available ($87\% - 13\% = 74$; $17/74 = 23\%$). The value shown for consumed/regened overall for the drive was 1.215 kWh. Now, this is where things got messy...

I consistently measure 5.75 kWh as a "full" charge from my JuiceBox Pro charger. That's a complete restoration of EV capacity, including losses from charging and whatever overhead there may be for cycling overhead during the charge and excluding sessions that pre-condition. Some would argue that's not the entire usable EV capacity based on the 8.79 kWh measure of the cells all added up. But my drive often doesn't end as fully depleted (13%), despite being in HV mode. That's due to the long regen I experience just prior to turning into my neighborhood. \Sometimes, it's enough to actually show a little bit of EV available. We know that low values (such as 0.8 mile) will often be suppressed from display. So, you must have an aftermarket gauge to really know what SOC the battery is actually at. But then again, a single percentage point that's truncated falls into margin-of-error territory. With all that being said, I could use a higher value as the measure of "full" for EV capacity. But including a from-the-plug value makes no sense when you are only measuring against consumption/regeneration results. So, I stick with 5.75 kWh.

So doing the calculation.... 23 of 5.75 is 1.322 which is not 1.215 kWh. However, it's close enough. We have a means of collecting & analyzing data that's more comprehensive than in the past. Combined with consistent capture approach, it's as accurate as you can get in real-world conditions.

6-23-2019 EREV is Dead, position. The fall of Volt has brought about a recognition of problems. Naturally, that means a round of shoot-the-messenger exchanges. It's different now though. Rather than rhetoric from enthusiasts, there's the actual death declared by GM itself and the obvious positioning of Toyota to take the market by storm. Nonetheless, dealing with stuff like this is a pain: "*How do you and John 'infer' what Toyota's position is... with the BEV trash talking video ads and all?*" I'm far from being alone now. These exchanges are taking place in new venues too. Those days of the daily blog are long gone. Here's what things have evolved into:

There's nothing being inferred. We look at the big picture. Those articles feed rhetoric by cherry-picking. Portraying the current Lexus position as the entire long-term plan for Toyota is just plain wrong. Yet, many choose to enable the antagonists spreading that spin.

You cannot deny that the "*self-charging*" promotion is an attempt to overcome the confusion related to "*hybrid*" labeling. It is a clear attempt for Toyota to set the stage for "*plug-in*" promotion. They are readying the market by trying to establish a new term to more accurately inform their audience. Again, this is why the KNOW YOUR AUDIENCE aspect of advertising is so vital. Toyota doesn't have any concern what a group of online enthusiasts think. That's not who they are targeting.

That's a fundamental mistake GM made with Volt. The essential question of "*Who is the market for Volt?*" was dismissed as unimportant. GM continued on with their own trash talking of BEV, but not in a limited scope as Lexus has done. Volt was a Chevy, intended for appeal to the masses, not a Cadillac. Those who doesn't recognize the difference between luxury & mainstream consumers hope to take us as fools, spreading nonsense about position.

It's really sad when that message is spread. But that's how spin works. Notice how vague the message actually is? That lack of detail is the message people pass along a message without any critical thought.

We study what Toyota has done over the decades and recognize the pattern. We also recognize the mistakes others have made and continue to repeat. That's how we get the big picture.

Think about how chaotic the market has become as a result of tax-credit phaseout. Those weak offerings heavily dependent upon subsidies are now showing their weakness. We saw that coming by looking beyond the cherry-picking. Others "*inferred*" that wouldn't be a problem. They were wrong, very wrong.

6-23-2019 EREV is Dead, looking back. In addition to the anti-Toyota position, there's the anti-everything-that-is-not-an-EV position. That can actually be even more of a problem. It's when an early-adopter loses touch with the market. They found a means of overcoming obstacles and doesn't recognize others as not having the same priorities or resources. That makes them a terrible source of feedback. Yet, they are the ones we hear most from. For example: *"You buy a hybrid if you really need or want to pay for two engines. They are more expensive to produce, the worst of both worlds, battery has to pull a stupid ICE around, ICE has to pull a heavy battery around. 20,000 miles in a Leaf never looked back will never go back."* That's the same old argument we've heard for a decade. Only, the technology has been significantly upgraded and the market much changed. Remember back when GM was first promoting Volt and the term EREV was coined? Pretty much no one does. That lack of background is how mistakes are made by repeating history. I pushed back with:

That's a blatant misrepresentation of what *"hybrid"* actually can deliver. It implies optimization isn't possible and neither is a plug. The example of Prius Prime demonstrates that Toyota can affordably deliver the BEST of both worlds. You get an extremely efficient HV system in addition to extremely efficient EV driving. With the addition of a plug, battery-capacity, and a one-way clutch any of their other hybrids can deliver the same thing.

Think about how popular a RAV4 plug-in hybrid would be for both dealer & consumer. It's a winning solution for Toyota's business. Everyone wins. Dealers get a product that's easy to transition to, with little to no interruption to process or profit. Consumers get an affordable plug-in that will deliver EV without any change to their driving habits. All they have to do is take advantage of the standard 120-volt outlet they already have in their garage.

Never looking back means not acknowledging the challenges still faced by most of the industry. Expecting everyone to just abruptly abandon old technology without any means of bridging to the desired long-term end-result is madness. It doesn't work.

6-23-2019 **EREV is Dead, cleaner.** Back when Volt was doing everything it could to retain attention, the idea of "*cleaner*" was pushed aside. Use of electricity didn't count. It was all about not using gas. That obviously fell apart once EV choices became the focus of being green. GM's gamble of that not happening, that EREV would dominate the market for generations to come, was a senseless risk. Now, the idea of EREV is becoming an associate with guzzling electricity in a costly manner. Volt was an expensive vehicle that inefficiently used electricity. EV propulsion focused on power, using an unnecessarily large battery-pack to compensate for losses. The decision to use a resistance-heater for electric cabin warming only made the problem of electricity guzzling even worse. So with it's death, we can now have constructive discussions about hybrids... well, kind of: *"If you were really looking at a more effective way to reduce emissions, at least in the US where average fleet mileage is 24-25 mpg, you would set a minimum vehicle mileage limit on all vehicles to 50 mpg. This cuts the emission they are counting in half."* I was a bit annoyed to see that. But you never know. This newer post-Volt audience may be receptive. So, I gave them a chance: Setting an arbitrary MPG minimum won't actually change the status quo. Powers resistant to change will simply fight it, as we now have countless examples of. What they'll struggle to counter though is upgrade mandates. Toyota is leading the way with across the fleet upgrades. Their upcoming next-gen Highlander hybrid is a great example. 34 MPG is quite remarkable for a SUV that large. With regards to pickup offerings, their hybrid system currently in a Lexus is the rumored to be what will end up in Tacoma. That would deliver an expected 30 MPG. So even before consideration of adding a plug, Toyota would have already achieved a significant reduction of emissions & consumption.

6-23-2019 EREV is Dead, math. A big part of the propaganda related to the "EREV" label was to avoid detail. The category was ambiguous. The definition kept changing. The accountability was missing. It was very much a marketing scheme conjured up to promote a product unable to actually compete. It's the name-recognition concept twisted into a plan to lead without merit. Fortunately, after 2 generations of deception, the effort fell apart. Substantial growth was needed. Dependency on subsidies made that far too unrealistic to continue. It was a terrible gamble, one that produced too many losses to be competitive. Remember, automakers are for-profit businesses. The show of a trophy vehicle would only take them so far. I continued my awareness raising by emphasizing origin, drawing attention to the recent sighting of hybrid impact:

btw, that assumption of "*This cuts the emission they are counting in half.*" is the outcome of successful greenwashing. You've been misled. Measurement of Miles-Per-Gallon has been exploited to conceal the reality that there's an aspect of diminishing returns. Even under the best circumstances, the approach is commonly misunderstood.

This is why the rest of the world has been using a quantity/distance measurement instead. In fact, that's why our own EPA now includes "*2.0 gal/100mi*" in their published materials. Notice how that now appears next to the "*50 MPG*" value on the window-sticker?

The reason for this is simple. An improvement of 5 MPG for a vehicle that was only getting 25 MPG represents far more gas than one that goes from 35 to 40 MPG. Just take a moment to do the math to see why.

For 15,000 miles of driving, the 25 MPG vehicle will consume 600 gallons. The jump to 30 MPG reduces consumption to 500 gallons. That's a 100 gallon improvement. For 35 MPG, the quantity is 429 gallons. That upgrade to 40 MPG changes it to 375 gallons... which represents only a 54 gallon improvement.

Adding a 25-mile rating EV capacity to that 40 MPG vehicle gets messy to standardize. But real-world data coming from Prius Prime reveals their driving to be around 75% electric. That makes the 15,000 miles of driving only 3,750 that depend upon gas. The result from a 40 MPG return in HV mode would come to 94 gallons. That's an improvement of 281 gallons.

See the problem? The temptation is to simply divide that overall distance of 15,000 miles by 94 gallons. What does that resulting 160 MPG actually tell you?

Now consider what the impact to gallons would be if EV range was either 20 miles or 30 miles. Not only does it get confusing, but there's also the reality of diminishing returns. None of which most people (even those here) take the time to consider.

To complicate matters even further, there's the fact that gallons only reflects the reduction of CARBON emissions. So, even if that better way of measuring consumption is used, it doesn't have any reflection upon SMOG related emissions... which means you have to ask what "*cleaner*" actually represents.

In other words, no crazy study necessary. Heck, no emissions target even needs to be

set. It all comes down to replacing the fleet with electrified choices. Putting emphasis on using more and more battery should be the goal, but not until much later. At such an early stage, just getting rid of vehicles without any battery-pack should be the concern.

After all, we have already seen how easy the transition is from hybrid to plug-in hybrid and how much that contributes to the desire for the next purchase to be an EV.

6-23-2019 EREV is Dead, personal. It was nice to see a complete lack of substance in the most recent reply. All he could do was go after me with attempts to discredit. That's the most telling clue of having nothing left. Death is confirmed in every regard. It's not damage-control at this point or even trying to feel better about making such a colossal mistake. It's plain old vengeance. I find that amusing... and quite ineffective, as my reply back should reveal:

Shooting the messenger, rather than even bother to address the issue of consumption & emissions... nice.

Toyota has a solid plan for advancing their entire fleet forward. From dealer to consumer, they address the impact change of among all beyond production who will be affected. This attempt to stir old rhetoric is just a final desperate act to distract from your preferred approach. It failed. Get over it. I remember those posts. In fact, that's how some of my videos came about. I used them to shot back.

Losing many battles puts you where on the "*dragging*" claim? It's easy to see how GM has no plan whatsoever to actually deliver something compelling anytime soon. Toyota on the other hand is pushing forward, showing undeniable progress in war as a whole to replace traditional vehicles. RAV4 hybrid and Corolla hybrid, the latest rollouts, show just how wide of an audience Toyota is striving to appeal too. Those are very much mainstream vehicles, both of which their hybrid systems could easily offer a plug model for later. We also see the push with larger vehicles. Highlander hybrid will have a next-gen rollout by year end. Rumors of Tacoma hybrid mule testing continue too.

What I find especially vindicating from all that is your irritation with "we" references. Knowing that there is power in numbers and that failed legacy automaker efforts are quickly becoming just a footnote in history, there's no reason to worry about shooting from that direction anymore. The industry simply isn't interested in that approach. Toyota is moving forward by offering a very wide range of hybrids, expanding to PHV offerings with Prius & Corolla, while also exploring EV models with C-HR.

Again, no amount of "*dragging*" nonsense will hide what everyone else sees.

6-23-2019 EREV is Dead, ambiguity. More than anything, I find that most telling. When you push for detail and get that instead, you know they are bluffing... or in our case, intentionally attempting to mislead. There will be references to articles & videos, but no actual link or even a quote. So, the very idea of addressing context or audience is impossible. It what the antagonist does to evade getting confronted on detail. I saw that for an entire decade from Volt enthusiasts. Their hate for me grew to extremes. I kept out facts with lots of detail they simply couldn't deal with. Armed with a wealth of business research, their engineering arguments fell apart. They couldn't deal with those facts that reached beyond simply building a better vehicle. That's why I kept bringing up audience. Of all the challenges the technology faced, finding a way of appealing to ordinary showroom shoppers was well beyond what their technically-oriented minds were trained to do. They simply couldn't see that perspective. So providing detail made no difference in their willingness to try to understand. It was outright dismissal that what I was presenting had any relevance. That's why the ambiguity was enough. They didn't feel any need to provide more... which is why I kept pointing out the shortcoming of their "*good enough*" attitude. After so many years of dealing with that, it feels really good for not having given into the temptation to fight back on the same level. Instead, I kept on with my research and kept filming video to disprove claims. That detail is priceless.

6-23-2019 EREV is Dead, prevention. This kind of spin is how narratives are established: "*toyota made a bev decision recently, based on the china market alone. and they make a lot of decisions based on the japanese market alone. the rest of us get the crumbs, and we're grateful for them!*" That same old troublemaker just keeps repeating his own perspective over and over. Sadly, it's one of very limited scope and he clearly doesn't actually read some of the posts. It's the nonsense from years ago living on... just pass along a vague message and ignore real-world data. Their attack often includes audience, shooting the message with efforts to discredit. It especially angers them when you point out you are not alone. Fighting on a personal level is much easier, hence the limited scope. My fight with them goes on. The experience from dealing with the trouble Volt enthusiasts created provided lots of informative background... providing an great sense of how to prevent: Actually, we have been discussing the EV model of C-HR for over a year now. The perspective of "*recent*" is the antagonist narrative being passed along. As for that "*the rest of us part*", it is why the "*Who?*" question was asked so many times over the years. In fact, that's how "*know your audience*" came about. There was a genuine concern the EREV nonsense would mess up the market here. And sure enough, that "*vastly superior*" push soured reception here. I am not the slightest bit grateful for that unfortunate outcome, since it was preventable.... and I was one of those in the "*we*" that fought hard to try to prevent this.

6-24-2019 **EREV is Dead, failure.** Posts like this speak volumes: *"So the Volt wasn't cancelled. Its factory was shut down because the other model lines made there were cancelled. Now being a sedan-ish car, moving Volt production couldn't be justified. The drive train is in a couple of Chinese Buicks, so Voltec didn't fail."* That's ongoing damage-control you come to expect. The massive failure to achieve objectives is a very big deal. Every single time Prius was mentioned in the news, it was immediately followed by a message of superiority about Volt. Yet, that technology vanished. It was basically a fade. EREV was meaningless marketing. There was never a clear definition of what it meant. Every time that got called out, the definition would change. If you take the time to research that change, you see the pattern of evade & alter. It's not worth fighting the antagonists on any of that with an expectation of actually getting acknowledgement. You use those opportunities to provide exposition. It's a way of revealing history to newbies and those who hadn't paid close enough attention. To that post though, I just let him have it: That's called moving the goal posts. We all know the target numbers, dates, and locations... none of which that damage-control effort will forgive. This is yet another example of OVER PROMISE, UNDER DELIVER.

6-24-2019 EREV is Dead, trolling. Blatant trolling has become so common, the hope is that chaos will allow it to continue unchallenged. I'm fighting back:

Pretending this is new information screams unfulfilled objectives.

Reality is, the measure for success or failure was always based upon the ability for each automaker to deliver a system that could achieve sustainable & profitable sales prior to tax-credit phaseout. The reason for that is uneatable. It was the very purpose of such a generous subsidy. In fact, that is why each automaker was given the discretion of choosing their own timeline, to best utilize that limited opportunity.

GM squandered what they had, wasting it on conquest rather than finding a means of spreading the technology to other vehicles. That's why the lame excuse for Volt being discounted holds no merit. That system should have been implemented within a Trax or Equinox many years ago. Remember how all that EREV vastly superior nonsense? Volt sales plateaued at the 1,600 to 1,700 level. Each month, regardless of what GM attempted, growth was never achieved. That's so far below the business goal to keep the technology viable, there's nothing else to but try something quite different.

Toyota's approach is quite different, hence the absence of any constructive attempt to discuss the situation. Toyota still has time. They have an ample number of tax-credits available and they are already well into the diversification effort. Corolla PHV will be rolled out later this year, starting elsewhere. That gives them even more time to prepare the stage here for that necessary growth. In the meantime, RAV4 hybrid is pushing well into the mainstream, reaching a new audience GM could only dream of. It's a platform capable of offering a plug later too.

So all the spin about not failing won't cover up the reality of status quo remaining unchanged for GM. Their dealers are doing the same old push of giant guzzlers with no plan for the future. It's just a day-to-day survival situation... which is why there's reason not to consistently remind everyone of that past. You don't overcome mistakes in history by not acknowledging they ever happened.

This is why recognition of Toyota's effort genuinely change their fleet should be taken seriously. This antithesis thread revealed what about efforts to achieve efficiency & sustainability?

6-25-2019 **More Videos.** I'm compelled to continue filming, advancing my technique with each publish. The quality continues to improve... so much so, the videos now stand out. With the presentation so refined over the years and the for-dummies type commentary, it's becoming easy for the content to get dismissed. I have exactly what I need to convey the message that I need. The aspect of being a filmed-by-owner video is lost. There's no rough-around-the-edges element. All those years of refinement effort put me in a challenging position. Some moderated venues won't allow self-promotion. That content looks exactly like that now. Bummer. True, I can still stir interest in other ways. But the nature of many blogs & forums are to cater to newbies. Content that's well-polished and carefully thought out simply isn't a focus there... since that doesn't promote participation. In fact, that type of solid real-world data discourages it. Nonetheless, I'll keep filming. Know your audience teaches me that the content will be shared, just by a different means in the future. The audience is growing. That type of change... empowering others to share & conclude... is how growth takes place. So, more videos will come.

6-26-2019 **No Future.** There's a repeat of the "*vastly superior*" attitude emerging. Now that Volt has basically vanished from existence... which is strange, it's as if it never made any market impact whatsoever... we're seeing entirely new efforts to undermine. Rather than just attack Toyota specifically, the entire category has been targeted. For example: "*The push for electrification has put a number of OEMs in a weakened position as they lack true EV tech. To make up for it, they're trying to sell plug-in hybrids.*" The article with that opening line ended with: "*Numerous carmakers have huge EV plans starting in about a year for the 2021 and 2022 model years.*" It's history repeating, again. We get vague claims that hope is built up. Meritless hype feeds the excitement. Ugh. I responded to the link sighting that article with:

It's the same old nonsense we saw when hybrids were new. There was a constant onslaught of attacks all attempting to mislead about future by implying all worked the same way. It took quite a while to finally gather up enough convenient online material to easily disprove & discredit those source. Some were rather relentless, doing everything they possibly could to undermine progress. That's why I've been building up a collection of driving videos, each showing in depth detail to show their claims are a load of crap.

It's sad that PHEV are being attacked by EV supporters, but no surprise. Our owner's group here liked to mock me, but in a friendly manner... knowing my effort was to promote lithium-battery use for any type of automotive propulsion. For us, it's all about getting the most out of whatever plug you have available. We have honest exchanges about how each of our designs operate... which is a far cry from this article. Ugh.

The video I filmed yesterday captures detail about kWh consumption for a continuous drive using up the entire EV capacity. That trip of just a little over 30 miles using only electricity is great, but this article draws attention to the HV aspect. I'll have to do a fresh capture (now I add commentary) with a long drive using nothing but gas. That MPG is always impressive.

6-27-2019 **Wondering Why.** I liked this: *"I don't know the numbers, but based on the fact that I rarely see a Prime on the streets but often see the Gen4 Prius; I am assuming that Toyota is selling a lot more of them than Primes. I wonder why that is?"* It was someone trying to figure out the true situation, knowing that anecdotal observations can be misleading and sometimes just plain wrong. That's good to know some people are using critical thinking. This was my reply to that:

Neither our market, nor the entire industry, were ready for mainstream PHEV offerings.

The biggest problem was cost. That heralded PHEV leader for years was heavily dependent upon tax-credits for mere survival. Sales never grew to the level necessary to compete with other vehicles offered on dealer's showroom floors. It's production has been ceased as a result, without any successor model. The entire approach was abandoned. So, there wasn't any point rushing out the technology by other automakers. Toyota saw the benefit of refining & diversifying in the meantime.

That positions Prius Prime incredibly well for the necessity of appealing to both dealer & consumer. If the salesperson isn't able to get a worthwhile commission, what's the incentive to sell it? There's no point in pushing a vehicle facing profit challenges. Seeing Toyota invest heaving in the spread of the technology really helps. Diversification is the ultimate endorsement. Elsewhere this year, the Corolla PHV will be rolling out. Seeing the technology from Prius Prime emerge in another hybrid sends a strong message... especially for those wondering if RAV4 hybrid will someday also get a PHV model.

In other words, the stage is still being set. We'll witness the plug-in model of Prius become the dominant choice, leaving just the Limited and AWD as regular models. It's an essential paradigm-shift long in the making and very carefully thought one... hence no reason to rush.

6-27-2019 **Video - kWh Meter Data.** Understanding how the electricity is actually consumed to provide propulsion in addition to cabin heating/cooling is really important. I end up having to deal with posts from people who don't. That really confuses matters. Their claims are misleading because they didn't have all the information that was needed. So, I'm always on the quest to provide that missing detail. With this newest video, you lots of new data. I was excited to be able provide something previously unavailable. It looks like it will be really handy to have this footage readily available... which is what you now have. Here's the detail: The latest upgrade from that aftermarket app (called "*Hybrid Assistant*") I use to create Prius Prime drive videos with has added a very informative new meter. You can now see the electricity being consumed & regenerated. That display of kWh is real-world data we've never had access to on this level. It's a great learning tool to really understand what the plug-in hybrid technology is really delivering. Here's my first video using it, featuring a 30-mile drive of all EV with kWh data the entire way. I'm quite curious what others will have to say after observing that collection of content compiled into a single contiguous video. Feel free to posts comment on whatever information catches your interest. Here's the link to view it: [Prius Prime - kWh Meter Data](#)

6-27-2019 kWh Video Feedback. I did end up getting a few responses right away to the newest video. This was one long follow-up replies:

I'm working on a cheat-sheet. Posts like this are how I collect feedback about the content for it. In this instance, the topic is kWh.

kWh is the amount of actual electricity consumed by the vehicle. This is a big deal, since some plug-ins are more efficient than others. In fact, some are outright guzzlers of electricity. That's why drawing attention to how well Prius Prime uses its supply available will help endorse Toyota's well thought out design.

Think about kWh. That's the unit of electricity your provider bills you for. Requiring less to travel the same distance is a better return on your vehicle purchase. Your monthly statement will be lower. It also means you'll spend less time at the charger. So, knowing the actual efficiency rate is very important. Understanding of that starts with observation of how kWh is used.

Prius Prime has a 8.79 kWh capacity battery-pack. Part of that is reserved for longevity, never touched for the sake of avoiding stress on the cells. Extremes accelerate aging. There's also a portion of it reserved for HV travel. The portion allocated for EV travel is noted on the dashboard as the percent value from 100 to 0, when the numeric display option is selected. On that secondary display (to the right), it is the range from 87% to 12%. In other words, the dashboard shows "*usable*" capacity and the phone app for that aftermarket gauge connected to the OBD-II port shows "*actual*" charge level.

Watching the video, you'll see the Total kWh value go up & down. That's because it is showing the net result of using plug-supplied electricity and some of what it recovered when braking (known as "*regeneration*" of electricity). For that 30-mile drive, it states a 5.2 kWh as the transition point, where EV capacity is depleted entirely and HV mode engages. At that point, the gas-engine joins in to supply power for both propulsion & electricity.

The next step in understanding kWh is to look at what happens when you plug in. There are conversion losses going from household AC to the battery DC. There are efficiency differences from the charging speed as well.

6-28-2019 **Worth It.** Far too often... in fact, it is almost all the time... people don't place any worth on contributing to being green. Effort to endorse infrastructure and related components (like equipment & employment) get overlooked entirely, never given even a cent of value. It never gets talked about by those researching vehicle purchases and gets dismissed by antagonists. Undermining is the silent enemy. Progress is impeded by basically just ignoring what contributes to it. Ugh. So, I look for opportunities to draw attention. For example: *"A 240-volt Level-2 charge station is almost never worth the money. It provides much faster recharges, but that only matters if one can save enough gasoline which almost never happens or if one is serious about not burning gasoline."* That advice excluded factors not related to anything directly returned to the owner. I always hope some mention of green worth unrelated to "saving" is included. Sadly, that rarely happens. But at least I still get the opportunity to draw attention to the omission: Hope you don't mind me pointing out the trap you fell into... That's a sad sentiment passed along from rhetoric long ago, unaware of the message it truly conveys. Read that message again. Notice the complete absence of the other benefit? Most people don't. Focus is diverted entirely to gas consumption. That's the trap. There's no value whatsoever placed upon simply being greener. By installing a level-2 charger, you are doing your part to endorse infrastructure upgrades. It gives electricians & manufacturers both profit & experience to benefit the rest of the market. So, whether or not you ever take advantage of the reduced charging time (which undoubtedly, you will at some point), you've contributed to the movement forward... which we all appreciate. Sorry, it ends up almost sounding like a guilt-trip, but that is how to appeal to people when they focus on "worth it" equations which leave out some factors. Think about how easy that fact was to overlook.

6-28-2019

Who? Reset. It's easy to see history hitting the reset button. Know your audience. Almost the entire collection of antagonists are gone. These were the individuals who embraced group-think to push Volt. It's seemingly started innocent enough, with just a bunch of early-adopters sharing the same vision. But as their support systematically dismissed evidence of hurdles too big to overcome alone, they embraced "*vastly superior*" rather than seeking out alliances to help break down barriers. They became enthusiasts fueled by hope. It grew into a terrible hype. The ideas of substance & merit were abandoned. They'd eventually come to resist any type of constructive discussion. It's an awful pattern I have witnessed several times now over the 19 years of being actively involved in fighting the status quo in the automotive industry greening. They'd target me, rather than those fighting against change. Ugh. That was the origin of the "*Who?*" question but didn't become something to highlight as a problem until Volt came along... when I started asking "*Who is the market for Volt?*" They thought I was crazy. To those enthusiasts, the answer was obvious... them... hence, the group-think. My recognition of the same thing happening with ASSIST hybrids, then Two-Mode, then EREV is the result of meticulous study. Each made the pattern of incorrect audience a well defined match. They were all focusing on engineering and basically just brushed aside all other purchase priorities. They'd confuse want with need. That loss of perspective is what doomed them. It's like the EV problem now. I keep seeing "*affordable*" associated with the price of a vehicle in the low 30's. How is that supposed to be a realistic choice for someone looking to only spend something in the low 20's for their next vehicle? Corolla hybrid has a starting price of \$22,950. Remember the "*nicely under \$30,000*" goal? Those unwilling to acknowledge history don't. In fact, they pretend many of the other lessons learned from history simply don't apply to their situation. It's a push forward based on hope, rather than sound business. That's too much of a gamble. We've seen it failed several times on a huge level.

6-28-2019 **Who? Dealers.** I remember getting feedback about my attitude, claiming it wasn't the message, it was conveyance of it. That seemed sensible, until you recognize the pattern of dismissal. The information itself was never acted upon. Those not recognizing who just kept on with their pattern of defiance. They knew best and nothing provided would sway their belief. Their act of stubbornness contributed heavily to the death of volt. The reality of dealer-not-consumer never sunk in. That epiphany never happened, despite countless attempts to get them to see the problem. Ugh. It's come down to a lesson learned which some still refuse to accept:

Dealers have been the problem all along. Trouble is, early-adopters weren't interested in the bigger picture. Focus was entirely on conquest purchase, not actually changing mainstream buyers. GM crashed & burned because of this. Tesla gave a valiant effort to avoid the inevitable plateau resulting from tax-credit phaseout. Things will work out fine in the end, but that slow down wasn't an expectation properly set... despite countless warnings of it coming.

The only legacy automaker with a solid plan for getting dealers to embrace change is Toyota (though there is lots of potential for Hyundai). Across the board, we are seeing hybrid rollout... Corolla, Camry, Avalon, C-HR, Highlander. The latest has been an incredible success: RAV4. Think about how much easier selling the PHEV and EV models will be later with widespread acceptance of hybrids. That risk of change would have been mitigated, and in short time too. The expectation is currently set at 20 to 25% of RAV4 to be hybrids. What other automaker is seeing that level of penetration? Dealers who are on their game will establish a welcoming of new tech as a sales advantage.

Toyota also has the unique opportunity to also appeal to Prius owners, a massive base to draw interest from for their first PHEV offering. And with the Corolla PHEV rolling out elsewhere in the world later this year, there's an undeniable effort to stir attention from dealers. Corolla is a top-selling vehicle. Getting a plug-in version to market is a really big step forward. Income from routine maintenance will be lower, but being able to keep demand strong for sales will reduce dealer apprehension.

6-28-2019 **Who? Wait.** There's nothing wrong with delay... as long as you have a solid reason for it. Enthusiasts will wait for a miracle, hoping some announcement will result in a huge overnight success. They don't understand how much must actually take place for the sales they want to become a reality. It isn't a matter of build it and they will buy it. That was a painful lesson learned for the Volt enthusiasts. They truly believed a "*vastly superior*" product was all it would take. In fact, some still think the lack of advertising on GM's part is all it would have taken for it to achieve high-volume profitable sales. The realities of stocking inventory and the act of selling never get any attention. Focus is always entirely on the consumer... who doesn't pay attention. From their perspective, it really is just a matter of waiting. The problem is, for how long? That sentiment keeps getting passed along. We never actually arrive at that time. The wait becomes indefinite. I tried to convey that in this series of exchanges: That "*just give it a couple of years*" reply is getting really old. It's unacceptable to just give legacy automakers a free pass with an "*all segments will be covered by 2025*". The reason why is simple. Dealers will just wait. That's an entire vehicle generation, just waiting for introductory rollouts. Then how much longer after that do we have to wait until the high-volume sales actually begin? Annual sales worldwide are over 80 MILLION vehicles. Change needs to begin now.

6-28-2019 **Who? Excuses.** The exchanges continue. I could tell he was just searching for an excuse to dismiss me, rather than actually consider the information being shared. This summed up the situation well: "*And I believe you give people no credit for actually figuring out how to use new technology.*" That was a polite means of shooting the messenger. It was an attempt to get the consumer involved in the supply & demand discussion. I know how vital inventory is. With the initial rollout back in August 2000, through May 2002, you could only get a Prius by ordering one. All new purchases were sight unseen. The who back then was Toyota's diehard supporters, which is why they made getting one more than just pointing to one on the dealer's lot. That's why the mid-cycle rollout of the first plug-in Prius was also internet only, then switched to only select states. Toyota knew its audience and had a very clear objective (collecting real-world data from well-informed markets). So later when next generation came along, rollout come be to a wider who without any surprises. Unfortunately, the fallout with GM caused delay. But that's not an excuse, that's a wait with very good reason. This exchange was none of that. He just plain did not like what I was posting and I wasn't about to allow him to continued without a callout: That's a red herring, diverting attention away from the topic of dealers. People can't buy what isn't available. In other words, the true customer of legacy automakers are dealers, not the end consumer.

6-29-2019 **Who? Hate.** Lashing out is the next step, when an antagonist becomes so frustrated with the information shared, the effort turns into an expression of hate. For example: *"I have no love for any of the traditional majors and could care less if they go out of business. The ones that actually care about doing full EV's I care about. The rest? Hell with them."* He was letting emotion steer the discussion. Logic was abandoned. Points about having something quantitative to aim for... you know, a goal... was lost in the frustration of me not listening to the rhetoric. I wasn't taking the bait and he couldn't see why. That's because he didn't know who he was dealing with. Know your audience. I don't give in to hate. I don't let group-think make my decisions. I share observations and explain why my stance was taken:

Lack of substance invalidates that argument. It's so vague, there's nothing to actually discuss. We've been hearing the *"all electric"* mantra for an entire decade. The unfortunate legacy consequence of that was an exploitation of tax-credits.

The problem is forcing a specific approach, which history has repeatedly revealed to be a path to failure. Changing the mantra from *"all electric"* to *"full battery"* doesn't change anything either. It should always be about goals. Establish something meaningful for automakers to deliver. Without any real target, there's no competition, no incentive, no push. Business as usual simply continues.

In other words, you're giving them exactly what they need to retain the status quo. Notice how some automakers have announced the number of models they intend to deliver by 2025, rather than any actual vehicle quantity? All they need to do is rollout a token few to fulfill that horribly vague promise. They don't have to be affordable. They don't have to provide any specific range. Heck, they don't even have to use electricity efficiently.

So what if the industry expert in hybrids delivers a Prius Prime, Corolla Prime, Camry Prime, and RAV4 Prime? Each will provide exceptional electric & gas efficiency (as EV and HV ratings for Prius Prime already confirm) at an affordable price. And since they will be based upon high-volume platforms their customers already strongly demand, supplying an alternative propulsion system is a sensible approach.

I understand the desire to aim for the best, to not waste resources on transitional technology. But the reality of the situation is that legacy automakers are a for-profit business who serve dealers that require easy to sell vehicles who will favor profitable inventory. That idea of abruptly switching to a specific approach when it is *"ready"* doesn't fit within the realities of consumer need, salesperson need, dealer need, supplier need, or automaker need.

Who is the *"full battery"* label supposed to appeal? Someone commuting with a PHEV that's within the range of their employer or where they park provides chargers will experience *"full battery"* driving. So what if there's a gas engine available for long trips. The bulk of their driving will be *"all electric"* anyway. The bulk of their driving will be with only electricity.

6-30-2019 Who? Anger. Reading through the series of posts again, it became obvious that he had no idea how a plug-in hybrid actually operated and was quite frustrated with the lack of progress from legacy automakers. Back when there was Volt, that all too familiar delay attitude was expressed upon missed goals. Shortcomings would be resolved with the next generation, so act of waiting would be all that was necessary for targets to be reached. That was quite a gamble, very risky. Depending on too many things to happen for an objective to be reached is one thing. But now, there isn't even to shoot for. He just labeled the finish line as "full battery" without specifying anything else. There was no substance and I called him out on it. So, he deleted all his posts. Getting caught in the act and responding that was is intriguing. Since I have email notify enabled, I already had an offline record of all the posts. That meant I could constructively respond anyway. And I did, with a call out.. since the who became him:

The stance I have taken is the result watching you just brush aside history, dismissing those facts presented without any type of acknowledgement. No label necessary for that behavior. It's the outcome that matters. I got your attention. That was the point. Will you just go your own way and ignore those lessons learned or ask questions about how to prevent the repetition?

Again, lack of substance means not sighting anything quantitative. Just a vague "*full battery*" sets no targets whatsoever. Not having any type of time, price, volume objective is how that history happened. Being sick of labels & overplay is good reason to seek out strong personalities willing to step up. If that's you, sound off with some solid goals & realistic expectations.

As for spinning my belief to be that of hybrids only, you clearly need to read more posts . I'm all about EV, but don't at all agree with the polarizing approach many here endorse. They are the combative ones. I'm just trying to get attention within that chaos.

6-30-2019 Fallen Leader. Anyone remember all the relentless attacks on Toyota about how far behind they were, that following the industry leader would be a painfully difficult struggle? It's hard to believe that was less than 6 months ago. GM was the praised automaker who could do no wrong. Today, there was an article published where the comments posted said GM could do no right. Interestingly, there was much agreement. The reason why is obvious... sales of Volt & Bolt never amounted to any actual change. Status quo remains intact and early-adopters are upset. Despite so many warnings of tax-credit exploitation and niche pandering, they are dumbfounded about the outcome. It's quite extraordinary to witness. Timing is exactly as anticipated too. We are halfway through the 50% tax-credit phaseout and 2nd quarter sales results will soon be revealed. Everyone knows such bad news is on the way that there's nothing to fuel hype anymore. It's over. Right on cue to step through the ashes is Toyota. Their choice to not upgrade the battery-pack mid-cycle makes more sense than ever. It means they have a solid 2 years of real-world data to leverage. That scale of owner endorsement is how growth is achieved. Rollout to the remaining 35 states will be so much easier with that experience to refer to. This is why I put up with all the nonsense from those Volt enthusiasts. They were too shortsighted to understand who the effort should be targeted at. Appealing to enthusiasts was a momentous mistake. GM really blew it.

6-30-2019 **Innovation.** From that discussion focusing on GM's fall came this: "*The problem with legacy, run-by-committee, focus-group-driven companies is that they don't innovate. They try to give people what they think they want. Unlike visionaries like Jobs and Musk, they don't deliver what people don't even know they want.*" It was a thought-provoking comment about want, not even bothering to bring up need. I liked that. But rather get into the subjective aspect of advancement, I kept focus on the innovation effort itself with:

It's not a matter of getting legacy automakers to innovate. It's how to appeal to their true customers, their dealers. Remember, this is a for-profit business with a long history of resistance to change.

GM had a disastrous run with Volt. Design suffered from group-think fueled by exploitation of tax-credits. That's easy to see now, since feedback was from enthusiasts rather than ordinary consumers and cost-reduction efforts were far from target pricing. It's too expensive and doesn't appeal to their own showroom shoppers. But back then, leadership given despite that. It was a denial path to nowhere, which is confirmed now by that technology not being spread to make it profitable... the very purpose of those tax-credits. Lesson learned is innovation requires acute attention to audience.

Toyota is constantly ridiculed for focusing on hybrids, despite the overwhelming evidence they are setting the stage for high-volume rollout of plug-in models. We see Prius with that plug-in upgrade worldwide already. Corolla hybrid offered as a plug-in hybrid later this year in some markets. C-HR, which is a hybrid in Europe already, will be offered as an EV in China for 2020. What is compelling Toyota to push forward with their fleet transformation? It's their understanding of how to appeal to their own audience and not listening to early-adopter rhetoric.

We can see the obsession with SUVs here is making the RAV4 hybrid a strong seller. That's a terrible platform for efficiency; however, it does make for a compelling plug-in hybrid. Toyota has an affordable means of delivering that too. It's a next step forward dealers can easily embrace... which is a key component to making any innovation effort a success.

In short, look beyond just the technology itself.

6-30-2019

Mass-Market or Luxury? The question of "*Who?*" got asked more and more as GM's struggle for sales got worse and worse. The reason was simple; they were all about conquest but we couldn't figure out with who. Supposedly, the purpose of Bolt was to compete directly with Tesla. That seemed a bit odd, but made more sense than the split-personality of Volt going after both Leaf and Prius PHV. That was still a problem though. It made the assertion that Tesla was seeking a mass-market audience. With the price for Model S and Model X so high, it meant everything would be based upon Tesla somehow achieving that hyped \$35,000 price-point immediately upon rollout. Even then, market saturation was a very real issue. That's far above the mainstream expectation. All this depended upon sustainable sales being achieved quickly too. None of that happened. Both GM & Tesla are in challenging positions now. Fundamentals are now being analyzed too: *"It doesn't matter whether Tesla delivers 90,000 cars or 900,000 in the 2nd quarter - what's more important is whether Tesla goes mass-market or stays luxury."* That article opener really caught my attention. It emphasized what I had been raising concern about all along... audience... who? For GM, we know they have a heavy base of Pickup & SUV owners. That means the category of luxury is a bit skewed, since that category is typically sedan-centric. Coming from the Chevy brand, that makes no sense whatsoever. What about for Tesla? Those sedans which their current customers find absolutely stunning for looks are all early-adopters. They don't represent the mass-market. Is that a problem for Tesla? Disappointingly, the article didn't mention that at all. It's entire focus was on what volume was the correct level for the proper profit-margin? Balancing capacity with capability is a challenge. You really need to understand a large amount of influencing factors to get that right. With so much investor interest at stake, that's a very real problem. Remember what contributed to GM's bankruptcy? See those same elements at play now for the legacy automaker? That leaves Tesla in a difficult position of how to integrate as a new automaker into an aged & troubled system. To compete with ordinary consumer choices, price still needs to drop dramatically. Operational cost is wonderfully low for EV early-adopters, but that isn't something as easy to appeal with toward the shopper who focuses almost entirely on the out-the-door cost. Purchases don't often include fuel expense. In fact, that's why guzzlers remain so popular. Gas is cheap enough. So, consumers don't give it any priority. That's why the much lower cost for electricity is such a hard sell. Mass-Market appeal means far more potential. So, it's a really big deal to make intended audience clear. GM didn't and failed as a result. Tesla must now make the decision.

7-01-2019 **Down to 25%.** Big news today is that Tesla tax-credit phaseout drops down to 25%. That has renewed the rhetoric. But with the death of Volt, there's no real substance to those arguments anymore. As a legacy automaker, there was some leverage from GM on the topic. With Tesla though, it's basically find a different means of subsidizing progress. So, I was intrigued how the new discussion thread would progress. This is the quote I homed in on: *"No, the per manufacturer number is idiotic. A common pool makes sense. The pioneers don't get penalized and the laggards don't get rewarded. There was a lot of work to bring up the technologies, supply chains, and marketing to bring forth these products. The laggard companies did none of this work and still enjoy plenty of credits."* Knowing there's so much neglect & overlook related to the rest of what it takes to advance the technology forward, I had much to say:

The narrative of laggard fell apart when it was confirmed that GM exploited their tax-credits for conquest sales, rather than using them as intended to change what their own loyal customers would buy. There's simply no way to argue that either Volt or Bolt actually changed the status quo. We see those with old GM guzzlers simply replacing them with new GM guzzlers.

Each automaker being given an allocation of their own meant taking the time to do it right. GM's rush to market was wasted opportunity. Pioneer means you do something with whatever ground you break. GM didn't. We still doesn't see any model of SUV with any type of plug. That was the point of getting such a generous government subsidy.

Remember, the goal is to deliver something that can compete directly with traditional vehicles sharing the same showroom floor. That means each automaker must develop technology to appeal to their own shoppers. Retaining loyalty is a vital aspect of legacy sales. Those dealers depend upon repeat business, which requires an easy sales with a reasonable profit.

Of course, focus on *"bring forth"* is misguided. It implies we're stuck in the early-adopter phase still and nothing was accomplished. That's a load of garbage. Subsidies are not needed for the vehicles anymore. New tax-credit offerings should focus on the next stage: INFRASTRUCTURE.

Just imagine how well spent the money would be getting homes upgrades to offer L2 for each vehicle parked there. That would do far more to move mainstream consumers forward than just giving more to buyers already set on purchasing a plug-in vehicle anyway.

Just imagine how well spent the money would be getting employer... and businesses... and ramp owners.

It's all about moving forward. Pioneer efforts should be there now.

7-01-2019 **Well Timed.** Naturally, the attempt to draw attention to sad state of infrastructures and how those challenges are being ignored turned into an attack on Toyota: "*Toyota foolishly burned up nearly half their tax-credits on little PHEVs. By the time they go full BEV, they might not have much tax-credit left.*" There's so much of an obsession with delivering a BEV, they simply don't care about anything else related to mainstream acceptance. It's a fundamental mistake to evade balance, which is an essential to sustainable profit. It's what happens when group-think takes hold. They lose touch with the basics, choosing to lean on distractions as justification. That's sad. I point it out, but they really just plain don't care: Toyota won't need tax-credits for BEV offerings. That supposed "*foolish*" use for PHEV has already produced a remarkably efficiency system. Cost reduction is well underway. Battery refinements are pushing forward. There's even weight improvements coming from carbon-fiber. There's simply no merit to claims of having missed opportunity. Real-World data collecting from the plug-ins rolled out is serving its purpose well. Toyota is using that information to advance the entire fleet forward. So what if an EV doesn't come until the next stage when subsidies aren't available? At that point, the business of selling plug-ins would have been established anyway... which is the point of that money.

7-01-2019 **Do The Math.** He failed to consider the big picture, but it was a welcome change of pace. This was a discussion about charger setup at home... the very balance I had been arguing for in that other thread. It came to this: "*There should be some math to back up this analysis.*" That's usually how most of the posts progress. They get deep into the math, completely missing the point of contributing to green infrastructure. When reduced emissions is give a value of \$0 in those analysis, you are very likely to experience a pushback to anything related to doing-your-part consideration. So, mention of helping a local electricity co-op or a local electrician shop by provided some real-world hands-on opportunity for them is pointless. They simply don't understand the benefit that provides. It's really unfortunate. This is what pushes me to find new approaches and new responses. In this case, it was simple. Debating between sticking with the existing 120-volt connection or having a new line & outlet installed for 240-volt power overlooked something which should be obvious. What do you do for the second vehicle? Households tend to have at least 2 vehicles. Not looking forward enough to realize there's only 1 outlet available is quite shortsighted... especially when these discussions amortize cost over the span of many years. That level-2 charger simply becomes a requirement for the purchase of a second plug-in vehicle. It makes no sense running a lower gauge wire. If you have to go to the trouble of installation anyway... Since those arguments insist upon math being the primary means of justification, I simply showed my response as this equation: $2 \text{ cars} + 1 \text{ outlet} = \text{L2 needed}$.

- 7-01-2019** **Rush To Market.** In the past, arguments to disparage Toyota pretty much inevitably ended up with a turn to fuel-cell investment. It was an intriguing pattern of attempted undermining... since they were establishing a precedent I could turn on them later. For example: *"Toyota will go full FCEV before full electric. At least that is their plan."* I took that bait... but didn't respond with the hoped for rhetoric type response. I hit back with cold, hard facts. This is the type of information that makes them cringe, because there's no effective means to rebut what just go posted: The name of that vehicle is Mirai. It uses a 151 hp electric-motor, which isn't a coincidence. That's a size perfect for an EV model of Prius or Corolla in this market. Toyota is being clever by dual using tax-credits, taking advantage of the FCEV opportunity to help bring about a means of achieving economy-of-scale savings for upcoming EV offerings. It's a interesting win-win situation that many here overlook or don't understand. Why not gain experience for something with so much potential, refining the technology before ramping up? After all, we have already witnessed what rushing to market did for GM.
- 7-02-2019** **Too Bad.** Exactly as predicted, there was no effective mean to rebut. Instead, he just got really angry and lashed out with a personal attack: *"Toyota is anti-EV. Don't spin it, Toyota fan boy."* I was quite pleased about getting such a clear indicator of having nailed it. I found a weakness in their arguments I could indeed exploit. That was always the hope of letting them set precedent... since that often leads to them backing themselves into a corner. That pattern of antagonist behavior, which is often self-deprecating, is quite common. They provide there own material for defeat. That's why I push so hard, allowing them to fall into their own trap. It confirms their stance is not well balanced. Overlooking the bigger picture is most often their tactical error. With this exchange, that confirmation was provided: That evidence showing they are not clearly struck a nerve. Now, whenever you try to spread that narrative, you'll get a reminder of the facts. All along, it has only been timing. Ramp up doesn't need to happen yet. Toyota continues to refine its EV tech by using their PHEV and FCEV platforms. So what if my 80 mph electric-only ability comes from a small battery-pack currently. It's an EV in disguise. So what if the carbon-fiber hatch isn't seen by anyone. It's very effective why reduction. So what if most don't know about the vapor-injected heat-pump. It's an extremely efficient means of cabin warming. Toyota is a legacy automaker that will emerge with a strong showing, right there with Tesla, but serving a different audience. Too bad if you don't.

7-02-2019

No Substance. That discussion shifted from Toyota to GM, the expected outcome when cornered. In this case, it's to spin a rosy picture of the future. Trouble is, GM is terrible in regard to promises. They are vague & ambiguous. The more you dig to get detail, the more you get conflicted & misleading messages of intent. It's been that way since Two-Mode development began. You had no idea what GM actually planned to deliver. Enthusiasts don't care though. They spread meritless hype, like: *"Actually I think GM is starting to show so real commitment to the Bolt EV. Inventories have remained high and prices at dealerships have come way down but GM keeps shipping new Bolt EVs out of the factory."* That's a complete disregard for the market. It focuses entirely on a single vehicle without anything quantitative. The hope is to set an expectation based on assumptions the reader makes, rather than something that can actually be measured to definitively gauge progress. There's never any accountability either. When a promise isn't delivered, the response is always one of misunderstanding with the claim. What was said isn't what was actually meant is an effort to evade. Notice how *"real commitment"* and *"remained high"* aren't defined? Vague references like that are red flags. When pushed for detail, any type of ambiguous response is confirmation of no substance. I did exactly that, then posted this upon getting the confirm: Real commitment would mean putting it up against the true competition... other vehicles sharing the showroom floor. Remember, purpose is to actually change the status quo. No impact to that comes from conquest sales. Focus needs to be on GM influencing their own loyal customers, those looking to replace their old GM vehicle with a new one. Seeing the complete absence of any type of green SUV, the dominant GM product, is confirmation of no current commitment. Trax, Blazer, Equinox, Traverse, Tahoe... why aren't any of them offered as anything other than a guzzler? Two-Mode was rolled out over a decade ago. What happened to it? Why is there still nothing for the SUV line-up? Notice all the hype on GM's website now? There's a lot of electric & technology stories, but nothing of any actual substance.

7-03-2019 **Misleading Statistics.** That's what we called them ages ago. That has since become "*fake news*" fodder. Stuff like this is the source: "*Most people after driving a PHEV for 3 years will buy a BEV as their next car. So I don't see PHEVs ever gaining much market share...*" Often, the origin of such a claim is unknown & outdated. The method for drawing such a conclusion is questionable too, especially when it is so vague and without any references. Passing that claim along without question is the hope. Rhetoric builds upon beliefs that cannot be substantiated. Ugh. I punched back with:

A statistic based on an extremely limited sampling with a market skewed by limited availability and the scramble to take advantage of tax-credits before they expire tells us nothing constructive. In reality, mainstream consumers will flock to PHEV choices that are competitive with traditional vehicles. EV will come later simply because they are ready for a second vehicle with a plug, if they have capacity available. That PHEV will remain in their household.

Key selling point is that fact that many households have capacity challenges. Starting with a 120-volt connection is what will make things easy for both dealer & consumer. Making one dedicated high-amp outlet available is something that will come later, after the PHEV has been purchased. Getting a second line to a second vehicle is a topic "*most people*" avoid discussion about. Know your audience.

As for market share, that's also a limited scope issue. It will vary wildly from automaker to automaker. Toyota will thrive in that market because they have a very strong hybrid product-line already, showing increased growth and sustainable profit. Migrating to plug-in hybrid is an easy step salespeople will embrace. It's a simple upgrade option to sell, so why not? EV models take far more effort to sell to a showroom shopper.

7-03-2019 **June Sales.** When EV sales are posted, there's always a stir related to Toyota. The results of Prius Prime are an enigma. I provide background to draw interest in the thread, hoping to draw constructive discussion. Yes, I know, critical thought is a challenge when dealing with enthusiasts. But among early-adopters, a few helpful supporters will eventually emerge. This topic is great for filtering out hype. Hopefully, this helps that process along: 2019 Prius Prime inventory has been low, due to the 2020 model being that long awaited mid-cycle update which brings about that rear middle seat along with Apple CarPlay. The outgoing model was only available in selected markets as well, so sales expectations were never high with such limited access. When that new model begins delivery, the hope is there will be a ramp-up of production and nationwide distribution will become the norm. Knowing there will be market fallout from tax-credit phaseout anyway, it made sense waiting until the mid-cycle update was ready before going all out.

7-03-2019 **Decline.** It's quite common to focus on a single vehicle. Remember how the Volt enthusiasts would obsess with Prius, absolutely refusing to even acknowledge the existence of other Toyota hybrids. It was Camry hybrid that made them especially crazy. Having such similar size electric-motors was reason to be concerned about GM slipping behind. Of course, now with RAV4 hybrid so popular, it's over. The "*too little, too late*" has become a reality on several fronts. GM's supposed leadership didn't have any merit. There was no investment to spread technology to other vehicles, as Toyota has done. I make sure everyone understand that lesson learned too:

That perspective only works if you look at just Prius, disregarding what's happened with the rest of Toyota and the market here.

Toyota has used that window of time to rollout the new Camry hybrid, the new RAV4 hybrid, the upcoming new Highlander hybrid, and introduce Corolla hybrid. They also rolled out a new look for Prius, staging it for AWD and Limited models only while allowing the PHEV model to become the dominant offering.

Notice the when the mid-cycle upgrade of Prime was revealed? That's not a coincidence. It was part of a well thought out plan. Toyota was well aware of how GM was exploiting the tax-credits for conquest sales, rather than targeting their own customers. That meant Toyota would have to fight a pointless battle, wasting those limited subsidies with nothing to gain. So, Toyota avoided it by waiting... until the day after the first month of phaseout began for GM. It worked well too. Damage control efforts for Volt had come to a close at that point. The chapter in history it held had ended. Toyota got the spotlight and took full advantage of it, releasing a press announcement about the 2020 model.

Notice how well RAV4 hybrid is selling? That would make a great PHEV platform. All the work Toyota did with Prius Prime will transfer over nicely. You get the economy-of-scale benefit with a reputation for reliability established. It's a win for everyone along the Toyota production, distribution, sales, and ownership path across a widening array of choices... the full perspective. Growth is needed... many models... no dependency on tax-credits.

That's why an impression of decline doesn't matter. As stages change, there will be ups & downs. It's all about the overall advance.

- 7-03-2019** **Continue To Lag.** They don't give up. There's a never-ending push of the narrative about Toyota being behind. It's that mindset of making themselves feel better about GM's trouble by claiming someone else has it worse, even if there's no substance to the claim. Ugh. I hit back at today's slander attempt with: Toyota taking a different route to mainstream BEV doesn't mean they are behind. No legacy automaker has had any sale yet that wasn't subsidized. Others taking advantage of tax-credits is terrible gauge for how good ordinary demand will be. The race hasn't even started yet. That's why you question focus on Volt. It was an impediment for all those years. Always gloating about how far ahead it was, even though its reach never extended beyond niche. All that "leader" hype amounted to nothing. The technology never found a way to grow... which is why the approach Toyota is taking still has a great deal of potential. The smooth, quiet, efficient EV drive Prius Prime demonstrates is a taste of what's to come. There's a lot of other platform type work to take place before affordable, everyday type offerings are realistic. Notice how other legacy automakers really aren't doing much more than promoting what they are planning, rather than actually selling?
- 7-03-2019** **Approach.** The desperation is unbelievable now. Back in the, there's was the propaganda to leverage. But with real-world data so readily available, that doesn't work anymore. Attempts to misinform get debunked very quickly. Unfortunately, antagonists just switch to other tactics. In this case, they do whatever they can to change the topic. Diverting attention elsewhere doesn't work with someone so aware of their behavior. I just keep hitting back with facts: You're overlooking the platform those hybrids use & share. TNGA (Toyota New Global Architecture) enables that move forward, but time was needed to roll it out. That's worldwide. The discussion is about automakers & approach. GM bet the farm on Volt, choosing not to spread the technology until it was too late. Toyota is aggressively working to diversify, quite the opposite.
- 7-03-2019** **Better.** From time to time, there are attempts at constructive discussion. It usually breaks down when no substance for follow up is provided. For example: *"A common reason I hear from non-enthusiasts who want an SUV is being able to see 'better' because they sit higher and feel safer."* That sounds reasonable, but there's no context. When? Who? And now the question is what? What exactly is the "SUV" they are referring to? Is a crossover in their want list? With the acceptance of non-sedan variants becoming so popular, how small & short of a vehicle are they actually talking about? That element of better becomes a wash when everyone else is driving larger anyway. Notice how lack of detail makes you wonder what substance, if any, is credible to the aspect of better? Of course, there's me to inject some logic into those posts: Not following as close allows then to see better and it is safer. They really just use that as a justification... hence, know your audience. The takeaway from learning that is logic doesn't always sell. In fact, critical thinking is pretty low on the decision-making process for vehicle purchases. This is why Toyota had taken the time to create a hybrid design that's readily adaptable to support a plug.... RAV4. So when the time is right, they pull the trigger without consequence... the Osborne effect.

7-03-2019 **Profitable Stage.** I especially liked seeing this: "*Honda and Toyota continue to duke it out to see who can dominate with last decade's technology!*" It came from an antagonists who clearly didn't want to read anything drawing attention to PHEV progress. Watching others from a distance, rather than being dragged into the mess, is preferred. There is worry that Toyota & Honda could see success on a scale large enough to cause problems for GM, who has abandoned the PHEV market. Not having anything in that category to offer is a very real problem without a strong infrastructure to favor only EVs as the path away from traditional choices. Knowing Toyota & Honda, as well as others like Hyundai/Kia, will have a variety to plug types to offer makes the hype coming from supposed profitable rollouts coming in the next few years rather dicey. How much eggs-in-one-basket risk can be taken? GM's failure with Volt was costly. The closing of Lordstown production really hurt. This is why I stated over and over and over again the importance of diversifying prior to tax-credits running out. Imagine if GM had to retool to get Trax with Voltec offered in greater capacity? Switching over that location from Cruze to more Trax would have been a welcome improvement for everyone involved. It's a next step which should have taken place years ago. Instead, countless direct & indirect employment opportunity has been lost from inaction. That's really sad. I put the situation this way though, being sensitive to those impacted by such major executive decision mistakes: In other words, the effort is moving on from early-adopter to mainstream. That's the normal progression when a technology matures. It's the high-volume profitable stage all automakers hope to reach.

7-04-2019 **10 Year Ago.** It has been interesting to read through the discussion thread from exactly 10 years ago. This was back when Volt enthusiasts were under the belief that the design GM would be rolling out roughly 16 months from then would be a SERIES type hybrid. This was also when it was common knowledge that Toyota's newest generation Prius (rolled out just 2 months earlier) had a "*plug-in ready*" design, which meant a larger Li-Ion battery-pack could be swapped with the existing NiMH. Things went soar though and exchanges got ugly. By the time Spring came along (9 months later), those enthusiasts discovered Volt would actually be a PARALLEL hybrid instead and that new Prius had become far more popular than anticipated. Rhetoric had become more and more nasty as a result. In those decade old posts, I found lots of meritless claims about how superior the GM design would be over Toyota. It was evidence early on that they really didn't have much knowledge of how efficiency was achieved or the problems related to implementing the technology. They mocked Prius for having an "*evolutionary*" design, not understanding that's what would be needed. Revolutionary is not how you appeal to ordinary consumers, since those mainstream buyers are shopping for affordable & reliable choices that are well balanced... because that's what the dealer will sell. Anything related to good business was disparaged for the sake of endorsing what seemed then to be a "*vastly superior*" approach. It wasn't. 10 years later, that is overwhelmingly clear. Now, they are choosing to repeat those same mistakes, dismissing what they don't like and clinging to hope with substance. It's a mess, again!

7-05-2019 Promoting Change. The end of this year bring the end of tax-credits for Tesla. That's stirring lots of renewed discussion when sales results are a hot topic. July sales was an especially good example: *"If you can't charge it then it isn't included, no charge port then no inclusion. Hope that helps. BTW, that also excludes Toyota's "self-charging" cars."* There's lots of how-to-report monthly totals. Some EV supporters want nothing to do with PHEV. Others get irritated by the lack of clarity among hybrid offerings. This is the very reason Toyota is taking yet another risk that many refuse to acknowledge. The love to cherry-pick. I love to point out that's what they are doing. I try to do it objectively though, hoping to prevent confrontation by presenting lots of information to consider. This was today's attempt:

That is actually the point, when you come to realize *"self-charging"* is really just the first stage in marketing shift. Next will be to promote *"plug-in"* without deprecating the effort to draw attention to their work to phaseout traditional vehicles. This is a big problem for legacy automakers, a barrier to overcome that Tesla and their supporters often don't give credit for.

Consider how abused the term *"hybrid"* has become. 21 years after sales of Prius began, it represents anything that delivers more than just a continuously running engine. By changing to *"self-charging"*, it forces new discussion... which this group took and ran with, despite being such an EV-centric venue. They helped set the stage for that next stage. The term self-charging is now recognized as the type of no-plug hybrid Toyota/Lexus sells, not what other automakers sell with the *"hybrid"* label... a necessary distinction for phasing out traditional vehicles.

Think about how little showroom shoppers actually understand about the technologies available. There at the dealer, being presented with a *"self-charging"* and *"plug-in"* choice, there's no confusion. Both are obvious improvements over traditional offerings with obvious definitions of purpose.

EV supporters really struggle with how to get dealers to embrace change. Toyota doesn't. Toyota is setting the stage for a quick & easy transition. Consider how vital effective marketing much be to appeal to ordinary consumers. The *"self-charging"* and *"plug-in"* labels don't intimidate. They are a simple means of promoting change.

7-05-2019 BEV vs PHEV Sales. An article posted today on that topic left out a lot of things to consider. It was basically just a fluff piece to generate discussion, which is great. But that obvious exclusion of vital information was quite annoying. That's what happens when you focus entirely on numbers. Looking at influencing factors... the market itself... was disregarded entirely. That type of omission borders on fake news. Hopefully, the missing facts will be addressed. We'll see. In the meantime, this was what I had to say:

There are 3 major factors at play with regard to PHEV sales in the first half of 2019 that were not addressed.

First was the discontinuation of Volt. Knowing GM no longer had any definitive plans to rollout an type of PHEV tech to any of their traditional vehicles meant that production end represented an abandonment of that market. That means whether or not other automakers move in to fill that void must be taken into consideration. Remember, sales of Volt were almost entirely the conquest type. That meant there was interest from elsewhere, but few choices from elsewhere available.

Second was the limited availability of Prius Prime inventory. Toyota knew it had a 2020 mid-cycle update on the way for the second half of the year. That meant supply of 2019 models would be in small quantities to only the select markets it had been available. Nationwide rollout would not happen until after that update. So, sales results in the first half wouldn't be representative of actual demand... especially since the 2020 model would offer improvements based upon market feedback.

Third is the on-going influence of tax-credits. With them in place, we're still only looking at early-adopter buyers. These are people who cross-brand shop and take advantage of subsidy opportunities. Regular showroom shopper are an entirely different audience, not in any way represented by the sales results to date.

7-05-2019 Misrepresenting Sales. Stuff like this is very irritating to encounter: "*Hybrids flat since 2017.*" It's nothing new. People have been over-generalizing like that for 20 years. Anything with a battery-pack was called a "*hybrid*" vehicle. Nothing about its design, or even shape or size, made any difference. All the numbers were just lumped together and averaged. It's just like averaging price, instead of using median. That is deception tactic often used to misrepresent. The catch is, there are many who either don't care or don't bother to research what information they are actually passing along. The number simply validates their stance, so they use it. That's why I jump in with facts regularly to give a heads up to those who honestly didn't know and keep those who might be hoping to mislead something actually constructive to consider. In this case: Notice what's happening with the new RAV4 hybrid? It's a midsize SUV that delivers 40 MPG. There's a massive market for that particular audience, especially with a starting MSRP of \$27,850. Consequently, growth has been dramatic. Comparing the first half of 2018 to the first half of 2019, the growth rate is 142%. In terms of actual numbers here, June had 9,013 sales. For Toyota's design, that only requires the addition of a one-way clutch. Finding room for that extra battery-capacity is obviously with a larger interior like that too. So, there's a lot of potential. Flat is misleading.

7-05-2019 **Understanding MPGe.** Those trying to run reputable venue for sharing information about all vehicles with a plug are really struggling with those who are poorly informed... and those who just plain don't care to learn. They keep publishing articles from time to time about how efficiency is actually measured & represented. That makes a huge difference toward understanding the variety of technologies available. Not all electrics are the same. Not understanding that is a big problem, since it prevents advancement of discussions. If the knowledge sharing is remains stuck at a basic level and is routinely posted about with incorrect comment material, the integrity of the venue is at risk. For example: *"It should be just RANGE for an EV. For a PHEV it should be EV range then MPG when the sloppy OPEC gas awallower starts to spew it exhaust."* That seems innocent enough. But it is highly misleading. Any automaker can just add more cells to give the impression of efficiency. But in reality, its really a waste of resources. I tried to explain, yet again: Capacity of the battery-pack is a red herring, telling you nothing whatsoever about how efficiently electricity is actually consumed. 44 kWh/100 mi. 25 kWh/100 mi. Those numbers are from the article's illustration. They reveal that one vehicle uses far more electricity to travel the same distance. This is why even a short-range PHEV can be a much greener choice than an EV with a long-range capacity. More can actually be a disadvantage. After all, unused capacity doesn't accomplish anything. That's why the consumption rate is a necessary measure of true efficiency. In this case, the data reveals the one is an outright guzzler in comparison since it requires an additional 19 kWh of electricity to travel that same 100 miles. Think about the added expense to pay for those extra kWh and the wasted time waiting for longer recharge.

7-06-2019 **Timeline Downplay.** I see posts like this frequently: *"Don't worry about PHEVs. There is no long term future for them, they are a transition vehicle for people not ready to take the full step to BEVs."* Calling them out for lack of substance usually ends up a battle. Some feel insulted, since from their point of view nothing else needs to be said. Few recognize the absence of anything measurable. No quantity of any type... volume, pricing, duration, variants, markets, etc... is a dead giveaway they didn't actually put any thought into what they posted. It was just a gut reaction based on anecdotal observations. Constantly having to deal with such callous attitude about what some claim is annoying. But that serves as an indication of progress. Certain things are eventually overcome. Remember misconceptions from 20 years ago? It's a slow process. Even small steps are progress. Here's my small push forward for today: Just a transition vehicle? That downplay is telling. Toyota has sold over 13 MILLION hybrids and sales continue to grow. Prius Prime and Corolla PHV are now demonstrating just how easy it is to offer a variety of competitive-with-traditional choices offering a plug. Think about how long it will take for BEV to become a choice actually able to compete head-to-head with a traditional choice on the showroom floor. We all know that will eventually happen, but not anytime soon. Prices are still too high and profit still too low. That makes them very unappealing for dealers to even bother to stock them. How many 10's of MILLIONS of plug-in hybrids could be sold in the meantime? It's all about being realistic. You can't just blow off such a significant of a stage like that, especially when we all know that the first plug-in purchase will lead to serious consideration of a second with greater capacity. In other words, BEV depend upon PHEV to help deal with the pushback. Remember, the inherit nature of most people is to resist change.

7-07-2019 **New Battle Front.** Antagonists experienced an announced attack on a totally new front... a sucker punch. Out of the blue, Toyota revealed they are testing a new type of solar-cell for automotive use. It thinner than in the past, which makes it more flexible and more efficient. That efficiency rate jumps from the current 22.5% to +34%. It's quite an improvement. So much so, there's worry about this new arrow in Toyota's quiver. That equates to some sizeable levels of EV range being replenished while parked and while driving. That's a twist no one saw coming. Seeing Toyota on the offensive makes those antagonists crazy. They have no idea how to deal with that. Some of the old rhetoric isn't working well either. I was obviously amused to witness the struggle and was happy to join in the new battle: You're completely missing the point of getting more out of less. I have two 4K wi-fi cameras outside that never need to be plugged in. Each equipped with a small solar-panel makes them extremely convenient. It also means they don't require as large of a battery. Those same advantages translate over to a vehicle.

7-07-2019 **Desperate Already.** Downplay of the solar feature fell apart. This is what the discussion devolved into: "*Because Toyota is 5 years behind Tesla and they know it.*" That lack of substance is great. Repeating a mantra gets old, especially when something new like this comes out of nowhere. I was delighted to fire this back:

How are you coming up with such an estimate? Comparing a legacy automaker who sells roughly 10 million vehicles per year worldwide to a startup building infrastructure with lots of venture capital & subsidies and far fewer sales is pointless. They have little to nothing in common.

Choosing to ignore the current production Toyota is already delivering basically negates claims made anyway. The traction-motors used in Corolla hybrid, Camry hybrid, RAV4 hybrid, Highlander hybrid, Prius Prime, Mirai, etc. represent very solid EV experience, as does the production of all the cells used in their battery-packs. The heat-pump used by Prius Prime is industry leading for efficiency. The electric A/C is quite impressive for efficiency too.

Think about how much that is doing already to drive down production cost and build up a reputation for reliability. Seeing further R&D spent on exploring other aspects of electric benefit actually puts Toyota in the leadership circle. So claims of "*behind*" are just rhetoric passed along without substance.

You're overlooking the most important part too. For a legacy automaker, finding a means of getting dealers (their true customer) to embrace change is absolutely vital. Success in that realm is undeniable. RAV4 sales currently (first half of 2019) show 23% are the hybrid model. That shift away from guzzlers is momentum which will serve Toyota well as plug-in interest rises.

- 7-07-2019 On-Paper Scribbles.** A thread about solar is new territory... with the same old tactics. Some work. Some don't. In this case, it has come to everyone trying to calculate outcome. Antagonists are scrambling to show the effort is a waste. To do that, they often just make up numbers. I have real-world data to counter that with. So, I am: That estimate is way off. A full recharge of the EV portion of the battery-pack for me averages just 5.75 kWh. This morning, my JuiceBox Pro reported 5.58 kWh. Remember, I have to brake when approaching my driveway. So, there's no real concept of being totally empty or the same amount each time. Also, summer month deliver an average of 30 miles EV range. That supposed 4.3 kWh return would actually work out to about 22 miles... more than enough for the commute home... which doesn't consume the entire capacity anyway. In other words, on-paper scribbles don't translate well to real-world driving.
- 7-07-2019 Doses Of Reality.** It was really nice having someone chime in with one today: *"You realize that even on cloudy days the cells are still packing it into the batteries. The panels now days don't need direct sun or even sunny days to generate power. Just sayin'."* I had overlooked the fact that the antagonist was trying to steer the discussion to an ideal by implying solar would only work in bright conditions. Even with the small dedicated solar panels I have for each of my 4K Wi-Fi cameras, they fact is obvious. But I got hung up in his trap, not stopping to think about how effortlessly they keep the batteries charged. It works so well, that's easy to overlook. I never have to think about them. They just always work. A solar-array mounted on the surface of a vehicle won't be that efficient, but it certainly will be effective. Forced-Air cooling for the battery-pack, even when parked indirect sun without being plugged in, won't be a big deal. The system will simply take care of itself. Heck, that extra electricity while you're driving would come in handy too. Think about how expensive and inefficient Prius was when it rolled out over 21 years ago compared to what it is now. Toyota had to start somewhere... and they are already approaching a point with solar where some people will take notice. There's definite potential. Continued refinements of the tech will get it to that price-parity point. This is where patience & persistence really pay off. The catch is, you have to keep fighting antagonists with doses of reality in the meantime. Otherwise, there efforts to undermine will overwhelm the message of progress.
- 7-08-2019 New Chargers, Day 1.** The wait has been so long, I don't remember when it began. 2 of the chargers at the ramp I park on for work lost their network connection, but continued to work. You just couldn't interact with them online anymore. The ramp owner decided to replace all of the chargers there with new models. That was back during Winter, when the effort to do that was futile. When Spring arrived, the change over started. But progress didn't really amount to anything. Blocked off spots meant something would eventually happen. Finally, we got one new unit. It had a "not available" sign on it though for awhile. That quickly changed to having it turned on, but not programmed yet. We could use the 10 grace periods in the meantime though. Finally, it got setup. Complete! Phew! 3 more to come. All of a sudden, they did too. We then had to wait for programming. I had hoped it would be the next day. That didn't happen. 3 of us had to park there without plugging in. I was annoyed, since my drive to the ramp included an errand which ran the available range down to just 0.2 mile. It was barely enough to get there on just electricity. But sadly, I couldn't recharge. To my surprise, the 2 connected to the only working unit couldn't either. For some reason, it lost power after both started to draw from it. Eek! What was to come?

7-09-2019 **New Chargers, Day 2.** It was another strange day. The power on the 1 unit was still off. The other 3 had been programmed though; however, 1 side of 1 of them was displaying an error. Hmm? None of that was the big news though. To my delight, there appeared to be an unexpected change of policy. The charger was displaying "Free" when I checked online status. Could it really be that the fee for charging had been dropped? Since the ramp has an 80 kWh solar-array mounted along the many floors of its sunward side, that expense for electricity would pretty much be a wash. No daily cost to use the chargers certainly would be great!!! The chargers themselves are fantastic. No more messing with cords. The build in screen is incredibly informative. Chances of attracting more use are very encouraging. Sweet!

7-09-2019 **End of 2017.** Having read through the discussion thread a decade ago got me thinking about the end of 2017. Remember then, when things were really starting to look grim for gen-2 Volt? Enthusiasts new 2018 would be even worse. This particular quote is what I close my post at that time to provoke discussion on the old daily blog: *"We all know offering an affordably designed plug-in hybrid system in a small SUV, like Trax, is what GM desperately needs. We also know that the moment it is announced, demand for their traditional SUV offerings will see an immediate negative impact. That corner GM is trapped in has become quite obvious."* Advice about taking some thoughts with replies fell on deaf ears. It became a desperate effort to defend GM, doing everything possible to avoid addressing the "range anxiety" problem Volt was intended to solve but Bolt ended up doing instead. That digressed into Toyota attacks and a refusal to acknowledge the goal of replacing traditional vehicles... which is why I blog so much. It documents how long this problems persist. They learn nothing, which allows the problem to repeat. At this point, so many major battles have been lost (Two-Mode, Volt-1, Volt-2, Bolt) that the entire industry is looking at GM failure as a sign about how difficult it really will be to address change. BMW's step down of their highest executive overseeing their electrification efforts for the past 4 years was a major upset this week. It creates uncertainty among other giants (like VW & Ford) who make lots of announcements for the future but don't have anything laid out for deliver detail. It's all a *"here's what we're working on"* expression of hope. All of a sudden it will be the end of 2021 and we'll be wondering why not much actually happened yet from them. Thankfully, at least the push from Toyota is going well. We can see that quite a bit of effort is being expended to avoid getting cornered. With such an obvious trap, you'd think they'd at least try. Ugh.

7-10-2019 **Registration Fees.** Anyone else ever take the time to actually do the math? Try this, the new proposal for Ohio: *"For a driver who travels 13,500 miles per year in a vehicle getting 25 miles per gallon, the new tax would cost \$57 more, or about \$1.10 per week. The plan also establishes new registration fees of \$200 for electric plug-in vehicles and \$100 for hybrids."* That means if you are driving a 50 MPG hybrid, you'll have to the \$100 fee plus \$28.50 from the new gas tax. That \$128.50 total is more than double what the person driving the guzzler must pay... or is it? The impression of penalizing the person driving the hybrid to that extreme sends a terrible message. For the EV, that's a different calculation, since no gas tax whatsoever (original or the new addition) is paid. But if you do the math, stating a final gas tax of \$0.30 per gallon. Those 13,500 miles at 25 MPG would be 540 gallons. That works out to \$162 in the end. Sadly, it's easy to manipulate people's beliefs by choosing numbers that misrepresent... a common practice for those spinning a narrative. Be very careful. Always ask for detail. Always do the math. The actual of calculating a variety of scenarios can be quite revealing.

7-10-2019 **Not The Same.** Tactics used to deceive don't often change. Sadly, the majority of people have short attention-spans and don't bother to verify supposed facts. They just accept the information presented to them without question. It's a disturbing reality. We're seeing a lot of that now with the death of Volt. Even though it was a terrible example of what an automaker could deliver, it was the one every used. So, there was some type of baseline discussions could focus on. Now that it's gone, the obvious misunderstanding of how plug-in hybrid technology actually works and how much each design can vary is becoming a cold-hard reality to deal with. That means we see quite a number of posts which wildly misrepresent plug-in hybrids. Even worse, we continue to get evidence that some Volt enthusiasts who didn't know how their vehicle operated. It's quite remarkable to see how they assemble anecdotal observations into an incorrect interpretation like that. That spread of misinformation turns into rhetoric. I keep fighting back the never-ending problem of those not-the-same claims: Lumping all PHEV together is as reckless as lumping all EV together. PHEV that are affordable will continue on just fine. It fact, there's potential for growth now with the market thinning out. That's why MSRP has been so vital, despite the rhetoric here attempting to evade acknowledgement of certain models not having a dependence upon tax-credits. That's simply the next step taking place. Designs unable to compete directly with traditional choices (those sharing the same showroom floor) will see sales plummet when subsidies come to an end.

- 7-10-2019** **Premature.** It's the same old story. 20 years later, little about how people react to change has actually changed. We simply have new venues to spread the lack of objectivity. Collect a tiny bit of data, then draw a conclusion. Ugh. I dealt with more of that today, in the comments of an article stirring that very rhetoric... which is great for a publisher, since it attracts participation to their media source, but terrible for consumers trying to get constructive material: PHEV availability hasn't even rolled out beyond the reach of early-adopters; yet, some are calling them dead already. It's the same thing we saw in the past. Very limited sampling is used to draw a conclusion about an entire category. That's how narratives come about. Just pass along the same belief as group-think until no one questions it anymore. We saw that play out with GM. What got delivered for Volt was clearly not targeted at mainstream consumers, even though the claim was that vastly superior to Prius. None of that audience cared about the business fundamentals required to support such engineering. They just kept repeating a victory mantra. Sound familiar to now? There's just as much potential for some models of PHEV being embraced by the masses as some EV models. A conclusion about either is far too premature. Heck, we haven't even finished the initial subsidy stage yet.
- 7-10-2019** **Wider Scale.** Ironically, this attempt to look at the bigger picture failed to look at the bigger picture: *"On a wider scale, I think most people who buy a PHEV want to switch to electric but have range anxiety issues. But after driving a PHEV for 3 or 4 years and they decide to buy a new car, it will be a BEV as charge points become more ubiquitous and they realize lugging around a gas burning engine is not required. PHEVs are a stepping stone to BEVs, not a long term solution to pollution."* Through no fault of his own, this is basically just a lack of realizing there's more at play than what's been commented about. The difference between a peer attempting to be objective and an antagonists attempting to undermine is awareness. Do they realize their observations are incomplete? That's easy to determine. Just repeatedly present the information. If they go out of their way to dispute or evade, their intent is revealed as trying to impede. If they apply some type of critical thinking with the openness to feedback, they are successfully being objective. I already knew this individual wasn't trying to stir trouble and provided feedback accordingly: That perspective of "not a long term solution to pollution" requires turning a blind-eye to how many new vehicles are placed on the road every year. It's over 80 MILLION. That's a wider scale not to be overlooked. So what if there's an engine included for the next decade still? Being PHEV that only use the their engine from time to time represents a drastic reduction of both smog & carbon related emissions. Being realistic means seeing EV as the future, but accepting the reality that it will take over a decade of hard work to even get to a majority having changed. In other words, there are a BILLION vehicles that will be part of the transition period. Calling them a *"stepping stone"* is imply they are an insignificant stage on the path to EV. That implicit downplay contributes to rhetoric for those fighting to retain the status quo. Don't give them that opportunity

7-11-2019 **They Already Have.** This rhetoric was especially interesting to respond to: *"I still don't understand why PHEV manufacturers didn't follow the Volt model. That is a PHEV (strictly speaking it's a range-extended short-range BEV like the BMW i3 REX) that could be used purely in all-electric most of the time."* That second sentence was a confirm the person had no idea how Volt actually worked, that for possibly many years he has been spreading misleading information. Without additional context, that's difficult to assess. With a preceding sentence describing PHEV choices, you get a better idea of the mindset: *"But most models on sale now or being introduced have pitiful all-electric range and impotent performance."* Those colorful metaphors are a dead giveaway of a problem. They are insulting and extraordinarily vague. To belittle & mislead is exactly the type of response antagonists post. Hopefully, my reply to that had some type of positive impact: They have already. The common narrative would have you to believe otherwise though. It's a successful effort to undermine. Prius Prime works exactly as you describe. My EV drive ratio is 87% with 2,261 miles on the current tank. It will only get better over time too. As more chargers become available at retail & grocery locations, the opportunity to recharge while out & about will rise. That will push the EV miles even higher. Don't believe the rhetoric stating *"short"* range and *"anemic"* power. Those claiming that have an agenda to push a purist approach. That's really sad, knowing we have such a diverse market.

7-12-2019 **Your Impact.** Most people don't realize just how much of a difference their contribution can actually make. Some people do: *"I don't mind paying a little more to companies who are putting more charging stations in, after all how much more is it really and will that small amount make or break us?"* That made telling my story quite worthwhile:

Most people don't consider the true impact of that type of mindset... or haven't, until we share more experiences. Here's mine.

Back in 2012, the ramp downtown I park at installed 2 chargers (total of 2 level-2 connections). That worked out great with my Prius PHV. I could recharge for the commute home. That usage fee added up, drawing the owner's attention. A few years later, 2 more chargers were installed, bringing the level-2 connection count up to 6. That was great! They would actually fill on some occasions too. Last Fall, those newer chargers went offline (some network issue), though charging was still available. The choice was to replace all of them with the nicer models. Now, we have 8 connections available. It's really sweet!

That daily charging expense on our part was validation on the owner's part about that having been a wise investment. So, the investment grew. It's too bad that "pay forward" mentality isn't more common. There's no way of knowing if the owner actually made any money from the charging fees, but the benefit to others is undeniable. More chargers for people parking there is a win for everyone.

Think about what the visibility of more chargers does for those considering a plug-in purchase.

- 7-12-2019** **Neglect.** It makes you wonder how the big blogging website for plug-in vehicles continues to push a perspective like this: "...*but with just 1,100 Prime sold in H1, it's neglecting plug-ins.*" Seeing that on the subtitle of an article posted about Toyota European sales for the first half of 2019 was troublesome. Was that included to stir participation, knowing it would result in some rather passionate posts? I jumped in immediately, with this as the first comment: It made no sense stocking up on model about to become outdated. Those paying attention know that 2019 inventory was extremely low due to 2020 rollout on the way, which is a mid-cycle upgrade. That newer model will introduce center seating in the back (the real thing, not a mock spot like Volt had) along with a few refinements to interior features. The entertainment system gets Apple CarPlay and Amazon Alexa. There is no way to spin that as neglect.
- 7-12-2019** **Dead.** You can't help but to be amused by posts like this: "*Hybrids are dead, as they should be.*" That's a desperate attempt to spin a narrative of assurance. It doesn't work, since such a reality is fictitious. Nonetheless, you see them on a regular basis. This time, I punched back with cold-hard numbers: 110,267 purchases of Toyota/Lexus hybrids in the United States alone the first half of 2019 contradict that claim. 275,300 purchases of Toyota/Lexus hybrids in the first half of 2019 for Europe.
- 7-12-2019** **Already Delivered.** Things get really interesting why rhetoric turns to outright lies. It's so easy to disprove claims, you have to wonder if anyone falls for that nonsense. Based on my observations, that type of activity tends to soar interest. That's why moderators sometimes step in to deter the behavior. Bringing down the integrity of their forum will indeed make people lose interest. Anywho, you have to watch for them, then callout their post when found... which is exactly what I did upon seeing a post providing a suggestion of what should be done to make the idea appear untried: 88% is my EV drive ratio with 2,350 miles on the current tank. Your "*Most of the time Drive in electric mode, and use the ICE engine only on long routes.*" has already been delivered. Toyota's focus now is affordability. They are spreading their newest hybrid system, which is easily adaptable to support a plug, across their fleet. That will bring about not only economy-of-scale reduction of cost, that also provides a strong endorsement for the technology itself. Also, keep in mind that size of the battery-pack itself matters less and less as more businesses offer chargers for their patrons.

7-12-2019 True Change. The enthusiast trap is a simple one. You become fascinated with a new product, then lose sight of the bigger goal. That's so common of a problem, many fight to a bitter end without ever really figuring out why their dream fell apart. Oh well. All you can do to provide reminders of purpose. Today, it was with regard to how successful the progress forward has been for Europe: The point is to replace ICE choices with HV, PHEV, EV choices. That's exactly what Toyota is very successfully doing. They are transforming the showroom floor, appealing directly to loyal shoppers. This isn't about the subsidized conquest nonsense we saw with Volt from GM. This is about demonstrating to their customers (dealers who purchase inventory to sell) that embracing hybrids will feed a growing demand for more and more electrification. Automakers are a for-profit business. No matter how great a technology may appeal to enthusiasts, it makes no difference to the bottom-line. Far too many don't take challenges of having to achieve high-volume profitable sales from ordinary consumers seriously. Seeing Toyota/Lexus reach that tipping point in Europe, where more than 50% of the sales are now hybrid is a landmark achievement. That's what represents true change.

7-12-2019 Wrong Focus. There's an obsession with production capacity to such an extreme, many enthusiasts stuck. They have nothing to contribute... hence being an enthusiast, rather than a supporter. To provide support, something to help the process along must be done. Online arguing for the sake of defending a position doesn't accomplish anything... though, you'd never know it based on the number of chest-pounding posts lately. Capacity focus of the past was for range. So, the problems of being so single-minded are nothing new. From reading their posts, you'd think they were experts. That past will come back to haunt. Repeating the mistake of focus is common. It's about critical thinking. They don't. I try to provide constructive information, hoping some lurker will get it:

Production capacity doesn't matter when there is so much at play to retain the status quo. Setting up infrastructure (in this case, getting an atmosphere of change established at dealers) is far more important, especially when we know newer battery chemistry is forthcoming anyway. That's why Toyota is investing so much toward delivering affordable hybrids in the meantime. They make that next step to affordable plug-in hybrids a small one... which in turn makes the following step to an EV small too.

Remember, the dealer wants something that's easy to sell and the consumer wants something that's easy to buy. The decision to replace a RAV4 with a RAV4 hybrid is quickly becoming a simple one already. There's only a small price difference and the MPG improvement is obvious. It's an effortless step forward.

Think about Prius Prime. It will recharge entirely using nothing but the standard household outlet most people already have readily available in their garage. Plugging in takes no effort to understand. The act of plugging is simple. The benefit is obvious.

This is why having more battery-cells available isn't a priority. Focus currently needs to be on the market itself. Then when demand grows, that helps with the major decisions of where to actually setup that production and how much each location should deliver. Rushing that part can be a costly mistake. Think about how suppliers are already struggling with change.

- 7-12-2019** **Most Don't Bother.** A few of us on the thread discussing sales in Europe provided some numbers to consider. I was one of them: Avoiding detail is a common tactic from those unwilling to face the reality is actual sales. Pointing out how to best use the limited quantity of battery-cells currently available is an excellent means of stressing how a small number of EV sales achieves far less emission reduction than a massive number of HV sales. Put it this way. 1,152,108 Toyota/Lexus brand vehicles were purchased in the United States in the first half of 2019. Of that total, there were 110,267 hybrids. That's just under 10%, which is pretty much a solid 10% now due to the rapidly rising demand for RAV4 hybrid and the introduction of Corolla hybrid. Take that quantity and say each one uses an average of 1 kWh worth of battery-cells. 60 kWh capacity for EV would reduce supply ratio to just 0.16% of overall inventory. Why would a dealer bother when such a tiny quantity would be available? It makes no sense... which is why most don't bother.
- 7-13-2019** **Equinox Diesel.** Rather than spreading Volt technology to other vehicles, GM decided to focus on diesel instead. That's something even those wrong focus enthusiasts have a difficult time dealing with. That's evidence of just plain not caring. What a waste. The spin was quite amusing. They try to portray the situation as just one of disinterest. We tried. Customers weren't interested. End of story. It isn't though. Reading though one article on the situation sighted the hassle of "*needing to refill the Diesel Exhaust Fluid*". That's a major downplay, not journalism. Have they provided detail, you'd end up wanting even more. I remember estimates of needing roughly 7 gallons for every 15,000 miles. Think about where that fluid for cleaning emissions (it's urea squirted into the exhaust). You need a tank, a means of filling it, and the pump/squirt equipment for it to operate. That space, weight, and cost never mentioned by any diesel supporters. Curious, eh? By the way, if the system runs out, it is supposed to halt vehicle operation... like when you run out of gas. So, the effort on GM's part to roll that technology out for diesel models of Equinox & Cruze was a means of evading the obvious. Volt should have had a successor. Imagine what things would have been like if Equinox or Cruze would have been given that technology from Volt; instead, all that "*range anxiety*" work was just abandoned. Such wasted opportunity. Ugh.

7-14-2019 Tax-Credit Phaseout. There's a lot of mindless comments dominating discussions now. It's a passing along of the established sentiment without giving any thought to how things have changed recently. That makes you wonder how they'll react when recognition finally takes place. Not paying attention is putting it politely. I stated in this way:

Low-Hanging fruit can be beneficial. Tesla used their phaseout opportunity to ramp-up and sell as many vehicles as possible to establish a customer base and reach as far out into the market as possible. That's absolutely fantastic, exactly how those tax-credits were intended to be used. Kudos to Tesla.

Toyota still has tax-credits available and it certainly looks like they are doing the very same thing. Evidence of that is overwhelming. Rollout was limited to just select states. Within 500 miles over the past 2 years, Prime has basically been impossible to get here in the middle of the country and in some southeast states. A truckload would be special shipped from time to time, just enough to acquaint dealers with the technology. That holdback was an obvious wait for the mid-cycle update. Why waste tax-credits when you know that upgrade will be a more appealing vehicle?

Think about it. Phaseout period doesn't have a quantity limit. Toyota waiting until just before triggering that stage before significant ramp-up is exactly what Tesla did. That gives them valuable opportunity in the meantime to build up reputation from real-world data and experiences being shared by owners. Spreading endorsements like that is far more effective than any type of advertising. Again, that's what Tesla did. Their focus was the update too.

I find it quite telling how Volt was omitted from tax-credit discussion. Such a profound outcome from such a fundamental effort is a topic that should always be referenced. The lesson learned from that massive misuse of tax-credit sends powerful message of industry complacency. There's no denying anymore that GM exploited those tax-credits for conquest sales, using them for green praise rather than actually delivering something to appeal to their own customers. Enthusiasts loved the technology. Engineers did their job well. Kudos to them. GM management on the other hand, refused to spread that technology to vehicles GM shoppers would be interested in. No Equinox with a plug. No Trax. Nothing. They just let the phaseout period approach without even trying to reach beyond that niche audience.

Watch what happens in the second half of 2019. You'll see that preparation for ramp-up taking hold. Toyota knows their audience. They understand how to appeal to showroom shoppers, which is what their dealers depend up for stocking that inventory. Neither cares what rhetoric is spread online from antagonists. They simply want to sell lots of vehicles at a profit without a lot of effort... which is exactly how Prius Prime was configured.

It is interesting how those antagonists will spin that careful planning & patience as a narrative about "*dragging*". For that to be accepted, readers must dismiss facts to the contrary.

7-14-2019 **Kicking & Screaming.** Some just plain don't care. They like the narrative and are happy to contribute to rhetoric to keep it going. The usual "...with Toyota being dragged kicking and screaming." was interjected into what started out as a discussion about sales in Europe. As expected, a post without any supporting detail came along. It's just post an insult and wait for cheering. Ugh. I always have something to contribute when that nonsense attempts to derail constructive posting:

Confusing patience for resistance is a common problem, especially online.

That spin tactic is used by enthusiasts favoring other automakers to draw attention away from their silence. Notice how painfully quiet GM has been? Remember the narrative claiming Volt was dropped so GM could go all out with Bolt instead? Nothing happened though. Literally, the only message related to EV sales is that we can expect profitability in 2021. What kind of thing is that for the supposed leader of legacy automakers to say?

Of course, what evidence of kicking & screaming is there? A few point-in-time advertisements mean nothing compared to action taking place. In the first half of 2019, we have seen rollout of Corolla hybrid to new markets and introduction of Corolla PHV. That's a resounding step forward. It is overwhelming confirmation of change. You don't mess with the world's top-selling sedan unless you are serious.

To add a plug to a Toyota hybrid, it's only a matter of adding a one-way clutch. That allows the second motor (usually used as a generator) to contribute the extra power from the larger battery-pack to the wheels. It's a bump to performance with minimal cost... exactly what good design should deliver... which confirms Toyota had planned ahead... making claims of resistance an act of denial.

7-14-2019 **Move On.** Desperate attempts to change the topic are going nowhere. The reason why is simple, lost enthusiasts don't have any suggestions. They are just tired of having to deal with the fallout: *"It looks like it is time to move on. The same weak excuses keep getting repeated."* I had to listen to an endless stream of excuses as to why *"too little, too slowly"* really wasn't anything to be concerned about. They were wrong. Now, there's no reason to listen. I like that how hypocritical things worked out:

Ironically, you sight *"enthusiasts"* as vague, but then vaguely use *"people"* repeatedly in the very same post. That claim of *"Last year the argument was they would fall off a cliff and go bankrupt as soon as the 7500 credit was reduced."* has no source sighted. I ask, who you are referring to?

Low-Hanging Fruit was the message posted here on a regular basis. Remember that? It's a well fit analogy. It is specifically defined as: *"a thing or person that can be won, obtained, or persuaded with little effort"*. In other words, Tesla sales will continue, they just won't be as easy. Sales will simply plateau at some lower rate... nothing resembling a cliff or the implied death from that fall.

Seeing some type of demand reduction as a product innovator becomes a mature player is perfectly normal. In fact, that's what investors expect. Stability is far more important than being on the *"bleeding edge"*. Speaking of fitting analogies, think about what *"bleeding"* actually means.

In other words, your attempt to dismiss has fallen on deaf ears.

7-14-2019 **Crosstrek Review.** As other PHEV offerings enter the market, how will the online banter change? Mainstream consumers are so far removed from that isolated perspective, it's like we have 2 entirely different realities to deal with. One is obsessed with power & range, completely out of touch with the priorities not focused on electric propulsion. The other is just an ordinary consumer not really interested in doing anything special to reduce their emissions or consumptions. That disconnect is remarkable. Knowing that, reviews capture my attention. The one on Crosstrek today especially did. It was just a basic review, nicely done. I was first to comment, seeing if I could actually stir some type of constructive return: 118 HP (88 kW) is the output of its electric motor, something most people don't recognize the significance of. That particular specification is important, since it reveals Subaru used a component from Camry hybrid, not Prius. People often see the 8.8 kWh battery-capacity and just assume it is the Prius Prime system reused. It is not, as MG2 power output clearly confirms. That ups the count of PHEV offerings resulting from Toyota's hybrid design to 3... Prius, Corolla, and now Crosstrek. There's a 151 HP (113 kW) electric motor used in Mirai. Think about how nice that would be used in plug-in hybrid or even a electric-only vehicle. Toyota is quietly rolling out components for a wide variety offerings. That's refinement to efficiency & production which will have a significant payoff later. Think about what the upcoming EV model of C-HR will include.

- 7-14-2019** **Newbie Advice.** I'm really looking forward to the wave of 2020 Prime about to arrive. In the meantime, there are some still jumping on the opportunity to snap up a good deal on remaining 2019 models. One new owner today posting concern about heat resistance, wondering if he made a mistake purchasing something unfamiliar. That's quite typical. Everyone starts out as a newbie. Uncertainties vary though. So, you have to do your best to find out what the concerns are for that individual. That was pretty easy to address in this case. It was also quite informative. His purchase was an upgrade from an old second-generation Prius, the Iconic model. That was a testament to how well Toyota connected with owners of the past. Upgrades like that provide a strong endorsement. I help out by providing a little comforting advice: Park with the car aimed in the general direction of the sun and put up a sunshield for while it's parked. When you are ready to leave, use the all-windows down feature on the FOB to air out the car quickly. (I do that as I'm approach, so venting has pretty much finished by the time I unplug and get settled.) Then use the A/C generously on the drive home. No big deal. That's cool enough to keep the battery happy.
- 7-14-2019** **Late For What?** I wonder how much longer the "*late*" rhetoric will persist. There's not much of an audience anymore to care. National average gas price is only \$2.79, the SUV is more popular than ever, and battery cost has finally fallen to a reasonably competitive level. Seems like an affordable plug-in hybrid like Prius Prime is right on time. With tax-credits no longer skewing perception of demand, the reality of appealing to mainstream consumers should finally get acknowledgement. Refusing to recognize the terrible dependency placed upon subsidies was a terrible mistake. To think of all that effort wasted by Volt enthusiasts fighting pointless superiority battles based upon such a futile approach. Calling it risky is being polite. It was basically just plain stupid. Automakers are a for-profit business. Why in the world would they embrace any green technology that requires extra effort to sale and returns lower profit? Getting stuck with unsold inventory or wasting a ton of time on a lost sale makes no sense. Yet, that was the gamble enthusiasts had hyped as so realistic, it would crush the competition. Of course, they saw the competition as other automakers... not other vehicles sharing the same showroom floor. Some are still trying to keep that belief alive too. Ugh. If anything is late, it is them coming to the realization that hype doesn't appeal to ordinary shoppers.
- 7-15-2019** **Downplay & Enabling.** There's less and less of an excuse for this... at large, like when you randomly encounter someone and the topic of plug-in vehicles come up. But when online, those posters have no sound reasoning for this: "*Amen brother. Had the same experience test driving this car. Lacked any EV range. The whole Toyota (and Subaru) concept of paying a extra \$7K for occasional hybrid assist is lost on me. How about a real PHEV?*" What they are doing is passing along downplay, enabling one and other with rhetoric. It makes you wonder how seriously the casual reader takes those comments. I suspect many just filter through looking for something to agree with. That's unfortunate, but not a surprise. This is why it can be more effective at times to keep replies brief, like: \$27,600 MSRP for Prius Prime isn't that much more. Not sure what your definition of a PHEV is either. With my Prime, I have been averaging 27 miles of EV on the highway with A/C running. That no-gas-used driving experience is what?

- 7-15-2019** **\$3 to \$5 Thousand.** It is interesting to remind people about the target from so long ago. That's what Toyota had determined for pricing of their plug-in augmentation for Prius. That's exactly what got delivered too. Right now, the price is \$4,000 more. All that research seems to have paid off. Based on the direction the market is taking... now that tax-credit influence is fading... appears to reveal the pricing is how ordinary shoppers will be reached. Every person I talk to about plug-in vehicles has price at the top of their decision list. If it's too expensive, they just brush the discussion off as fascinating technology to wait for... rather than something to take advantage of. It's much like other tech. Phones are a great example. You know you'll eventually get something better, but there's no rush to upgrade. There isn't a guarantee of purchasing the best available either. In fact, most people tend to gravitate toward a balance of price. Having the absolute most of something isn't a compelling draw for non-enthusiasts. That's why my concerns expressed about Volt were so dead on so far in advance. Know your audience.
- 7-15-2019** **27-Mile Average.** We did the trip up to grandpa's today, staying there the entire day. So, there was ample time to recharge. 27.6 miles of EV on the drive there. 26.6 miles of EV on the drive back. We had the A/C on generously and it was highway driving most of those miles. The back of the Prius was stuff silly too. Since we're prepping the house for sale, there's lots of things to deal with. So, each trip home includes as much as we can squeeze in. It's amazing how much cargo that hatchback can swallow up too. The arrival home requires quite a bit of time to unload... which is really becoming a pain. But way, we can properly disperse the items. We try to donate & recycle as much as possible. Being able to avoid a dumpster by transporting all that is really nice... and being able to do it with electricity is even better.
- 7-16-2019** **EPA Rollbacks.** We can be said about this? The current administration is doing everything they possibly can to not only impede progress, but to also set back the goal posts as much as possible. Long ago, it was sad to see such activity. But back then, damage wasn't a serious concern. It was basically looked upon as a stall tactic. But over 15 years later, we are now facing very real consequences of inaction. Knowing you have technology to significantly reduce impact, yet choosing the selfish course of exploiting resources for personal waste. It's not like anyone is trying to get rid of heavy offenders... like the SUV... it's a matter of getting them to be much cleaner and use far less fuel. This is why there was always so much resentment for GM. It was never animosity for Volt claimed by enthusiasts. It was always the "*too little, too slowly*" concern. Rather than using the momentum Volt had established for pushing forward, it was reaching on laurels... ironically, the very perspective antagonists portrayed for Toyota. In reality, it was an example of reflection. They couldn't see it though. That helped divert attention away from the policymakers working hard to rollback EPA regulations. It's really sad to see so much resulting from not setting clear goals. I warned of the consequences. Bad things happen when you do nothing to prevent.

7-17-2019 Shipping Fleet. Ever notice how those dead set against more than battery-power being the source of portable energy storage carefully steer the discussion to only include personal transportation? They work really hard to prevent commercial applications from being addressed... like cargo transport. Sure, you'll hear about the possibility of large trucks someday. But that's just to get you to stop pushing. Don't! Keep at it. All you have to do is ask how shipping across the ocean will take place. Batteries are far too small for that to be feasible. It's just not going to happen. Hydrogen, on the other hand, is already well underway toward replacing oil. That's where fuel-cells will truly be game-changer. We need a cleaner & renewable supply of energy for trade. Commercial applications are realistic for that. They don't require infrastructure changes like our vehicles would. Service stations in every neighborhood is a non-issue. They only need that fuel at ports where they dock. That's far easier to support. It doesn't have to be absolutely clean either. Dramatic reduction of emissions is realistic even if there is some conversion overhead for now. Think about how long these ships will be in service. Getting that fleet to change to the new fuel will make a world of difference. In other words, like it or now, hydrogen will become a major fuel of the future. So, why not have some commercial vehicles using it too? Think about delivery & cab services. Their fleets could take advantage of that fuel being available.

7-17-2019 Media Misleading. It's very frustrating to read an article that includes opening statements like this: "*Many consumers appear to lack a basic understanding about how these various alternative propulsion vehicles differ (e.g., what's the difference between hybrids, plug-in hybrid electric vehicles, extended-range electric vehicles, and fuel-cell electric vehicles?).*" Nothing seems wrong with what was said, until you read more. This didn't come from a fake news sight either. It was supposedly a well-informed automotive publication simply conveying information about the variety of vehicles available. Sadly, that wasn't actually the case. Good intentions seemed to fall apart, somewhere along the way. It makes you wonder how much they've been spreading misleading information. This is what specifically got me: "*Offer extended-range versions of EVs. Stop developing and offering Hybrids and Plug-in Hybrids, which are only prolonging the use of the internal combustion engine.*" There is no actual definition of an "extended-range" vehicle. Volt tried that spin, but kept changing criteria as new offerings delivered better. It turned into a game of moving the goal-posts. Ultimately, that's how Volt died. The technology wasn't ever marketed with any clarity. Ordinary consumers had no idea how it worked, since the misleading continued to confuse. Media, enthusiasts, supporters, and the automaker itself all had different ideas of how the technology should be identified. It's really unfortunate "*plug-in hybrid*" wasn't acceptable. They wanted to be "*vastly superior*" instead. Ironically, that effort to stand out is what killed it. So now, even after production has ended, many still don't know what "*extended-range*" tells us.

7-18-2019 **Analogies.** This was interesting, since it came from an antagonist. You don't expect something constructive. But every now & then, something thoughtful does emerge. In this case, this is that entire post: *"Everyone loves to use the Kodak analogy. Google waited and copied Apple's expensive, high-end approach to touchscreen smartphones, but made it cheaper and more accessible. Android is now, by far, the most popular smartphone OS in the world. My point is that not all technology roadmaps indicate that the first-mover is the winner."* Since it wasn't intended as bait, I don't mind providing more context. It can be informative to paint a better picture of how change comes about when the position of an antagonist begins to change. Hopefully, pointing out shortcomings of an analogy help that process along:

That is an excellent point. People forget just how often being first in those initial stages of rollout ended up making no difference at all later. That's why the proper analogy for this situation is the TORTOISE AND THE HARE. Seeing the approach by legacy automakers during the early-adopter phase (subsidized sales) is solid reasoning why it doesn't matter.

Just look at how ineffective GM's exploit of the \$7,500 tax-credits were for Volt. Everyone was cheering the sales numbers. No one wanted to admit those numbers were really just conquest sales, not making any impact to the status quo. GM dealers just kept selling the same old ICE offerings to their loyal customers.

Then when you look at the narrative for Toyota, you get a struggle-to-catch-up message without any acknowledgement that their tax-credits have not been used up yet and their plug-in offering is targeted directly at showroom shoppers. Toyota is striving to refine their technology prior to their subsidy expiration... exactly what GM should have done... and exactly what Tesla did.

That *"cheaper and more accessible"* is absolutely vital and exactly when Toyota is doing.

7-18-2019 **No Meaningful Investment.** Claims that Toyota's effort isn't making a difference struggle to provide substance. For example: "*GM did refine their EV technology prior to subsidy expiration. They leapfrogged all their competitors - even Tesla - and released the first sub-\$45k EV with >200 miles of range, the Bolt. In contrast, Toyota has taken the same approach as Ford: no meaningful investment in BEV technology, relying on the subsidy to sell only enough PHEVs to meet regulatory mandates.*" That was the entire post. I found that truly desperate, knowing \$35k was actually the target for the "first" trophy. It was a blatant attempt to distract from the true goal anyway. I was happy to remind them of that too:

Using the word "*refine*" to describe the adding of capacity is confirmation of listening to the wrong audience. GM was catering to enthusiasts, the group sounding off about the supposed need for increased range. Toyota, on the other hand, continues their focus on affordability. They are not relying upon subsidies, which the \$27,600 starting MSRP for Prius Prime overwhelmingly proves. That's the "*nicely under \$30,000*" target the entire industry has been striving for.

Toyota listens carefully to the audience necessary for sustainable profitability, their own loyal customers shopping dealer's showroom floors. That's why their technology refinement takes place outside of BEV sales. The efficiency of their electric-motors, as well as the production cost reduction, used now for hybrids will directly benefit BEV in the future... when tax-credits are long gone. That's why the extremely efficient cabin heating & cooling for their plug-in hybrids is also a win for BEV later.

The spin about not making any meaningful investment requires turning a blind-eye to all of that, in addition to how much of a gain there is from their push to get their dealers to embrace change by shifting focus away from traditional vehicles with the wide array of hybrid choices. No amount of "*leapfrog*" claims can deny that. GM dealers are still doing the same old thing they did in the past. Neither Volt nor Bolt had any influence on their behavior.

In short, don't claim "*meaningful investment*" without the expectation of being called out to explain how the status quo has actually been addressed. Real change is often not easy to see, especially with "*200 mile*" or "*\$35,000*" market campaigns to convince you they are truly making a difference.

7-18-2019 **SiC (Silicon Carbide Transistor).** Remember hearing about this a few years ago? Toyota has been pursuing this improved thermal conductivity technology as a means of increasing efficiency. Since it reduces heat loss, which is an indication of energy waste, you achieve improvement. In this case, it equates to not only being more efficient, it is also faster. A future Prius would definitely benefit from this. Today, Toyota reminded us of their on-going effort by actually providing some detail. In whatever standard measure they were using to denote energy use by the inverter, it was stated that heat being lost was measured at 420 watts currently. Using SiC instead, the loss is reduced to 105 watts. That's a 75% efficiency increase. Without context, that's somewhat difficult to set a real-world expectation with. However, it does pave the way for pushing acceptance further into ordinary applications. Better use of energy is a win for everyone. In other words, it makes electric solutions even more competitive with traditional counterparts.

7-19-2019 **Change.** Flexibility has always been an impressive aspect of Toyota. Of course, having been a major force behind Agile, that should be no surprise. They expect change. It's part of the culture. You plan on adaptation. That's why the dynamic nature of their hybrid design has been such an impressive core to their approach. With that fundamental built in, it was a heck of an endorsement to continuous improvement. Change will happen. That's how I knew Volt was doomed even before rollout. So much was placed upon such a specific deliverable, there was simply no way to promote growth. It was trapped as a niche... hence asking "*Who is the market for Volt?*" hundreds of times. That technology didn't encourage change. Prius was quite the opposite, striving to adapt to a changing market. Toyota's choice to offer nicer rear-seating is evidence of that. They recognized & acknowledged how much their audience had changed. Who knew that just a few years later, even more change would come. Fortunately, Toyota addressed that too. I find it fascinating how some attempt to leave out detail, attempting to spin those changes as a mistake or backtrack. Think about where Uber & Lyft were over 3 years ago when Prime was revealed. A lot happened since then. Toyota brought back the middle-seat to accommodate that new requirement, one that never existed until recently. I have to keep reminding people of that, while also keeping the antagonists from spreading their rhetoric. Here's the latest: Toyota clearly stated years ago they were transforming the model, targeting their now older audience. With the family now grown up, no need for that middle seat. Knowing the sedan was rapidly losing favor to SUV choices, it made sense. Since then, that same audience has introduced a new market twist. They have become Uber & Lyft drivers. Both require a middle seat for the vehicle to be eligible. It's paradigm shifts like that which Toyota is good at being flexible with. RAV4 hybrid has captured part of that audience and the revised Prius Prime should capture another part. It's all about recognizing & understanding change.

7-19-2019 **Shame.** Toyota revealed the 2020 model Prius PHV for Europe. Not only does it include the updates we got for Prius Prime here in the United States, it also adds the choice of 17-inch wheels and the color black. That's frustrating to antagonists, as this sentiment expressed: "*Shame on Toyota.....this is coming up on third yr.....and no increase in range.....thank God we had GM volt.....they gave their customers.....*" That is the very reason I asked that "*Who?*" question for all those years. Enthusiasts didn't care who the customers were. All they cared about was short-term victory. That's why long-term defeat has been so hard to accept. Some never wanted to accept the knowledge of audience. Oh well. That's their loss, which I'm happy to keep providing memories of to prevent that history from repeating: GM's choice to cater to enthusiasts is why Volt died. Those range & power specs made production-cost far too high. As a result, it was a vehicle dealers simply had no interest in selling. With a price so high for a car smaller than Prius Prime, there was no appeal to GM shoppers. Toyota took a very different approach, striving to deliver an affordable balance... which is exactly what they achieved. \$27,600 for a 25-mile rating (enough to cover the average commute here) is something Toyota dealers will find competitive with other vehicles on their lot. Your reaction is the typical early-adopter perspective, continuously wanting more for less without consideration of what ordinary consumers have for purchase priorities or what a salesperson actually does. Toyota's strategy for post tax-credit sales to an audience shopping the showroom floor is something GM didn't bother to address. So, if you're dishing out shame...

7-20-2019 **2,669 Miles.** I wasn't expecting the most recent tank of gas to last 2.5 months. It just happened to work out that way. 10 weeks of getting to recharge at both work and grandpa's meant the HV driving was spread out nicely. That EV ratio ended up being 87% for the duration. 9.084 gallons is what it took for the refill. Calculating that to MPG, you get 294. Impressive, but unnecessary. My 2017, as well as the 2018 model, only displays a value up to 199.9 MPG. Beyond that, there's not much efficiency gain to report. It becomes a diminishing return with wild fluctuations... nothing really informative. Nonetheless, Toyota responded to customer feedback stating an owner preference of seeing higher values anyway. So, that changed with the 2019 model. I can simply look it up on the phone-app if I really need to find out what higher-than-200 values are being achieved. For example, the entire month of May worked out to an average of 428 MPG. Do I really find that valuable to know? Not really, but it is an effective means of reaching new customers. So... they find it valuable.

7-21-2019 Defeat & Surrender. The steady flow of Toyota advancement forward is beginning to make some so concerned, they are becoming absolutely desperate to impede discussion. You can tell too. For example: *"Is this a grid charging or self charging hybrid. What happened to toyotas fcev challenge. Are they going to accept defeat and sign a will of surrender to Tesla."* Talking about a scatter shot. You rarely see trolling with such a wide disbursement of bait. That serves as a comforting confirmation of having nothing left to fight with. He's clearly out of ammunition. Sweet! I advanced on that opportunity without hesitation:

Toyota is a legacy automaker with a continuous improvement approach, who has been extremely successful with that strategy choice. Tesla is a startup who has done exceptionally well during this initial stage (sales subsidized by tax-credits). What comes next is anyone's game. Think about that next step. Reaching beyond early-adopters is far more difficult. In fact, some of those challenges are entirely new. How much competition have you actually seen take place on the dealer's showroom floor?

Watching plug-in offerings stand head-to-head with traditional offerings requires a different means of appeal. It won't be a matter of stirring interest online. It will be an effort to draw favor from someone who hasn't done any study, an encounter with a person looking for a good deal on an easy purchase. How much of an effort will the salesperson make to entice interest? How many do you think dealers will stock?

With such a broad variety of plug-in design, do you really think a mainstream consumer will be able to make sense of it enough to make an informed decision within the timeframe they typically make the choice of what to purchase? That's rhetorical, of course. We already know the answer to that is no. They will favor the easier choice. Fortunately, that is a reality Toyota knows how to effectively deal with.

Most enthusiasts despise the continuous improvement approach. Well, too bad. That cold, hard reality of how sustainable business works is what they have to face the music on. Notice how everyone turns a blind-eye now to GM's failure with Volt? I got harassed for years from pointing out a *"too little, too slowly"* concern. GM wasn't doing anything to improve Volt technology reach. Improvement in that regard never happened. Appeal remained a niche.

Toyota is pushing their tech across the fleet. Going from hybrid to plug-in hybrid is an easy step with the HSD design. In fact, that tech has already spread from Prius to Corolla. And now with the strong growth of RAV4 hybrid, that next step of adding a choice of plug is an obvious one.

In other words, there is no *"defeat"* and *"surrender"* when you look at that bigger picture. Remember, Toyota sells over 10 MILLION vehicles worldwide every year. Having a variety of choices available for such a diverse audience is essential.

- 7-22-2019** **Apologies & Attacks.** This post made things rather interesting: "*I rented the Prius + 2 when on holidays. 2 adults, 2 teens, 2 kids..... It was, without doubt the worst, must under powered vehicle I had ever driven.*" Since I knew nothing about the poster, it was impossible to ascertain intent. I did find it strange though. Why was a comment about Prius being posted in a thread about plug-in hybrids? The absence of any detail or even context made figuring out how to respond even more difficult. I gave it a shot though, posting the following: "*That literally has nothing to do with the topic. Prius PHV has a much larger battery, resulting in much more low-end torque. Dropping the pedal for a quick lane-change delivers that nice EV punch you don't get without having a lot more electricity available.*" To my surprise, shortly after that came an apology. I certainly wasn't expecting what appeared to be an attack to result in that. He simply wasn't paying attention and thought we were discussing ordinary hybrids of the past. Finding out the topic involved power from plugging changed his stance. We were posting about something he favored and totally overlooked that. He was sorry for the error. Cool.
- 7-23-2019** **EV Panel.** A group of us were invited to host a discussion panel at one of the largest libraries in the metro area. I was intrigued, especially since I was selected as the coordinator. We'd start inside with a computer to display whatever information we wanted to share, then move out to the parking lot by their charger. I wondered how much of a challenge it would be to address the wide variety of topics attendees would have questions about, while also giving the owners participating an opportunity to share their experiences. Turns out, 2 were quite flexible, 1 had a well timed presentation, 1 had no concept of time. I ended up having to lead people outside while he kept going on and on. His stories were great for real-world examples, but the idea of exchanging the most valuable knowledge. You can't just dump that much information without consideration of goals. We were there to promote the variety of plug-in choices available. In the future, I'll allocate a specific amount of time to each participant to guarantee we don't lose sight of purpose. That move to the parking lot went extremely well. We had passers-by join in. Too bad I didn't think of getting some flags or a banner to help stir interest. Oh well, those who stopped to ask questions or to simply look thanked us. The owners didn't mind my push either. We all wanted to get to the show & tell part anyway. I would like to cover a more carefully planned out agenda at some future opportunity. Long story short, we're still getting a feel for the emerging market. This current stage isn't that far from the early-adopter stage. As tax-credits phase out, there is no clear message of next steps. The chance to find out what ordinary consumers want to learn more about helps guide us in the right direction.

7-24-2019 **Tesla Trouble?** Yesterday's event to show off the cars and answer questions for people made it all too clear that Tesla facing many challenges, in addition to what the industry as a whole has to deal with in regard to electrification. Tesla's offerings are perceived as "*too expensive*". I heard that message over and over again. So, topics like how to purchase & service one or even charging standards are never even discussed. The pricing barrier spells trouble. Will it remain that way? Who knows. The real trouble is seeing sales of both Model S and Model X flat line. Interest in Model 3 is souring their appeal. That lack of diversity creates a variety of business problems. Not having dealerships and not having tax-credits makes the situation even more difficult. This next stage in market growth is the very thing I expressed concern about for GM. They bet the farm on Volt. Remember all those "*one size fits all*" posts? That was all about expansion. It didn't matter how. It just needed to happen. That necessity of reaching out to a wider audience is absolutely essential for a niche product to become a standard technology. This is why antagonists fought so hard to keep attention on Prius. Acknowledging the success of other Toyota hybrids meant admitting GM really wasn't leading the way. Seeing Tesla fall into that same trap isn't encouraging. But then again, not being a legacy automaker does present some advantages. Whatever the case, this is a clear change of perspective. The idea of government-subsidy & investor-capital being the primary means of advancing forward is no more. The next step will be a challenge without that extra help. Perhaps the low-hanging fruit (early-adopters) will be able to promote the technology enough on their own to achieve that sustainable business need.

7-25-2019 **What Now?** News yesterday for Tesla was grim. Despite all those recent sales, quite a bit of money is still being lost. As a result, the CTO (Chief Technical Officer) announced today that he'd be stepping down. The expectation is a drop in stock prices... which means someone will provide a positive spin on the situation. Sure enough, it happened: "*Tesla Sold More Model 3s In Q2 2019 Than GM Sold Chevy Bolts Worldwide Since Its Birth*". Realistically, that doesn't actually say much. It's both vague and without context. We know that GM was all hype, never intending to make Bolt a major player. Seeing that should be easy. It was a compact wagon. Since when does GM have any interest in that type of vehicle? Without any desire to push that platform, their dealers couldn't care less. It's all about selling Pickups & SUVs, not a small car. That was rather blatant with Volt, but fake news sources (like that daily blog) maintained a narrative stating otherwise. As a result, GM had faded away. All those attacks claiming Toyota was hopelessly "*behind*" didn't alter GM's perception either. So, the expectation Tesla will somehow be propped up from comparisons to GM are futile. Unfortunately, online comments show the bait was taken. There was mostly just senseless bickering with no look forward. In other words, there is still no "*next step*" defined.

7-26-2019 **Kayaks.** I learned a lesson the hard way last time we went kayaking. While lifting the wet & slimy kayak onto the roof-rack, a gust of wind caught the mat (a piece of foam exercise padding) and the kayak itself. I ended up putting a fine set of scratches in the past on a small suddenly unprotected area above the door. Preventing that is easy, now that I see the outcome of not doing that. Just pinch a tiny bit of the mat in the door. Having transported kayaks on my Prius for 13 years now, that need hadn't ever come up. It was only a freak circumstance. But I won't be strong enough forever to ensure all goes well during those precious moments of potential contact. Today, I got to try that. We had an absolutely beautiful day to get out on the water. This lake was one was new for my wife, so having everything related to transport mastered is helpful. I wanted to make a good impression. After all, living in Minnesota means there is an enormous number of locations available to kayak. Long story short, today ranked among her top experiences. Our picnic out on the island was the highlight. 8 ducklings approached us. We had dried fruit to share. It was a good time for all. Being able to just pop the kayaks on top and drive out there for a day of fun like that is great.

7-27-2019 **Our Own.** It's really sad when photos are posted of plug-in vehicles parked in charging spots, but not actually using the charger. This is how one of those posts sharing a photo of one such situation ended his comments: "*You'd think our own would be more willing to do the right thing. Nope.*" My attitude toward not recognizing competition is well known. It's not other plug-ins or even other dealers. It is those who still favor traditional vehicles. I stated my observations with:

As time goes on, it becomes easier for others to see what I've been conveying for many years... know your audience.

Watching Volt enthusiast "*vastly superior*" attitude spread was a sign of not recognizing we were on a team all working toward the same win. They would fight and fight and fight, claiming victory against those who were trying to be players on their side. That effort to squash all other PHEV efforts was a clue about the trouble to come with EV efforts. Sure enough, we saw that same pattern coming from Tesla enthusiasts. They dominated plug-in events and didn't take tax-credit dependency seriously the same way, creating barriers for supporters (the rest of us) to overcome.

Fortunately, things are finally changing. Most enthusiasts have lost their voice due to tax-credit phaseout so significantly influencing market shift. There's still the reality of much needed agreement having been stalled... to the point of undermining efforts causing widespread disenchantment. Absence of a common approach for shared chargers is overwhelming evidence of that.

Notice there is still nothing in regard to a common message with regard to parking in those spots? Heck, we can't even agree upon what to do when one of our own parks next to a charger but doesn't use it. That basically invites non-plug-in vehicles to park there. If we don't care, why should they?

7-28-2019 **Back To Basics.** This step back is even further than just new owners asking about how their Prius operates. Someone brought up hypermiling and that stirred this: *"I think you have a much too narrow view of what hypermiling really is."* Which continued with a vague reference to choices & circumstances, then concluded with: *"But too many people focus on just a couple controversial items and use those an excuse to demonize the whole concept."* Remember my focus? I looked up one of my blog entries for an example and effortlessly found this: *"Among many things, he was the one that used to pump up his 44 max PSI tires to 50 PSI in his Corolla and drive only highway miles with it. That made his MPG abnormally high, in no way representative of what the typical person would actually get."* He later bumped the PSI all the way to 60... hence becoming so controversial. Other things, like throwing the vehicle into neutral and drafting was promoted. I wanted no part of that and made it quite clear of not wanting to be associated with any of that. My push was how the word originated. Being so anti-hybrid, he really didn't want that to be associated with Prius anyway. I posted the following in response to today's post: Remember, that term was coined from an argument with me. That very specific first ever mention in a post way back in history was when the fight was about how superior a Corolla was to Prius. He was dead set against hybrids. He later discovered how well thought out Toyota's approach actually was and changed his tune rather profoundly. In fact, he even very politely apologized years later when we met in Detroit. So, of course the view is far wider now. The original problem still remains though. Promoting a driving technique or approach to squeeze out greater efficiency sends a confusing & misleading message to ordinary consumers. Setting realistic expectations is how mainstream buyers are reached. Hypermiling does not. That is what enthusiasts do. So, it is very important for everyone to understand what actually takes place. By looking a wider view to recognize the concept, you make the situation worse. That fundamental flaw has never been overcome.

7-28-2019 **Too Simple.** Someone else joined into the discussion: *"His logic was simple, he stated not to lump all hypermiling techniques as deadly or puts other motorists lives in danger. Not all techniques are deadly or let alone even cause a wreck."* Even back then, I struggled with generalizations. Remember all those *"not the same"* posts? Intention omission of detail is unacceptable still. I replied back with: Not identifying what those techniques actually are is the problem. Being vague contributes was always the underlying issue. It should be crystal clear at this point. Remember, that all took place prior to gen-2 of Prius rollout. Not being concise confirms understanding is still a challenge. Keep in mind, the goal is to grow the market. That means reaching out to a new audience... which cannot require any assumptions. In other words, simple is not always a good thing. We must seek & promote a balance. Wisdom from owners is what sends the strongest message. I suggest only mentioning techniques we want to endorse and not even bother with labels. The term serves no benefit anymore. Think about how worthless the label of *"hybrid"* has become. It's too simple.

7-28-2019 **Fantastic Timing.** For years, I have been talking about how Toyota is refining their technology while waiting for GM fallout. That's exactly what we witnessed too. Played out right before our eyes, the supposed "*laggard*" achieved a great deal. Legacy strategy can't be a hope-for-the-best gamble. Yet, we watched it happen. Ugh. Now at the Volt is dead and Bolt is going nowhere... as confirmed by second-quarter sales results... the mid-cycle upgrade of Prius Prime has begun deliveries. Not having to deal with any of that GM rhetoric is fantastic timing. Every time plug-in Prius was mentioned, some Volt enthusiast would attempt to overrun the comments with a superiority claim. It was so annoying, since it wasn't going to accomplish anything... because GM wasn't investing in the technology. Volt just flopped around like a fish out of water, unable to achieve anything other than conquest sales. It was good reason for Toyota to steer clear. GM's terrible dependency on tax-credits made the fallout timeline easy to predict. No plug-in hybrid Trax. No plug-in hybrid Equinox. Nothing at all became of GM's huge investment in technology to blend engine & motor. What a colossal waste. Anywho, not getting pulled into that wake from that ship sinking is such a relief. Toyota can proceed unimpeded. Yeah! Looking online, I see 643 listed for the entire country. That inventory seems to be making its way here from the West Coast. There are some available in Colorado. I haven't found anything closer yet. Most everything else I see listed as "nearest" shows New York, New Jersey, and Maryland locations... which is 1,000 miles from here. Looking further, I see Arizona. Interestingly, there are some in Florida. That's a market formerly unwilling to carry any inventory of Prime. Perhaps they are ready to jump on board now... which adds to the fantastic timing. California obviously has a bunch, but that inventory is normal. What's expected to be new is stocking them in the Midwest. Only special-order shipments ever made it here. Hope is that will soon change.

7-29-2019 **Charging Infrastructure.** An article with a rather gloomy stance was published today. It pointed out waste from a lack of new thinking. There isn't much benefit to speak of still. Other than Tesla SuperChargers, most of the public chargers either get little use or get no attention at all. There's a variety of reasons why. Location & Pricing were among the most obvious. Very real challenges face business support still. Who? When? How? All those details need some type of common message, once the obvious challenges are addressed. It came down to not putting much reliance on public availability for market growth. Banks of charging stations will happen someday, but we shouldn't put emphasis on that. This is what I posted in response to reading the article: That's why I have stated tax-credits for vehicles should not get renewed. If there is to be a next batch, let it be for home upgrades. Keep in mind, most households can just barely support 1 vehicle. So, there's a very real limitation that will holdback market growth later.

7-30-2019 **Suffer? Lagging?** This popped up out of nowhere: "*Market forces are going to drive Toyota to release a BEV or suffer lagging sales.*" Well, not nowhere, it was actually a thread from 6 years ago someone bumped with a recent post. It was an intriguing place to stir old discussion with an audience of changed perception. Quite a bit has happened with regard to plug-in sales so far this year. I jumped in with:

0% sales are without subsidy here still. Of those sales dependent upon tax-credits, how many are actually profitable?

That criteria alone informs us the "*lagging*" is a long time coming still, even without consideration of the actual competition... traditional vehicles. With many provide high profits with very little effort to sell, the idea of a hard push for a vehicle requiring lots of information sharing to entice a purchase and razor-thin profit in return is futile.

Then when you consider the rest of the problem... home charging... the situation becomes almost pointless still. Much work needs to be done to stir those household infrastructure updates. How many people have nothing but a single 120-volt line available in their garage available for overnight charging? That's an ugly best-case scenario... and very much a reality, presently.

Toyota's push for PHEV penetration into the mainstream helps move that process along. The choice to get a Prius Prime is painless. It really is plug & play. It also stimulates the household consideration for upgrading. Being able to benefit from a 240-volt line becomes more and more obvious over time. Having it available paves the way for a BEV purchase later.

In the meantime, Toyota will be building up a solid reliability reputation for their plug-in offerings. Elimination of the engine later is not scary in any regard once that customer confidence takes hold. While that is taking place, there's also the gain which comes from refining production and preparing for ramp-up. These are all vital business steps the "*suffer*" forecasts don't ever directly address.

Put another way, evidence of Toyota positioning itself for the upcoming paradigm-shift is stronger than most other legacy automakers. They are doing something now, rather than just rolling out a token offering or releasing a lot of press info. Notice how TNGA is on-target to reach 80% of their fleet by 2023?

7-30-2019 **Forward Thinking.** It's a lot harder than most realize. I'm constantly having to explain why a perspective just provided is not that of an ordinary consumer. People participating online usually lose touch with what it's like to not be well informed. You just naturally learn about the market by getting a daily injection of new information. Catch is, that information isn't necessarily the bigger picture. In fact, most of the time it is about the immediate next step only. Fortunately, it is now getting easier to deal with that... so much so, I don't really even need to include the quote that provoked my post... since most is just the same old rhetoric, but completely absent of substance at this point. Speculation of the past now no longer applies. We have outcomes to refer to. Anywho, I kept the forward-thinking response rather generic today: This is why "*know your audience*" gets brought up over and over. As an early-adopter, you have little to nothing in common with a showroom shopper. Anyway, strategy is long-term. A purchase now isn't part of that. Remember the 2030 plan Toyota laid out? Think about how obsessive GM enthusiasts were about the first 200,000 sales, how no attention was being paid to WHO would be next to purchase. Look what happened as a result. Toyota isn't going to play that game and Tesla isn't a legacy automaker.

7-30-2019 **Future Influence.** This perspective is quite understandable: *"Early adopters, like me, you and others who bought gen 1&2 Prius models, influenced many future Prius buyers in the next decade the time came for them to consider a new car."* However, it isn't helpful. Hopefully, this is:

That's a red-herring. Prius Prime is setting the same stage. Again, know your audience. Ordinary consumers, those showroom shoppers that are looking to replace their aged Toyota with a new Toyota, will see the plug being presented as a new choice. Quite unlike you and I, they won't be well informed. They will simply trust the reputation of Toyota and measure it against the price they are willing to pay for a new vehicle. They won't cross shop. They won't get a tax-credit. They won't have a charger.

Think about what it takes to achieve mainstream popularity. It's not going to be a standout vehicle like Prius (though Prius will still very much be a player on the team). It will be vehicles that are basically just another vehicle on the street, only there will also be a small badge indicating it is somehow different. That will be Corolla and RAV4 as hybrids, then plug-in hybrids, recognized as "one of those" influencing others.

Toyota is targeting the masses by working their way up. It's the continuous-improvement approach they are well known for. It's entirely possible Prius only be available as a PHEV for the next generation. Whether or not an EV from Toyota is widely available yet won't make any difference on that front. Think about what an upgrade to battery chemistry & capacity would do for its draw for the Prius audience. Think about how much it would do to promote other plug-in choices.

Rushing to market is the monumental mistake GM made with Volt. They wasted tax-credits on conquest, only to lose those potential repeat customers later. Sales to the wider audience that are both sustainable & profitable is worth having to deal with the appearance of lagging. Notice how Volt enthusiasts claiming exactly that about Toyota have completely vanished? We faced their rhetoric on a regular basis. Now, they've grown silent... quietly watching what happens with the mid-cycle upgrade to Prius Prime.

Sorry about the push from time to time with reminders of scope & purpose, but you are the type of audience who takes the time to consider the bigger picture. So, the discussions are worthwhile for all of us. Think about how much has changed and how much we've learned since this particular thread was first started.

7-30-2019 **Not The Same.** It's amazing how much problems repeat. Today, it was: "*and yet, bolt and prime sales are similar*" That premature conclusion draw in terms so vague, it's difficult to readily identify intent. Of course, I know this person. He has just recently exceeded 80,000 posts on the big Prius forum. He just uses the venue for entertainment now. It's a big waste of everyone's time to have so many posts daily coming from someone who doesn't try. It's just a chatroom from his perspective. No time is taken to share posts of value. That contributes to enablers & misleading... which I find very frustrating. Anywho, this was my response to that today: Comparison of a vehicle with nationwide availability for years to one with limited inventory & market should not be taken seriously. Those sales have almost nothing in common. You know all too well Toyota held back 2019 offerings due to the mid-cycle upgrade for 2020. Remember those discussions back when 2018 inventory burn down was taking place? Even then, approach was difficult to deny... which is why similarity claims now don't hold any merit. Some still argued though, trying to convince us Toyota's patience was really disinterest. Watch what happens as 2020 models roll out.

7-30-2019 **Pointless?** Sometimes, drawing attention to puzzle piece doesn't actually help finish the puzzle. I noticed a potential clue about Toyota's entertainment system upgrade, but didn't know if raising discussion about it would be useful. I've learned at work, some people never really understand technical design no matter how much information you provide. It is sometimes a reality of them lacking the background to relate. They simply don't make the connection... like a puzzle piece. In this case, we never really had any detail explaining why Android Auto has been limited to just a few select vehicles. But to me, it seems obvious. A switch from phone-centric to automotive-centric is a really big deal, one that represents too fundamental of a change to taken lightly. In other words, it will be more of an introduction for a new native format rather than being an upgrade. It's similar to the shift from phone to tablet. Most people were blissfully unaware of how much actually changed. So, bringing up this shift could be rather pointless. Regardless, I did anyway: Being a software engineer, one who has worked very closely with many rollout challenges in large enterprise, that type of announcement raised red flags. Why the hold back? What weren't we being told? Today, that omitted vital bit of info became obvious. Toyota didn't want to commit to an outdated version. Android Auto hasn't been upgraded for 4 years. Pushing that out with the 2020 Prius Prime as an introductory offering would have been absurd. Toyota would have been lambasted for using such outdated software. Google just began rolling out the new version today. Think about how complex software upgrades to just phones are. Carriers routinely take a very long time to provide a new OS. Having to wait 6 to 9 months is quite common... and quite unrealistic for a vehicle model-year. See where I'm going with this?

7-31-2019 **Next Steps.** I am so looking forward to Prius Prime finally rolling out beyond the initial markets. Toyota's choice to hold back until after GM's inevitable fallout, then taking advantage of that timing to introduce a mid-cycle update, is fantastic. Areas which haven't ever had any Prius Prime on dealer's lots, like mine, will start from day-1 with a compelling configuration that doesn't have to compete with hype. The price makes it realistic. True, the decision to go with robust & affordable made cargo space limited. But that does a great job of setting the stage for whatever comes next. 2.5 years of real-world exposure (in my case, that means 35,000 miles of driving) is proof the design is sound. Time is the only means of achieving reputation. This certainly looks like it was time well spent. With only a single week of inventory listed online and much of it questionable (available already or en-route still?), the handful of deliveries mentioned in posts make July a month to exclude. No statistic from such a limited scope can indicate what's to come. August may not reach nationwide either. My expectation is to watch inventory in the established regions grow to available-for-immediate-purchase levels, prior to the usual next-year model rollout timeframe. That's usually in October or November. So, by 4th quarter things should be get rather interesting.

8-01-2019 **Squandered.** It's amazing how things can change: *"I really thought that GM was a market leader back in 2010 and 2011. Now? Not so much. Nissan? Dead in the water. So the early leaders have squandered their advantage."* That reflection of my concern is a sad validation of recognizing market factors correctly. Remember how often I got attacked for that very sentiment years ago? I kept posting *"too little, too slowly"* with evidence of opportunity being missed. Later, that turned to the use of *"squander"* to point out how tax-credits were being wasted. Rather than use their momentum to build a market by spreading that interest in their technology to other vehicles, all was lost. It wasn't even really a gamble. You cannot expect sustainable profit to come from a single vehicle. Voltec should have been diversified; instead, enthusiasts fought to retain the status quo. They became their own worst enemies. Battle after battle was to keep focus on just that one vehicle. Any mention to offer it in a vehicle like Malibu or Equinox was met with hostility. It's amazing to look back into the blog entries here documenting just how fierce the resistance to change really was. They allowed the squandering to persist, becoming enablers of a failed approach. Ugh. Of course, what's worse is not recognizing who. Those Volt enthusiasts blame GM, not themselves. Taking no responsibility for the obvious rhetoric they posted is terrible... and how history ends up repeating. Remember Two-Mode?

- 8-01-2019** **Extreme Denial.** Reading posts like this had become such a norm in the past, it was an expectation: *"Wait, as mature as the Prius is, and as big as Toyota is, they are still only 'limited to specific markets'? That screams like 'Compliance car' to me LMAO."* Reading it now though, you have to wonder. That smug attitude serves no purpose anymore. We are well past the stage when there was any type of required quota. Focus has turned to the entire fleet can be improved. That pushes attention to design. This is why range isn't considered as important anymore. Obsession Volt enthusiasts had with a minimum EV range collapsed when it failed to lure new interest. In other words, they came to the realization that *"compliance"* equated to *"enthusiast"*. As much as they fought my *"Who?"* question, they can no longer deny the association. Some extreme attempts still take place though, as the *"LMAO"* clearly confirms. I'm done with that nonsense. Dealing with it isn't necessary anymore. Their days of feeding fake news are over. I put it this way: Scream whatever you want. Who exactly will care? Reality is, the choice to wait to align national rollout with a mid-cycle update and avoid GM fallout looks to be an extremely wise decision. Getting some compliance credits along the way is just a bonus.
- 8-02-2019** **Trying?** I was a bit befuddled to read this: *"The truth is, neither manufacturer is really trying to sell very many of these cars."* I thought that particular individual, who routinely posts on multiple forums and seems rather well informed, would recognize the change taking place. It was in a discussion comparing Clarity to Prius Prime. Being an owner of a Prius Prime and an active participant there, I didn't expect such a statement. Apparently, he hasn't been paying attention. Oh well. There's a chance of getting something constructive in reply. This venue is a source of useful discussion... quite unlike some I've dealt with in the past. We'll see if this stirs anything useful: The reality is, inventory from Toyota for the 2020 model (which is a mid-cycle update, for those not paying attention) is growing nicely. Just 2 weeks ago, there weren't any. Now, the nationwide search shows 750 available. August should be interesting for Prius Prime.

8-03-2019 **Lame.** There is still some damage-control taking place for Volt. With failure on a such a monumental scale, there's hope GM's mistake will be absurd... since there's no way to forget it. That's exactly what happened with Two-Mode... which is why some of the same mistakes were repeated. Misrepresentation of what actually took place is how you enable that. I was always amazed how foolish of a choice that was. Now, they're doing it again! Ugh. Oh well. This post yesterday about July sales results started with: "*1875 PiP's is lame*" then went on to claim: "*The Leaf and the Volt have had much better years than this way back in the day. The Volt sold more than 24,000 in 2016 or 2,000+ per month on average. And the Volt did nearly as well in 2012 and 2013.*" I was not surprised in the least upon seeing that. That repetition of behavior is quite predictable. I wonder if he expected this in return:

That selective portrayal of Volt sales history paints a distorted history, since it doesn't take into account temporary surges caused by price-cuts when inventory piled up. The proper depiction of demand was the measure taken during steady periods. Those sales averaged between 1,600 and 1,700 per month for gen-1. It was a very consistent result, making the growth for gen-2 demand an easy measure to gauge. Volt failed to grow though. Sales remained at that same level... which is below what you label as "*lame*" for the plug-in Prius.

Reality is, supply of Prius Prime is still limited to the initial rollout markets (roughly a little under half the country). Delivery of the 2020 model (which is a mid-cycle update) didn't begin until the final week of July either. No mention of those supply factors is distorted history in the making. Omission of vital detail is not helpful in any regard. In fact, it provides material for anti-plug rhetoric.

Volt was doomed from the beginning anyway. Having such an extreme dependence on that \$7,500 tax-credit for sales and those sales coming only from conquest buyers sent a clear message GM would need to take serious steps to push the technology prior to reaching phaseout... very much like what Tesla did. That never happened though. GM never even tried to spread Voltec to a choice GM's own customers would find compelling, like Trax or Equinox.

Prius Prime is an example of taking a very different approach. The technology was designed from the start to be offered at a MSRP low enough to compete directly with other vehicles Toyota dealers, giving it far more potential to achieve marketshare those who once favored Volt could only dream of. The technology was also designed to easily be spread to other vehicles, as Corolla hybrid has already proven with rollout of a plug-in hybrid model.

Put in a completely different perspective, your effort to draw a parallel of the past to Tesla results now is what should be labeled as lame. As successful as Tesla has been (kudos!), it's still tiny in comparison to legacy automakers like GM and Toyota. Absence of a dealer network adds major challenges to growth too. Reaching mainstream consumers is far more difficult than early-adopters taking advantage of tax-credit opportunity.

Watch what happens as the effort to appeal to fickle-shoppers attempts to step forward. There are many difficult challenges to face still in the realm of plug-in

appeal. Change doesn't come easy and far too much focus has been on results of picking the low-hanging fruit.

8-03-2019 **Downplay.** Here's more from that damage-control effort: "*My Volt and your plug in Prius are both nobodies. They don't matter.*" There's an element of fear at play too. That's harder to detect, until you notice how many facts the person is willing to dismiss along the way. The desperate enthusiast ends up going way out of their way to avoid dealing with some important point you bring up. When you confirm that pattern of evading, it becomes an invitation to hit back fairly hard. They reach a level of uselessness like a troll who should no longer be ignored. It's especially good if you can constructively use their own words against them, especially in the form of a question: Attempting to portray Toyota's approach the same as GM is wasting everyone's time. Toyota created a far more flexible design and still has an ample number of tax-credits available. GM has nothing anymore to offer in the category of plug-in hybrid. Prius PHV gen-1 was only rolled out to 15 states, then production was halted when gen-2 design got far enough along to show that it should be the first nationwide offering instead... especially considering the plug-in market back then. When gen-2 was rolled out, restricting inventory to select regions meant tax-credits could be saved for mid-cycle rollout later. So, claiming it has already seen "*sales peak*" cannot be taken seriously. As for the muscle-flexing nonsense, that is incredibly weak... ironically. You know that the ability to augment any Toyota hybrid for plug-in operation is just a matter of adding a one-way clutch... which has already happened with Corolla. Just think of what that means. How many of those who "*most guys wouldn't want to be dead in*" won't be interested in a RAV4 hybrid with a plug?

8-03-2019 **LOL.** The smug is really getting bad. That's a clear sign of the next stage. Enthusiasts who took the gamble and lost are trying to make themselves feel better by laughing off the situation. In this case, it's those who bet everything on GM and now finally recognize that wasted opportunity I had pointed out countless times. Oh well. After years of getting attacked for expressing concern, seeing this outcome play out is great. It's confirmation of progress... clearing the path forward, as I expressed this way: Corolla has already become a PHV. Both RAV4 and C-HR are likely next candidates for the plug-in upgrade. Attempts to divert attention away from them by making the discussion about Prius is blatant desperation, a damage-control effort to make Volt look less of a failure. It's the same old rhetoric as whenever I asked when Voltec would finally get spread to another vehicle, like Malibu or Equinox. Face reality. Legacy automakers must design & distribute a green technology capable of competing with their own current traditional offerings. No amount of tit-for-tat will change that cold, hard fact of business necessity. Again, we see that RAV4 hybrid has the opportunity to become a plug-in hybrid by getting the same upgrade as Prius. With the addition of a one-way clutch, the existing system can utilize its generator motor for added propulsion power. That's an elegantly simple approach with lots of business potential.

- 8-04-2019** **Expired HOV Stickers.** Rhetoric that never caught on, but still gets attempted on a regular basis is the claim that plug-in hybrids never actually get plugged in. Their spin is that HOV stickers are so valuable, people are willing to spend a premium just for the sake of getting an improved commute. It's difficult to argue with someone who just outright lies like that. There's data to support such a stance. But even lacking merit, they still accomplish their goal of diluting & interrupting discussion. So, it has been a lose-lose situation... until having the thought about what happens to the vehicle once that valued special-lane access expires. Knowing the person exploited incentives, it only makes sense that they move on to something else. Such a move puts a used plug-in hybrid on the market... which is a fantastic means of achieving market growth. It's just like holding out until mid-cycle for highly wanted features. Some owners will upgrade because they have the means & desire. It's a brilliant approach... something I can't wait to point out the next time an antagonist attempts that deception again.
- 8-05-2019** **Unused Capacity.** I'm on a roll. There was an article published today titled: "*Electric Vehicle Efficiency Explained*". It covered all the basics. The same old content about EV benefits will get distributed over and over like this. That's unfortunate, since some will just lose interest. But then, it is nice having a readily available source of information like that. What differs are the comments. This specifically caught my eye today: "*You are always either carrying around the extra unused capacity of a battery, or the extra unused weight of a gas engine, or both.*" It hadn't crossed my mind to punch back with something rather terse. Shutting up EV enthusiasts who do anything they can to belittle PHEV is becoming more of a problem now though. Rather than looking upon them as a simple means of getting people plugging in with much greater numbers and much sooner, they don't want anyone to produce or purchase PHEV. The idea of plug-in hybrids is counter-productive in their minds. So, they spread whatever nonsense they can to impede. But now, with EV range so much longer and the spread of public chargers, it raises the question of necessity. Do you really need that much unused battery capacity? This situation is becoming the same "*needed to tow my boat*" argument. Does your daily-driver really require that ability? Why can't an infrequently used old vehicle serve that purpose instead? Remember decades ago when people had recreation vehicles, like the old pickup? That was capacity set aside for a specific purpose... a far lower cost option than driving around day after day with an ability you'll rarely actually utilize. In other words, park the aged guzzling SUV and start using a plug-in vehicle with a right-sized battery. Think about how much appropriate to be using close to its entire capacity each commute.

- 8-06-2019** **Clarity Pullback.** Seeing Honda take the step to pullback current inventory has invited narratives to be spun. Remember when that happened with Prius PHV when Toyota stopped production? Antagonists made up stories, claiming whatever they wanted. I suspected Toyota simply reached the stage of a next-gen design where they could confidently commit to it. They won't disclose that, to avoid the fallout related to new announcements. They'd simply burn down current inventory and wait. Sound familiar? That just happened again with Prius. The mid-cycle upgrade for Prime followed that same pattern. So when I saw this, I got rather annoyed: *"In a few years, PHEVs will just be overcomplicated EVs with woefully short range. These are Hondas. With careful maintenance they'll still be serviceable well into the 2030s. But they'll be obsolete well before then."* It's a narrative attempting to downplay the upcoming surge of PHEV sales, led by Toyota. I find it amazing how the patterns play out. You can see it coming. They respond in textbox style. Oh well, it's not like I don't point out my observations: The word *"obsolete"* does not carry any weight. It's just a buzz word used to make early-adopters feel better about the slow progress. We've seen that for 20 years now. Reality is, a PHEV like Prius Prime is less complex than a supposedly competitive traditional vehicle. Rather than all those gears to make the old-school guzzler more efficient, there's nothing but a power-split-device... which has overwhelmingly proven highly reliable. Addition of the one-way clutch to allow the system to disengage the engine entirely adds to engine longevity. That leaves you with a weak argument of *"woefully short range"* which falls apart as more and more destination-chargers become available. It becomes an even more difficult of an argument as the popularity of RAV4 hybrid grows. The idea of it later offering a PHEV model will drown out any last hope of *"obsolete"* having any impact. In other words, ordinary consumers simply won't care. Look at how indifferent they have been up to this point about what happens under the hood.
- 8-07-2019** **Attacked.** Sure enough, it happened. I saw this coming: *"You are just a Honda and Toyota shrill."* Just like our president, make it personal. Attack the messenger so the message itself gets lost. I suspect he'll be relentless too. That's when I get my best insight & confirmation. Sometimes, you'll even get a revelation out of it. The person will be so desperate to get you to stop providing data, they'll post something revealing. My experience with confrontations like this in the past has been fruitful. This is what happens when you feed the troll. So, sometimes I take the bait and run with it: Your reaction to the growing reach of Toyota has been interesting to observe. It's proof of the potential. So what if Honda pulls back to regroup in the meantime. We're still in the early-adopter stage (clearly defined by tax-credit subsidizing) anyway. When the true competition begins (direct sales against traditional vehicles), then it gets real... and none of your nonsense will matter.

- 8-07-2019** **Labels.** Exactly as anticipated, he turned to insults & name-calling. That's a textbox response and quite telling. It reveals he has nothing to actually argue with anymore. Every avenue of argument has been exploited already. I felt vindicated and posted: Doing everything possible to draw attention away from the topic, especially when that content is nothing but insulting the poster, confirms identification of a weakness or concern. In this case, you see the potential that mid-cycle update for Prius Prime has on the PHEV market and recognize how powerful of a message it will send for RAV4 hybrid. Seeing a plug added to an extremely popular vehicle is the dream for Voltec which GM was never able to fulfill. Labeling the current offering from Honda as "*compliance*" and labeling me as a "*shrill*" won't change any of that. The march forward for PHEV continues.
- 8-07-2019** **Still Clueless.** When a post this this goes unchallenged, there's reason for concern: "*In the i3 you just drive it any way you want and you're still 70% more efficient than a Prime.*" It's that group-think taking hold again. You end up with a bunch of enablers never questioning the merit of claims. They just go along with whatever is posted, reinforcing a rhetoric nature. The venue ends up becoming a source of fake news eventually. That's exactly what I witnessed with the daily blog for Volt. Grrr. Not bothering to check validity of supposed facts should be a red flag. I doubt my response will change anything. I tried anyway: Talking about not understanding how the consumption of electricity is measured and reported efficiency. Whoa! 32 kWh/100mi = BMW i3 ReX. 25 kWh/100mi = Prius Prime. It should be obvious how much more efficient Prime is in EV mode.
- 8-07-2019** **EV Misleading.** This attempt to mislead is getting old: "*As we know, many who buy the plug-in hybrids do so for the tax incentive and the ability to drive as a hybrid.....no need to ever plug it in.*" I wonder who actually believes that. Hmm? With online posts looking for enablers attempting to push a group-think, I suspect its an on-going effort spanning any venue offering the opportunity to submit comments. After all, most claims are never verified. That's why I refine my rebuttal to be short, to deliver some type of takeaway detail, and to ask a question. In this case, it was: Even with just 25 miles of range, annual EV miles would be 9,125. That is a lot of gas not consumed from just overnight charging using a standard household outlet. Why are you making the act of plugging in sound like a chore?

8-08-2019 **Propaganda.** When a supposed trusted source of information publishes this, you have to wonder: *"In a PHEV, the internal combustion engine remains the main energy source, with the battery and electric motor used to improve overall efficiency; the PHEV is propelled by the electric motor when the ICE is less efficient and otherwise runs on the ICE. Again, during braking, the electric motor works as a generator, recharging the battery. Since they rely less heavily on the electric motor, PHEVs can use smaller battery packs than BEVs."* This is when raising doubt is legitimate. How could any reputable source spread such misinformation? That is just plain wrong. Fortunately, several people sounded off about it right away. I joined in: It has already been pointed out that definition is incorrect, being the definition of a hybrid, not a plug-in hybrid. Everyone overlooked the final sentence though. Less heavily simply isn't true. A plug-in hybrid like Prius Prime propels itself entirely with electricity. Unless you force it out of the default EV mode, the engine won't start (electric heat-pump operates in temperatures down to 15°F). My entire commute is all-electric, just like an EV. Just because it has a combustion-engine available for when the smaller battery-pack becomes depleted does not mean the operation while using plug-supplied electricity is any different from an EV. It's really unfortunate we have to deal attempts to wash over detail like this. Not all designs are the same. Notice how few EV supporters ever bring up electric efficiency, treating all as if there was no difference? Notice how the "kWh/100mile" rating is absent from discussions?

8-08-2019 **What The Numbers Tell.** That revelation happened. Sweet! I got thinking about what his "*compliance*" push could equate to. Most arguments of this nature don't actually have any substance. There is usually just some narrative being fed, rather than some source of issue. Antagonists will just exploit a buzz word or manta. Watch for that absence of detail. Merit requires it. I wanted to know what a compliance vehicle would deliver for the automaker. What do they get from having to fulfill a regulatory requirement? Knowing that GM hasn't been able to meet California minimums, being forced to purchase clean-credits from Tesla is a bit of important information evaded. None of the enthusiasts want to acknowledge Volt & Bolt not being able to achieve the goal, that some type of compensation is needed instead. In my search, I found the actual equations. The resulting numbers tell a story. I bet this will stir even more emotion: In your haste to label the car as '*compliance*' and me as '*shrill*', you overlooked something very important. Like they always say, the devil is in the detail... Bolt delivers a 2.88 ZEV credit. $[(0.01 \times 238) + 0.50]$ Prius Prime delivers a 0.55 ZEV credit. $[(0.01 \times 25) + 0.30]$ That looks tiny in comparison, until you come to realize just how many Toyota stands to actually sell. The potential is enormous, knowing a profitable platform was used... quite unlike what GM did with Volt, which delivers a 0.83 ZEV credit. $[(0.01 \times 53) + 0.30]$ Think about how much that would drop trying to provide a Voltec version of Equinox, something GM costumers would actually be interested in. In other words, labels are meaningless. It's the numbers that really make a difference... and I'm watching the inventory of 2020 Prius Prime grow. It looks like Toyota is preparing to take a position of leadership in the affordable plug-in hybrid market... far more than just compliance.

8-09-2019 **First Real EV.** There are some who now feel comfortable speaking out against what had previously been unheard of. GM knew what it was doing and there was no possible way we could be better informed about the market... is the nonsense I continuously had to deal with. It was basically a exercise in insanity. They'd fight you in every conceivable way to discredit & dismiss. It was an amazing example of denial. Well, not anymore: *"If GM had any ability to forecast trends, their first real EV would have been a compact SUV similar in size to the Equinox. The Bolt is too small, and it looks and feels like a \$10,000 sub-compact econobox despite costing more than 3 times as much. The drive train is great, the packaging is not a good fit for the US market."* That is why I asked the "Who?" question over and over and over again. It was madness. Volt had no audience. Even enthusiasts were moving on. GM nothing viable to proceed with. The design was far too expensive and there was no strategy. So upon seeing a comment posted like that from the disenchanted, it's a bit difficult to reply with anything constructive. All the bridges were burnt so long ago, there's to path forward anymore. I don't have a suggestion to contribute, just observations: Introducing Trax with an EV would have brought about chaos. Worry about the Osborne effect has always haunted legacy automakers. That's why their is so much hate from GM enthusiasts about Toyota... who has figured out how to deal with the paradigm-shift. RAV4 hybrid sets the stage. Corolla hybrid adds to it. Both later becoming plug-in hybrids will help bring about a smooth transition to electric-only.

8-09-2019 **Incentivizing Charger Installs.** Many online fall into the trap of rhetoric. They'll follow a red-herring rather than do some critical thinking. It's quite counter-productive... and sadly, quite common. As a result, today's comments posted related to EV dominance timing completely overlooked what should be obvious. I tried to interject some logic: The fundamental flaw in tipping-point discussions is not looking at the entire equation. Even if a miracle happened overnight and battery density/cost reached that level, it still would represent market change. That potential for high-volume production & sales cannot be achieved until infrastructure is also upgraded. Tax-Credits for the automakers should be allowed to expire. In their place, we should all get behind federal subsidies going toward the encouragement of homeowners & landlords. Incentivizing the installation of level-2 chargers where people park overnight will make a massive difference. That's the key to drawing interest for plugging in. In the meantime, we will all see a massive growth in the PHEV market. A plug-in hybrid like Prius Prime is profitable and already has an audience to tap. Dealers know how to sell Prius and the ability to simply use an ordinary 120-volt outlet for overnight recharges makes that promoting that next step an easy one. During ownership, it makes the consideration of upgrading to 240-volt a far less stressful decision. There's no rush. There's no uncertainty It's a decision on their own terms. There's also a greater likelihood they'll upgrade with enough capacity for multiple vehicles. Despite seeing the meltdown of GM efforts and other automakers struggling to make something directly competitive with traditional guzzlers, no amount of in-vehicle technology will overcome the barrier faced still for overnight charging. Don't overlook that challenge of simply plugging in. With over 70 million new vehicles purchased every year, it makes a lot of sense to get a wide variety of PHEV choices to market as quickly as possible. EV will naturally follow.

8-10-2019 **Rise & Fall of Prius.** Media sources thrive on attention-getting material. That often meant targeting Prius, knowing it would generate lots of traffic to their content. Today provided a good example of that. It was a 9-minute presentation about how Prius is now dying. To believe that, you cannot look forward. Limiting scope like that is how most narratives work. Rather than just cherry-picking information, they formulate a seemingly comprehensive story to back their claim. That old technique of "lying by omission" has been used to mislead since long before Prius was around. But being such an online-centric formula for success, that exploitation of undermining opportunity has been popular... to the degree seemingly credible sources join in. Basically, it's the fake-news phenomenon growing to the point where people have no idea what constructive journalism is anymore. You'd think the evidence of not looking forward would be obvious. It is not. Needless to say, I'm quite curious what the posted comments related to it will be. Here are my initial impressions:

The report forces a strange perspective. You are led to believe the driving force behind any success is by pushing limits, rather than just simply selling a really good car at a really good price. In other words, they only see market change in the form of breaking new ground... which was never what Prius focused on. Not recognizing the purpose of Prius means not understanding what comes next.

Toyota's goal with Prius has always been to get mainstream buyers to change. For those who have been paying very close attention over the past few weeks, you've noticed what has been happening with the 2020 model of Prime. Inventory is quietly building. Toyota appears to be preparing to fill that void the others have left behind. The supposed "leaders" haven't been able to reach ordinary consumers. Prius Prime is designed to target that very audience. It's affordable, reliable, and easy to sell.

Put another way, the video closes history on Prius for those who knew it. A new chapter is about to begin, one that exceeds what happened many generations ago... reaching much further into the market of ordinary consumers than we've seen so far. The approach of "*elegantly simple*" that Prius was so well known for is about to become obvious for those who are just looking for a good car with a plug.

8-10-2019 **Mistakes.** This was the comment emerging from that rise & fall article that I chose to address: *"Given the mistakes made with the gen 4, I am hopeful (maybe unrealistically so) that the next gen can attract more buyers by a combination of going back to it's roots and advancing technology."* That's exactly the perspective I expect to routinely encounter in the near-term from casual observers. It's what we call anecdotal evidence. They take the information they have collected to draw a conclusion. Unfortunately, that means information is incomplete. You cannot learn everything necessary to be well-informed without study of the past. That knowledge comes from research, not anything you'd stumble across without digging. However, there are people like me who attempt to provide that missing background:

The narrative of "*mistakes*" is one that doesn't recognize Toyota's approach. Anyone who truly knows the automaker understands this. Most people are blissfully unaware. For those who have studied the process Toyota has taught us, the term "Kanban" is quite familiar. It's a totally different means of managing & improving. There's an inherent aspect to taking risk as a result. Failure is not looked upon as a mistake.

The reason why is simple. You try something. If it works, great. If it doesn't, you try something else. The key is to keep the scope of that change small. Notice the careful rollout to select markets and within limited timeframes? Toyota is always planning ahead, expecting one of many next steps to take place depending upon outcome of the previous. That flexibility is what most people completely overlook... seeing the changes made along the way as a mistake. It's adaptation.

Toyota saw the market for sedans & hatchbacks crumbling... hence the amazing RAV4 hybrid. This is why taking the risk of attempting to upscale Prius Prime a little by reusing the middle rear for comfort & convenience was worth taking. If it worked, great. If it didn't, the uproar would indicate demand for the old is still strong. At the same time, risk with the no-plug model had to be taken... knowing the plug-in model should become standard by gen-5.

Once you recognize the perspective Toyota has on the industry and how they have been applying it to their entire fleet as a whole, you'll see a very different picture than what the media has been painting... as well as antagonists, or anyone who wants to retain the status quo.

8-11-2019 **Watching Inventory.** Looking to the big Prius forum for feedback about that rise & fall video has been a problem. The website is down for weekend maintenance. So, there's no sharing of impressions amongst the group. That knowledge-sharing venue is silent. My own knowledge continues though. I have been closely monitoring Prius Prime inventory. It's easy, you setup the online app with saved search. A quick refresh gives a basic oversight of activity. Remember how I mentioned the available count climbed to 750 a week ago. Late last night, it exceeded 1,000. That number doesn't tell the entire story though. You have to watch for drops. Those represent sales. In other words, not only am I witnessing overall growth, I'm also getting a general impress of increased demand... which is exactly what has been hoped for. The careful planning to ramp-up both production & interest based around the timing of both a mid-cycle upgrade and tax-credit fallout is a very sensible business approach. Toyota doesn't care about hype. Toyota doesn't cater to enthusiasts. Toyota's interest is changing their own status quo. Seeing their fleet move beyond traditional vehicles is true progress forward. That's why I pushed those so hard who endorsed Volt, but fought against GM spreading that technology to one of their own mainstream vehicles. It was the move of an automaker simply not interested in actually making a difference. Dependency on those federal subsidies was obvious. There was no sincere attempt to configure a system with a competitively priced MSRP, something to challenge their own traditional inventory. Volt, then later Bolt, were token offerings which bared no resemblance to anything GM customers expressed interest in. Ironically, the result was a "*halo*" effect. That's when a vehicle creates a draw to the automaker, but the vehicle responsible for that credibility isn't what people end up purchasing. That's why the subtle approach Toyota is taking with Prime is so different. Sales are not just listed within the "Prius" category. There isn't a breakdown anymore. This will allow Toyota to shift away from the no-plug model without much disruption. Rhetoric for the supposed "*fall*" will be forgotten and the naysayers will deny the rise of Prius Prime was anything but inevitable. Ugh.

8-11-2019 **Seemingly Forever.** That's the sentiment we get from those who don't have much (or any) background in how long it actually takes for change to happen. In this case, it was from someone well informed, but annoyed at the timeline: "*Toyota always had the vision of making all their models optionally hybrids, amazing how long it took.*" He was painfully aware of the challenges faced when up against those fighting to retain the status quo. I jumped in to help out:

No surprise though. I always told people it would take an entire life-cycle to even get mainstream interest stirred. That meant a minimum of a decade. More realistically, the dealer-lot to sell-for-scrape duration is 12 years. In terms of generation, that equated to waiting for two of them to pass. Since the first-gen was really just a limited mid-cycle update, the start began in 2003. Bringing us to 2015 (that 12 years later) was right on schedule. At that point, the vision was falling into place... but still not complete.

The next-gen upgrades to Prius, Camry, and RAV4 have all been well worth it. The technology has proven robust & affordable, as well as very easy to sell. It's a winning formula.

What comes next is what this "*rise & fall*" curiously avoided any mention of. For those paying attention, it's not much of a stretch to see Toyota striving to make the PHV option standard for the next-gen of Prius. The design focuses heavily on being cost-effective. Dealers must have a choice that brings in easy profit... a goal none of the other automakers are in a position to address yet.

It's all about high-volume sales, not breaking new ground. That's why the perception of "*fall*" isn't actually a problem. Toyota's goal is to transform their fleet. Narratives of a necessary to push limits are just hype from enthusiasts. What happens for ordinary consumers is what matters. Remember, automakers are for-profit businesses with salespeople who aren't well informed and work on a commission.

For those of us who watched GM pursue glory through the exploit of tax-credits understand & appreciate Toyota taking a very different approach due to having a very different vision.

- 8-11-2019** **Awaiting Delivery.** It's nice to see posts that start with: "*So far 236,000 miles...*" He was telling us about his current Prius and the loooooong wait for deliver of his Prime. Since he's nearby (metro of Minnesota), I'm well aware of the lack of inventory. Only a handful have been sent to each dealer. That's the way it has been all through Toyota plug-in history. The center of the United States and Southeast Coast are not part of the initial rollout regions. The expectation is that will change upon 2020 ramp-up. Supply of that mid-cycle update is only now growing in the established markets. That limitation is somewhat bothersome, but quite understandable. So in the meantime, we share stories and ask questions: What will you be doing with it when your Prime arrives? btw, I have been watching the inventory. Lots of new arrivals and sale removals have had the availability count all over the place. There's about 10 listed within day-trip distance of us now. It's looking like Toyota is well prepped to go all out, with the choice of delay being a very wise one. Not having to deal with any of the past hype leaves you and I a clear playing field. I'm excited about starting up gatherings again. Not having any local inventory put quite the damper on things. But now, it should be a reboot of how Prius got started. That was really fun the first time around. Soon.
- 8-11-2019** **Internal Trolls.** When a popular forum poster gets out of hand, what do you do? I responded to this today on that very topic: "*Nobody guessed --- would hit 80,000 posts by 2020.*" I did. I pointed out his overwhelming of the discussions too: "*Seeing so many posts per hour everyday, it raised concern about drowning out participation of others.*" My lead up to that wasn't well received either. He got quite annoyed with me repeatedly posting know your audience comments... because it drew attention to his desperation for attention. It was an ironic means of making others aware of the resulting dilution of value... especially due to the laziness and lack of concern. His posts don't include quotes. It's always in third-person to avoid confrontation. All the words in his posts are lowercase too, making them further standout. The sheer volume is the biggest problem though. He literally posts over 100 times per day and has been for over 2 years now. So, most of the content is meaningless sound-offs or contradictions for the sake of keeping the dialog active. It's just him using the forum for entertainment. That's sad. Others who join to share their experiences or ask questions get pushed aside by his effort to retain the spotlight. Needless to say, I don't like him... and feel quite good about others finally noticing what's been going on. Trolls of that nature bring down the reputation of the venue.
- 8-12-2019** **RAV4 PHV.** There was a set of spy photos that began circulation on the internet today. Supposedly in Spain, there as a plug-in hybrid model of RAV4 being tested. That makes sense. It is a logical next-step with the spread of PHV technology. After all, the hybrid system was designed to readily adapt to using plug-supplied electricity. The simple addition of a clutch allows the larger battery-pack to supply greater power output to the wheels. It's an elegantly simple approach that supports the absolutely vital need to deliver a reasonable profit to dealers. They won't bother trying to sell something that isn't affordable. It must demonstrate sustainable interest. Toyota's approach is quite compelling. Proof of that is undeniable with RAV4 hybrid. It's next-gen upgrade has been showing strong demand already. That makes it easy to see the effort to refine an offering with a plug is a sensible move. That will most definitely help to bring the entire fleet forward, something all other automakers have been struggling with. The subsidized one-hit-wonder can't compare to a variety of profitable offerings. Needless to say, I was delighted to see those spy photos and the excitement they stirred.

8-13-2019 **Nonsense.** Reading this brought a feeling of vindication: "*The Volt died because the factory it was being assembled at was closing, and it was closing because the traditional cars made there weren't selling and were being cancelled.*" It was just more of that desperate nature to provide damage-control. Whether the act is to convince oneself or others of the outcome, it's a disconnect with reality I'm happy to point out: Circular logic is evidence of something gone awry. In this case, it was the fact that Volt sales were supposed to grow to the level of takeover. The goal was for Volt to become the replacement. Production of that traditional car was expected to end anyway. Volt failed to achieve that. For 12 years, we had to put up with claims of "*vastly superior*" technology from GM becoming the dominant force in efficiency sales. This followed the disastrous hybrid offering known as Two-Mode. We were besieged with the message of needing to patiently wait for this new plug-in hybrid technology to crush Toyota. I endured countless attacks stating my concern for GM's expensive & inefficient were unfounded, just an effort to save the reputation of Prius. Needless to say, any attempt to portray a false past will be called out. Volt died because GM didn't really want to sell it. Why would any automaker continue on with such expensive & inefficient technology... especially seeing how well Toyota is setting the stage for plug-in hybrids? Looking back at how hostile Volt defenders became just 6 months ago, absolutely desperate to provide damage-control for GM by pushing a narrative of Toyota "*falling behind*" so much, the automaker may never recover. We now see both Prius & Corolla have PHV models and its looking like one for RAV4 is one the way. 19 years of that nonsense from those hoping to undermine Toyota accomplished what?

8-13-2019 **The Key.** I was surprised to get backlash from posting this: "*You try something. If it works, great. If it doesn't, you try something else. The key is to keep the scope of that change small.*" It makes sense that the perspective of being cautious gets highlighted. But no effort to see beyond that is concerning. After all, that is the trap Volt enthusiasts fell into. So, getting this stirred memories: "*This is a great strategy to keep from making a major mistake. It also insures that you'll probably never find the next big thing. In math, this is known as getting stuck in a local minimum.*" That sounds sensible. But having proven false, it cannot be used in such a blanket way. The market is far more challenging to deal with than that overly simplistic perspective takes into account. I pointed that out with: Actually, that has been proven false. The act of being willing to refactor (take on all those small risks) will often lead to discovery. It's a constant state of looking for improvement opportunity. Eventually, you find one. In math, that's known as a complex equation. Think about what happens when you add, subtract, multiple, and divide in a variety of different ways. A small poke in the right direction can lead to enormous change. To put this in terms of the automotive market, you must recognize it is a moving target... one that doesn't follow any particular path or destination and will continue to alter as you travel. Knowing that, ask yourself what the "*next big thing*" could mean? If it is a battery technology, what penalty is there for Toyota working to establish a culture of change at their dealerships highlighting the benefits of electrification? Building momentum for moving away from traditional vehicles is perfectly fine taking small steps. Put another way, I'm approaching my 20th year of pursuing greener technologies. With such a strong background in that effort to engage ordinary consumers in the acceptance of true change, I see a lot of repetition... including some major mistakes. The strategy of staying true to goals is what wins every time, even if that includes very small steps along the way.

8-14-2019 **Notice.** I'm back to the "notice" posts again: *"I think Toyota had made a similar strategic mistake with its Prime availability. Kind of a self fulfilling prophecy by limiting these vehicles to specific areas of the country."* That begged for them. It's because most people don't. So, I end up sharing my observations. I collect lots of data spanning a wide array of influence and watch for patterns, which requires a lot more effort than simply agreeing with a trend. It means what I observe commonly goes unnoticed by others. In this case, it meant I had this to share: When looked upon in a vacuum, it may appear that way. But when looking at the bigger picture and longer duration, the prophecy to insulate themselves from market fallout appears to have been quite wise. Notice how both Ford & GM are preparing for difficult times? Notice how Ford & Honda are getting skittish on hybrids? Notice how GM & VW have given up entirely on all but EV offerings? Notice how Toyota is ramping up Prime availability?

8-14-2019 **Low Sulfur.** Remember the diesel insanity way back in 2006? That's when ULSD (Ultra Low Sulfur Diesel) was rolled out. It was to be the savior of diesel, a means of competing with hybrids as a clean solution. That obviously didn't actually work. True, it did indeed reduce emissions. But the reality was, that wasn't enough. Diesel was still dirty in comparison and no where near enough to be called "*clean diesel*" as the campaign to deceive tried to make you believe. Well now, that necessity to reduce emissions coming to the shipping industry. The new regulation coming for January 1, 2020 from the International Maritime Organization (IMO) will be requiring lower-sulfur fuel oil. That will help considerably; however, it's not a perfect solution. It will be expensive too. To be more clean, more refining is necessary... which increases cost for the fuel and cost to retrofit some existing equipment. This is why there is still on-going research into the feasibility of fuel-cell use for large container-ships. They must find a means of cleaner transport. Think about how much fuel each one of them consumes.

8-15-2019 **Oops!** I really like where this took the discussion: *"EV's may indeed become the dominant mode of ground transportation, but that evolution will not happen overnight either. It has to be competitive with the current technology and work within an evolving infrastructure..."*

In the automotive industry, that term *"overnight"* equates to a generation-cycle. Which means, being able to take the market by storm still takes 6 to 7 years. That's why Prius is still the only single vehicle in modern history to bring about a paradigm-shift. Tesla can't be included, because it started fresh, there was nothing for it to change from. Tesla was also very heavily subsidized by both tax-credits and investor-capital. Being a start-up means lots of low-hanging fruit, but major challenges after those picks are gone.

That brings us to the legacy automakers. Even if there was a will, there is not a way. We are now seeing the same desperation for profit as we did in the past. That pattern repetition can no longer be denied. In fact, it appears to be even worse this time. Anyone else remember how heavily Ford & GM relied upon SUV & Pickup sales for sustainable business?

This particular discussion is yet another component to the market taking a downturn. Notice how many announcements we get about a far better options than hybrids coming, but no detail whatsoever? Those incredibly vague promises of amazing future technology is exactly what we got in the past. Remember how GM attacked Toyota with all that *"stop gap"* propaganda? What about Two-Mode? What about ULSD vehicles?

It's about to get ugly for some automakers. All the belittling of Toyota for having prepared for such an *"unlikely"* turn of economic influence of the plug-in market is gone. Anyone else notice how the *"leader"* and *"behind"* insults have vanished from comments? For that matter, notice how antagonists themselves have disappeared? That's a sign of problem recognition... like, oops!

8-16-2019 **Setting Expectations.** Today's discussion was interesting. Out of the blue, someone just wildly threw out there what they believe EV range for the next Prius Prime should be. Of course, it didn't take audience into consideration. In fact, cost was entirely absent from those posts. There was nothing related to automaker or market either. That lack of any effort to recognize big-picture need is a red flag. Missing any reference to sales goals is a warning that scope & timeline weren't included in the calculation. That's even worse than being unrealistic. You can't exclude the fundamentals of business and expect to succeed. That's why I get eye rolls from my posts though. Few, if any, in online forums really want to discuss economics, marketing, or accounting. There's nothing exciting about those non-engineering aspects of the automotive world. So, many just pretend that stuff just magically works out if you have the right design. Ugh. I hoped to get the discussion back on track by providing a basis of analysis, giving them some actual numbers to consider back pointing out background: The unit-of-measure for a vehicle designed in Japan is metric. In this case, kilometers. For gen-1 Prius PHV, that target was 20 km. For gen-2 Prius PHV, that target was 40 km. For gen-3 Prius PHV... knowing that affordable & reliable has been higher priorities than range... would put it at 60 km. That's 37 miles.

- 8-16-2019** **Cost Reduction.** When Toyota designs something, there is always that quest to reduce cost. Achieving that through high-volume is an effective approach. The benefit is well proven. Think about the product-line as a whole. RAV4 PHV using a 13 kWh capacity battery-pack would be ideal to share with the next Prius PHV. That would fulfill an expectation of 60 km. It's in the realm of realistic options to pursue. That's why real-world research with mules takes place. They give the design a try, hoping to gain a confidence of it being a wise choice. If so, great. If not, you try something else. The key is to consider as many factors of influence as possible before committing. Reducing cost is challenging enough. Oversight can be costly. This is why we see Toyota rolling out to limited markets. They go to great lengths to validate decisions about stuff related to size & capacity.
- 8-16-2019** **Realistic.** It's nice to see hope growing for new PHV models to come from Toyota, but there's much people have yet to "*notice*" about the design. Some of it comes from outdated or incomplete information. Some of it comes from rhetoric. That means responses to new threads on the topic are all over the place. I saw that coming today and jumped in as quickly as possible to provide some background. Sadly, the antagonists are usually faster. And sure enough, that happened this time. But I still managed to provide an intercept: Keep in mind, purpose of that original plug-in Prius was to boost MPG and an affordable MSRP, not to provide any type of all-electric drive experience. So, there was never a sound reason to compare it to Volt. They were from entirely different categories. The initial rollout of Prius Prime was limited to select regions of the country, knowing the mid-cycle update (2020 model) would be the one to deploy nationwide. For those watching inventory recently, that ramp-up is now underway. Remember, the upgrade from regular Prius to plug-in Prius to create the "*Prime*" model (known as PHV in other markets) was to just add a one-way clutch. That enabled the second electric-motor (usually used for generating electricity) to contribute to propulsion power instead while also disengaging the gas-engine. Combined with a larger battery-pack, it pushed EV limits to provide an all-electric drive experience. Doing the same for RAV4 hybrid is quite realistic.
- 8-17-2019** **Sales Decline.** You gotta love seeing posts starting like this: "*PHEV sales are declining in nearly all markets...*" How long did that sentiment persist for hybrids? Needless to say, having over a decade of experience seeing such efforts to mislead & undermine has taught me to keep on pushing. That nonsense has very little impact. Understanding change is not something anecdotal observations can teach you. I fired back with: Generalizations tend to give misleading conclusions. Failing to recognize data is why. In this case, we see a major decline due to the exploit of GM coming to an end. Volt was clearly a niche, targeted at enthusiasts who took advantage of the tax-credit. That early-adopter audience has nothing whatsoever to do with the mainstream market. Demand for such fundamentally different groups cannot be compared. Prius Prime was only available in limited markets, waiting for this mid-cycle update (the 2020 model) before going nationwide. Corolla PHV isn't even available anywhere in the United States yet. Both are targeted squarely at ordinary showroom shoppers sharing nothing in common with early-adopters. The same will be true for a PHV model of RAV4. Keep in mind, appealing to those who would be content purchasing a traditional vehicle is far more difficult than winning favor by someone reading these comments. Their priorities have little to nothing in common with this group. Many couldn't care less about many of the arguments posted here. Know your audience.

8-17-2019 **Baby Steps.** Focus on Toyota has really become a hot topic: *"Toyota still making baby steps while others are racing forward."* It's a sign of impact. Antagonists see the potential... and don't like it. So, they attempt to belittle & insult any opportunity they get. It doesn't work though. I gladly point out why: Toyota's goal is to convert their fleet, replacing traditional offerings with hybrids. So what if it is looked upon as a baby step? It's a move on a monumental scale. Others are not racing forward in that regard. Focus on low-hanging fruit (subsidized token offerings) gives a false impression of change. The status quo isn't actually altered. GM's failure with Volt is the ideal example. Enthusiasts argued for years about how that *"leadership"* was winning the race. Those naysayers who absolutely refused to acknowledge it was a tortoise & hare situation have since grown silent. They were wrong, very very wrong. The culture at GM dealerships didn't shift to electrification. In fact, we have seen sales of guzzling SUV & Pickup choices grow. Don't be fooled into thinking what's in the spotlight at the moment represents progress forward. It's all about lifting the base. Appearance of being a leader doesn't take into account what it actually takes to get difficult customers to embrace change. Baby steps are almost always what's required to get them to accept a paradigm-shift. In other words, setting the stage for BEV by first getting the base to purchase PHEV offerings will likely be a much more effective means of achieving large-scale change quickly. Remember, Toyota sold 10.7 million vehicles worldwide last year.

8-17-2019 **Vague & Ambiguous.** Statements like this are a common problem: *"It's easy to implement hybrids. Implementing a true BEV is much harder and more expensive, as Tesla found out with the massive development costs of the Model S, Model X, Model 3 and soon Model Y."* They do nothing to look forward. They gloss over detail too. That *"soon"* is basically meaningless. If you are waiting to purchase one, how long does that actually mean the wait will be? Needless to say, I get annoyed by the lack of critical thinking. Many just post to make themselves feel better, rather than making an effort to help advance the masses forward. In reply, I posted: Since the topic is PLUG-IN hybrids, not regular hybrids, that claim is a red-herring. It's also quite ambiguous. What does *"implement"* actually mean? Getting dealers to train mechanics to support and salespeople to sell anything with a battery-pack is a major challenge. Also, Tesla's reach beyond the early-adopter market has yet to be observed. We have no idea how ordinary consumers will respond to a Model 3 without that generous tax-credit available. Heck, we don't even know how they will purchase a Tesla vehicle. So, that could be considered a red-herring too. It's what happens with legacy automakers who sell millions of vehicles per year that will shift the market. With worldwide sales well over 70 Million, turning a blind-eye to the established biggest players to instead focus entirely on a small-in-perspective startup isn't a balanced approach. Think about what next steps are required to reach beyond early-adopters.

- 8-17-2019** **Now, it's just a "Hybrid".** I find it quite amusing how intensely the Volt enthusiasts fought for "EREV" as the identifier of technology for Volt. Long before rollout began, they pushed to make it unique from any other offering other automakers would later rollout. And when that happened, the definition would be altered accordingly. Ugh. That happened twice, for both Ford Energi and BMW i3. It was so obvious that attempt to build demand for Volt while belittling all others was a desperate marketing move. Without any operational difference to actually distinguish it, that was just a meaningless label... as Prius Prime has overwhelmingly confirmed. Again, ugh. So now that the table has turned, I find the hypocritical nature of the claim quite fulfilling. To promote Bolt as the future of GM electrification efforts, Volt has been re-categorized as just a hybrid. No one refers to EREV anymore. In fact, antagonists get very frustrated when you bring up that past. They want to pretend that ugly chapter in their history never happened. Efforts to divert attention and downplay the situation are abundant. I particularly liked this one: *"There has only been one hybrid that did any good and that was the Prius. Even now sales on it have tanked. The hybrid was a compromise that just seldom worked out well."*
- 8-17-2019** **Effective Marketing.** It boggles my mind how the difference between want & need is so confusing. As a software engineer, that distinction has been absolutely vital for a successful career. You must carefully listen to the customer, correctly identifying the type of request. Are they specifying a requirement or a nice-to-have? Design with mistaken priority can be quite costly. You should balance what's delivered. Too much of either won't be a product the customer will enjoy using. Sadly though, marketing doesn't work that way. It heavily favors want, to the extend need isn't even addressed at times. The definition of each should be easy to understand. The reason why should be too. Sadly, I have to post that information from time to time, when an argument grows to an extreme due to a failure to distinguish the difference. Hopefully, today's attempt will provide some insight: Want = Feel, Opinion; Need = Fact, Necessity; Not seeing the difference is why the topic (snow tires) gets brought up so often. But then again, this is why Prius has been able to sustain for so many generations. Campaigns have come and gone, each trying to convince us of "need" based up what is actually a want. People have moved so far out of touch with recognizing or even questioning the difference, that lack of distinction is now normalized. Some would call that effective marketing.
- 8-18-2019** **For The Boat.** After all these years, that excuse still lives on. Someone who owns a giant boat justifies their purchase of a giant guzzler as necessary. They feel that logic validates their choice for daily commuting in that vehicle. It's what I heard today at the barbershop. You could tell he had absolutely no interest in any opinion from others. That was what he would continue to do, period. That's how Two-Mode came about, offering a solution for exactly such a situation. Only trouble was, the technology was far too expensive. It worked, but simply wasn't worth it. Ironically, the "gas saved" campaign went nowhere. In fact, that's why any attempt to try the same for Volt simply fizzled. It is what happens when emotion is the basis of a purchase.. the whole need verses want problem. They find ways of justifying the irrational. So, the fact that I encountered the very same "logic" all these years later is no surprise. People are compelled to follow their heart, rather than their mind. They may work out fine with other things, like relationships, but it's typically an expensive choice when it comes to lifestyle. Those are the facts of life...

8-19-2019 **Finally, It's Dead.** Today marks the final moment of that daily blog for Volt. 2 months ago, the very last topic was posted. You could submit comments, but nothing ever got approved. That pending status became impossible now too. A moderator removed the ability to do anything. It is marked as read-only. All activity has halted. That terrible source of misleading, a training ground for enablers & antagonists is now day. I had no idea such rhetoric could have transformed into a fake news outlet. So much hate emanated from there. I knew that would happen from long before Volt even first rolled out. The big clue was when the look of Volt changed from concept to production. Anyone who had submitted an interest form was not allowed to update their status. The count continued to grow, despite such a dramatic shift of expectations. That number became the first big source of spin. It had no association whatsoever with GM itself, yet was promoted as a commitment to purchase. There was no obligation of any sort. No deposit. No salesperson. No dealer. It was just a survey that grew way out of hand. Any familiar with such information knows only a small fraction of those who express interest actually follow through. Those numbers were treated as sales, long before any specifications of the vehicle was even revealed. That's how I knew this day would eventually come. You cannot run a business on hope. Enthusiasts gambled everything on meritless claims and group-think. It was doomed. Each ambiguous bit of information provided by GM fed them. I witnessed spin and damage-control on an incredible scale... or so I thought, until witnessing this president. He actions resemble the same behavior I had to deal with on that daily blog. That's why "*know your audience*" is so important. Fortunately, his ability to play a crowd will someday come to an end too. In the meantime though, just like GM did with Volt, there will be a lot of damage caused along the way.

8-20-2019 **Not Really News.** The dashcam footage from Tesla owners and all the hype about autonomous driving is starting to dilute plug-in news to the point of people losing interest. It's the quantity over quality issue. News organizations commissioned to deliver a quota of content every single day is counter-productive to the mission of cleaner transport. They push whatever content they can find to stir participation. Reads & Comments are more important than having a compelling story... which of course, dilutes the compelling story when it finally comes along. That loss of value is how many blogs fall. People simply become disenchanted with either the content or the vehicle itself. It's a very real problem for those trying to make a business out of the emerging plug-in market. What draws sustainable interest is a very real problem. If the vehicle simply works, like Prius, people naturally just participate for a short amount of time anyway. That's the sign of a good product. New owners check in for tips, share a few experiences, then move on. You don't actually want a product that endlessly requires some type of on-going effort. So, I'm watching the EV news struggle with lack of anything actually taking us forward. With so much ground broken now, focus needs to switch to building market, not pushing for faster & further. Recognize that problem from the past? You should... Give us real news!

8-21-2019 **Administration Rhetoric.** Just like we had to deal with when Prius was new, the current administration is dead set against promoting green technology: *"Trump said company founder Henry Ford would be 'very disappointed if he saw his modern-day descendants wanting to build a much more expensive car, that is far less safe and doesn't work as well, because execs don't want to fight California regulators.'*" That's really sad. It's the same old scare tactics. Say whatever it takes to prevent the move forward from being considered. Remember those claims of the past, where they said countless jobs would be lost if this new risk were considered? Not only was it meritless at the time, it was later to be proven false. Not adapting to a changing world is how so many careers were destroyed. They held onto the past as long as they possibly could. The same old fight to retain the status quo is taking place now. This is easy to see too. The desperation is manifesting itself the same way. Well being of the automaker is placed on the gamble that high-profit guzzlers will continue to sustain the business. That will inevitably fail. Change is essential to remain competitive. Our president knows they are safer, knows they work well, and knows they are overall less expensive. He'll ignore all that in favor of rolling back regulations and encouraging consumption. There won't be any way to hold him accountable for the extensive damage that will be caused for future generations to deal with. The rhetoric will obscure most of that effort to undermine anyway.

8-21-2019 **Declared Failure.** Whenever something about Lexus hits the news circuit, rumor mill, or just gets a random stir, there is always someone to push the resistance narrative. Wanting to portray Toyota as if it has the same audience as Lexus is what makes that effort standout. It comes from GM having normalized the multi-target approach with Volt & Bolt. We never really knew who the market was. Having a distinct market for mainstream and a distinct market for luxury seems beyond the grasp of some... hence the continuous mantra of one-size-fits-all. I replied to today's post that claimed *"kicking & screaming"* with my own message. Remember how the initial worry with Volt was that it would struggle to achieve mainstream sales, resulting in GM abandoning it with the claim of no interest? No one seems to anymore... now that the concern has come to fruition. That's exactly what happened. GM simply moved on to their token EV without any looking back. All that *"range anxiety"* campaigning was for what? I kept my reply brief, hoping the hypocrisy trap would keep any type of retaliation in check: It's interesting to watch the *"kicking & screaming"* rhetoric play out as the herald leader, GM, did a *"declared failure"* rollout without anyone complaining.

8-21-2019 **Waiting For Profit.** It didn't work. Focus was simply diverted to another antagonist topic: "*Kodak and Blockbuster waited until there were sustained profits to be made also...*" That is also a hypocritical trap. There's no possible way anymore to claim Toyota is behind without acknowledging the lack of progress from GM. Exactly as predicted, no effort to reach mainstream consumers would be made. GM built a vehicle with no appeal to dealers. What possible incentive is there to stock Bolt inventory? We have been told directly from GM that Bolt will not be profitable until next-gen rollout. That means the next few years will remain stagnant. Without a tax-credit available, such a high sticker-price, the pressure from other automakers, and the lack of dynamic-cruise, lane-keep-assist, or super-speed charging, what's the draw? GM is clearly resting on its laurels. Looking at the bigger picture, seeing an effort elsewhere in the fleet could justify the stall. But there's nothing, quite unlike Toyota's push of hybrids across the entire fleet. So, I responded with another short post: Turning a blind-eye to GM doing that is what? The rest of us see how Bolt's push has stalled until profit can be made.

8-21-2019 **Intent Reminder.** It was a decade ago when the hype of pre-release for Volt when expectations turned into rhetoric. The reason why was simple... there was nothing to back the claims. Statements claimed as fact were meritless. There was no data. There wasn't even specifications yet. They had nothing. I got attacked when pointing that out. So, I tried to keep discussion focused on the business aspect. How many Volt does GM intent to actually sell? To whom? When? It was a push without a plan. Knowing the tax-credit was limited, it should have been obvious some type of plan would be necessary... otherwise, opportunity would be wasted. You want to build up demand to a sustainable level prior to expiration. The reason why is simple. After the 200,000 sales, phaseout is triggered. That switches the tax-credit availability from quantity to time, allowing the automaker to flood the market. It's an opportunity Tesla capitalized on and GM wasted... exactly as predicted. All that "*too little, too slowly*" concern I got relentlessly attacked for has been confirmed as valid. I am vindicated for having been sincere about sales. I really was the looking out for the best interest of business & consumer. Sadly, none of that history is remembered. Looking back, you get a very different perception of what subsidy use should have been. That's understandable, considering how much has happened with the plug-in market over the past decade. However, not recognizing the "2020" perspective (what an interesting cliché twist) is a very real problem. Technology changes. Technology improves. It takes time though and you must best use resources available for that period. I provided all that history summarized into: Intent of the tax-credit was to establish a technology, allowing each automaker to build up production & reputation by their own choosing at their own pace. The catch was to complete that process prior to triggering phaseout. Tesla did a wonderful job of that. GM simply abandoned their entire effort to blend engine with motor. Voltec was never spread to any mainstream offering, like Trax or Equinox, as was expected. That was a colossal waste of opportunity. Remember all that "*range-anxiety*" campaigning against EV choices?

8-22-2019 History Disagreement. It is intriguing to find someone disagreeing with you when they have nothing to offer in support of their claim. I have this massive collection of blog entries, written back at the time of those events playing out. That provides an incredibly valuable perspective, one of not knowing what comes next. When you already know the outcome, any reflection upon that history is distorted & bias as a result of that uncertainty having been removed. You must take into consideration material from that time, documenting what people felt & believed would occur. That's why the "intent" discussion is somewhat pointless. It teaches you how to make decisions about the future, but does not in any way alter the past. Whatever happened, happened. That's the way it is. Wise or Stupid, it doesn't matter. The outcome is not for debate. In this case, the demand & reputation for traditional guzzlers remained untarnished. Legacy sales continue as they did back then. Ugh. Annoyed, I posted: You can disagree with intent, but that won't change it. A decade ago when the tax-credit first became available, the market was different... hence the relevance of pointing out the bigger picture. Again, that bigger picture is important. The tax-credit is only for 200,000 vehicles. Focus on the highly profitable with annual sales much higher wouldn't appeal to the true customers, the dealers. True change (actual impact to the status quo) means focusing on the more difficult challenge.

8-22-2019 Overcoming Assumptions. Setting realistic expectations is a means of preventing assumptions. Problem is, people continuously supply misleading information. It never ends... which is why trolls thrive in certain venues. It probably isn't intentional. It just happens. But then they become addicted to the resulting attention. That's the problem I have now with a certain Prius owner who has decided the big forum is there for his entertainment, rather than being a source for exchanging detail about ownership and the market. When it becomes that, you know there will be trouble... since overall value is lost. Newbies don't find it helpful and stop participating. Sadly, that's exactly what our current president is doing too. Making people become disenchanted results in less pushback when he does whatever he wants. Notice how many tweets we actually get daily now. Ugh. It's just like posting. Quantity rather than quality is a red flag. That's why when you encounter comments like this, it makes you wonder how much disinformation was spread to give such an impression: *"I don't understand why Toyota doesn't add a plug to these models and thus gaining eligibility for government incentives."* There are only 200,000 credits available per automaker. So, there is no gain. The finite quantity cannot be changed. For that matter, eligibility doesn't require more models. The only option available is to seriously ramp up production just prior to reaching phaseout. That's where the assumption part comes in, which I stated as: How do you know Toyota isn't planning to do exactly that? It certainly looks like they are setting the stage for high-volume availability to happen the same time as triggering phaseout... which would make it ideal, since that is when the tax-credits switch from quota to unlimited. After all, that is what Tesla did with great results. Just because GM blew it by not having anything in place doesn't mean Toyota will do the same thing.

8-22-2019 **Constructive Questions.** Sometimes, you get lucky. My assumption response resulted in: "*Curious then what is your prediction for when they hit the phaseout and what models will they have in place in the US at that time?*" I appreciate that type of post. It shows critical thinking. Rather than attacking the messenger or attempting to draw attention elsewhere, it's a worthwhile question. Yeah! That's so much more than the usual nonsense, especially when the rhetoric is so brainless. To that, I gladly answered with: I have no idea. Toyota has a reputation for carefully monitoring markets and responding in its best long-term interest. I have been watching inventory of 2020 Prime models grow in the established markets over the past 3 weeks. The impression based on counts appears that sales are already off to a good start there. It suggests the same will happen as new markets finally get decent delivery. While that's happening here, Corolla PHV owners elsewhere will be providing data to gauge rollout potential in other markets. I suspect we'll get a PHV model of RAV4 first.

8-23-2019 **Watching Inventory.** I have been watching the ups & downs of inventory for the 2020 Prius Prime. It took less than 2 weeks for another 500 to become available as ready-to-purchase stock. That doesn't account for those sold during that same time period. So, I'm actually witnessing the number rise, then fall. The point is to see an overall growth. That's how I know the market reach is taking place. Sales are very important, but so is being able to reach new customers. That requires supply to be on dealer listings. The phone-app shows that data. It's quite handy. I can already see August will be a good month for existing markets. New markets (like the 500-mile radius from me, here in Minnesota) hasn't seen any growth at all. We have a dozen vehicles listed, all special orders. Not being part of the initial rollout regions was a test of patience. Getting 2020 models as the first ready-to-purchase stock is fantastic. Customers (as well as sales staff) will only ever know this newest offering. Not having any type of legacy to deal with has benefits. That means a bit more waiting. I suspect new region rollout won't begin until close to the end of the year. Oh well. There should be a few announcements/reveals in the meantime. That gives Toyota ample opportunity to see the stage while we wait too. Stuff like training at the dealers is quite helpful. Hopefully, that's what some of those special-order deliveries are for. It takes a bit of real-world exposure before you get enough experience to feel comfortable promoting something so new. In fact, that's part of the reason why Toyota decided to rollout to individual market schedules, rather than to the entire country all at once. Experts for training are limited. So, while I wait, I watch inventory grow.

8-24-2019 **Today's Future.** It has been interesting to read some impressions of what the future is expected to bring. I hear comments that have no basis upon any market effort. People just see a need and expect it to somehow be fulfilled. Who will do that, when it will get done, and how it gets paid for doesn't get addressed. They just figure it will somehow be dealt with. That type of "magic" is pretty common. It's the basic non-enthusiast perspective. Stuff just happens. That's why there's such a fascination with Prius. It simply works. The future is "today" regardless of when you start paying attention. This is something mysterious & questionable by early-adopters. Some now, especially as Tesla phaseout is well underway, just expect an effortless growth to take place. Catch is, it's not like Prius Prime. The discovery process isn't as simple as coming across one while wandering around at the dealer. Pricing keeps in the "someday" category too. In other words, stuff like this coming up randomly in discussions is how you know a new chapter has begun. Rhetoric of the past is fading away... hence, the future arriving today... for some.

8-25-2019 True Change. This was an interesting observation posted about a rather odd new thread: *"He sees all the competition... He just doesn't want to spend the rest of his life waiting."* What made it odd was the critical thinking. This was starting out as a constructive discussion. Woohoo! I jumped in with:

You have been enlightened and now sit at the doorway of early-adopters. It is a *"grass is greener"* situation. You see better choices, but don't have enough exposure to really assess what that really equates to.

Think about where I started 20 years ago. I was watching electrification struggle to break out beyond a niche through the PNGV (Partnership for a Next Generation of Vehicles) program, a federally funded effort to help research & deliver 80 MPG vehicles. Prius came about as a counter-measure as a result of that. Toyota's technology revealed just how difficult it would truly be to provide via choices for the masses. That's why GM was doomed to fail with Volt from the very start. I made a lot of enemies by taking on the enthusiasts who pushed aside real-world data in favor of hope. Their desire to embrace the idea of a miracle break-thru clouded their judgment to an extreme, enabling a group-think which ended with disastrous results. What a waste of opportunity.

Looking for actual merit in the advancement forward is rather disheartening, if you want a solution for the masses right away. Status Quo has remained intact, despite the successful rollout of Model 3 from Tesla. It's an amazing vehicle without any real influence of change for our greatest barrier, legacy dealers. Understanding how they are the true customers of legacy automakers brings about the next-level of enlightenment for you. Think about who the *"competition"* actually is.

Knowing that is how you will begin to see Toyota's *"death by a thousand tweaks"* will overcome the barrier. It's not exciting to watch the seemingly glacial pace forward, but it sure is assuring to know that there is no turning back. Toyota's electrification push is across the entire fleet. With the newcomers of Corolla hybrid and the seriously impressive next-gen Camry hybrid and RAV4 hybrid, that should be easier to see.

Looking forward, we can set focus on Prius. For anyone who has closely studied the history, starting even before the dramatic reveal of Prius back in October 1997, will know how much Toyota plans ahead and builds flexibility into their approach. We can see how the stage is being set for Prius to become a PHV by default. Having the plug be standard, and the no-plug optional, is that paradigm-shift many have been dreaming about for a very, very long time... except, it will then be realistic. 25 years is a freakishly long time for a consumer, but not from the perspective of an automaker. This is why *"know your audience"* is so important.

Toyota's goal is to deliver an affordable & robust design. That's why this generation of plug-in Prius has that rather awkward sized battery-pack, but has a tradeoff of production-cost being low enough to compete directly with other vehicles on the showroom floor... an absolutely vital aspect of true change. We won't see status quo budge until without that profit reality... which informs us as to the design for the next-gen Prius... a better fitting pack, with a modest capacity increase and faster recharging, at a highly competitive price.

That may or may not be the greener grass you are looking for, but it is certainly what legacy automakers need to move forward.

8-25-2019 True Leadership. My contribution to the discussion included:

Also, don't lose track of what true leadership is either. Unlike what enthusiasts try to convince us of, it's not about bragging rights.

Toyota has been quietly introducing unique gains to give them an edge later, when legacy automakers suddenly discover HSD is an very effective means of delivering PHEV choices able to compete directly with traditional vehicles without any subsidies.

It's amazing how often the carbon-fiber hatch and the dual-wave glass get overlooked. Both require very high levels of quality, something that takes quite a bit of effort to achieve at both low-cost and high-volume. Combined that with the refinement needed to deliver both a highly efficient traction-motor and highly efficient heat-pump, you've got a winning set of technologies beneficial to plug-in vehicles.

So whenever you seem to get a little frustrated, seeing greener grasses for enthusiasts, remind yourself how Toyota is quietly striving to get an edge on the larger consumer market as a whole. Their pre-work to set the stage, prior to the masses taking an interesting in plugging in, to prepare their entire fleet. That readiness of design we see in Prius Prime and Corolla PHV clearly demonstrate the massive amount of potential. It's not far-fetched to consider a plug-in model of RAV4 hybrid becoming enticing enough for dealers to stock them as regular inventory.

Unfortunately, just like all the other successes of the past, a great deal of patience is needed in the meantime.

8-25-2019 **Playing Offense, again.** Having history unfold in such a familiar pattern is fascinating. The repetition now is just like I remember from years ago: *"Anytime there's an article pointing out Toyota's failings in the EV world, John's boilerplate, anti-GM, regurgitations appear. It's his defense mechanism."* When absolutely everything failed with Two-Mode and it was totally hopeless, the attacks dwindled to just claims that I was really just out to get GM. Doing everything possible to avoid address any aspect of what GM did to bring about such a monumental fail is confirmation of positions having switched. The same thing happened again, this time with Volt. So, I started playing offense again. There's so much real-world data in my favor, why not? There's nothing new to spin. Every exploit has been exhausted. It's over, as I witnessed firsthand today. The attack was so desperate, I couldn't help but take the time to really push back hard. So, I did:

You clearly didn't actually read the article. Instead, it was choosing to attack the one who not only expressed concern about GM's impending failure, but also quite accurately predicted how it would play out. I was dead on about GM's squandering tax-credits for the sake of conquest sales... sacrificing Volt technology along the way, rather than establishing something able to achieve sustainable profit prior to triggering phaseout. Production has ended and there is no vehicle using that technology anymore for GM's own home market.

That combined with the obvious move Toyota is making toward electrification is making you crazy. Your beloved Volt, which you abandoned for a Model 3, simply could not compete with what Prius Prime was evolving into. Toyota had already delivered a superior system, more efficient with both EV and HV drive, in addition to delivering a more efficient system for heating the cabin. And now that the model 2020 has delivered a mid-cycle upgrade, the inventory build-up in established markets and rollout to new markets is too much to accept. Adding to that, we now here of an EV concept on the way from Lexus.

All those years of having to deal with that nonsense about GM being the ultimate legacy leader and Toyota being hopelessly behind is about to pay off. Your lack of patience and refusal to acknowledge the bigger picture will be a hard lesson learned... and I'm happy to play offense on this one. Go ahead, dig dipper into that pit of denial. What do you claim Toyota has failed at?

Remember, we aren't even out of the early-adopter stage yet. That means mainstream acceptance hasn't started yet. That stage is defined by competing directly on the showroom floor, traditional against plug-in, without any subsidies. Watch what happens with Prius Prime. That starting MSRP of \$27,600 is the dream *"nicely under \$30,000"* goal GM was never able to deliver.

8-25-2019 **Lexus EV.** There is something on the horizon. An article today posted about a reveal coming in October stirred the rhetoric. Right away, there was trouble. It usually starts from cherry-picking, to portray some type of narrative. That avoidance of the bigger picture (what a legacy automaker with do with the technology as a whole) is a clear sign. With the tax-credit phaseout underway, anything new is looked upon with fear. Status quo disruption is on the way. I pointed out what was going on with: As this becomes a post tax-credit market, most of that GM damage-control effort no longer has an audience. GM's heavy dependency on subsidies became undeniable. It's over. The technology was too expensive to be spread to other vehicles in the fleet. Two-Mode made that mistake. Volt gen-1 made that mistake. Volt gen-2 made that mistake. Not being affordable is a very real problem. That's what brings us to Lexus. It is a luxury brand, serving consumers willing to spend more. So, expensive is ok. That makes a hybrid like the Lexus UX 250h, starting at \$34,150, a sensible choice. Increasing battery-capacity and adding a plug still keeps it within the pricing of competitive scope. People looking to get an upscale plug-in SUV will find this, which sets the stage nicely for an EV luxury offering to follow. It's all a realistic path follow. Looking to the mainstream market, we see Toyota offering Prius Prime at a MSRP starting at \$27,600. That is well within the reach of ordinary joe-average customers looking for something from Toyota with a plug. RAV4 hybrid starts at \$27,850. Increasing battery-capacity and adding a plug will work well for it too. With Corolla hybrid starting at just \$23,100, the effort to deliver affordability is easy to confirm. No amount of rhetoric can hide that cold, hard reality.

8-26-2019 **No Chargers.** A new type of grocery/convenience store was built just down the road from where I live. It was to be a much smaller version of the grocery store I could see from my house, but at the same time quite a bit larger than anything you'd ever buy gas from. And yes, it also sells gas. All that, combined with an attached coffeeshop spelled great opportunity for that chain which already took pride in offering chargers right from the start. Problem it, those chargers also had issues right from the start. One had never, ever been usable. The construction crew accidentally painted the spot with the disabled markings. So unless you have a handicap placard, parking there is impossible. That meant one charger went to waste. I contacted corporate and got a convoluted response that was just a lame excuse to cover their mistake. Nothing ever became of it. Still not fixed. So, I had little hope of this new facility built from scratch in a corn field would be done to actually support chargers. Sure enough, opportunity lost. My first stopped, I was greeted by a manager. My comment about the lack of chargers baffled him. In his mind, it made no sense to stop at that location for more than a few minutes. I silently just pointed to the coffeeshop, waiting for the view of the seating there to register. He finally responded with an, *"Oh! I send that suggestion forward for you."* I didn't say anything. It was far too late. No new work after just finishing up for a grand opening would obviously happen. That premiere new type of store had blown it already. Ugh. That would have been a great way to attract new business, especially in such a competitive area.

8-27-2019 **Unintended Outcome... Plug-In.** My own response to this brought about an unintended outcome: *"Yes, but that begs the question: Why is the Prius no longer considered cutting-edge eco-conscious technology?"* It was that type of "halo" spin of the past that fueled much of the debate. Purpose of Prius was constantly being misstated for the sake of undermining goals. Knowing this was a general audience and a fluff piece about Tesla, the attempt to portray Prius in a different light was to be expected. I responded several hours later (waiting for others to comment in the meantime) with:

No, that was never a question relevant to Prius. Anyone who has taken the time to study the history (or even better, witnessed it firsthand) knows that Toyota's purpose for Prius was to bring an affordable solution reducing emissions & consumption to the masses. That's why the other hybrids have been just as important. Corolla, Camry, and RAV4 hybrids are all part of the stage being set for the next chapter, that look forward the article fails to address.

Those next steps should be obvious. But those who by into the "*competitive*" narrative are choosing to disregard the current chapter in history coming to an end now. That low-hanging fruit (subsidized early-adopter sales) have little reflection of demand from the mainstream market. Those consumers are entirely different. That's why Toyota has responded accordingly.

Prius Limited, Prius AWD-e, and Prius Prime (mid-cycle update) are those changes... all new offerings within the last 8 months. It's all about targeting showroom shoppers, Toyota's own loyal customers, not appealing to those who seek cutting-edge technology. Know your audience.

Put another way, Toyota is moving toward that paradigm-shift, when Prius becomes a plug-in standard. To achieve it, the technology must be proven mature, not cutting edge. Being able to deliver an affordable plug-in (meaning it can compete directly on the showroom floor, no tax-credit help) is something none of the legacy automakers have been able to achieve yet. It's the type of leadership the "*innovation*" crowd is still unwilling to acknowledge.

Watch what happens with Prius Prime as it rolls out beyond initial markets. Large areas of the United States have been limited special orders. That lack of inventory was Toyota's choice to delay until the mid-cycle upgrade, which began the last week of July. So, it's going to take some time to get supply even to just the initial markets. But it is quite clear there's demand for an affordable plug-in hybrid and the Prius Prime sticker at \$27,600 is about to test those waters.

8-27-2019 **Superiority, part 1.** I saw this and immediately detected trouble brewing: *"people have no concept of how loud their gas engines are until they ride in an EV. When i first started driving my Volt, the silence was eerie."* Being a post on a thread about the electric-car coming to age, it would inevitably attract a wide variety of participants. So, I carefully thought out how to approach the obvious absolute perspective that message was attempting to push. It was a good idea to keep the response short and to the point: Best to rethink that claim. The 12 million Toyota hybrid owners know. They discovered city & suburb electric bliss long ago, no plug necessary.

- 8-27-2019 Superiority, part 2.** He was either totally clueless or a Toyota antagonist: "*as they chug dino juice every day?*" That's a dead giveaway objectivity wasn't going to be possible. His mind was already closed. This had already become an example of the "*vastly superior*" attitude I dealt with on a regular basis in the past, the heyday of Volt... when enthusiasts just plain didn't care about facts. That was the birth of fake news in the plug-in world. A website became an enabler. They would repeat rhetoric so routinely, it created a narrative telling the story of a false reality. I was blown away how they would outright lie. Those naive to their actions would get sucked in, helping to spread the misinformation. It starts with efforts just like this. Again, I carefully thought out how to reply: Doesn't matter that gas is used to generate that electricity. Once the engine shuts off to use it, the driving experience is just like an EV. That smoooooth & silent operation has been inspiring consumers for decades already.
- 8-28-2019 Superiority, part 3.** Yup. I got my confirmation: "*doesn't matter that gas is used to generate that electricity. it matters if you care about pollution. Prius burns gas and pollutes every day.*" He clearly just plain did not care. He wanted to portray Prius a particular way, intentionally misrepresenting it. With the death of Volt, there has been an expectation of spin emerging to make it seem more than it was. The start of that comes from lowering the bar. Claims of Prius not being able to deliver any EV drive experience whatsoever is an obvious path to that deception... since it was a common claim in the past. Only then, it was about Prius PHV. But now that even the regular Prius can deliver even faster EV speed on the highway, there's reason for concern about how Volt is perceived. GM had potential, but ended up squandering for praise instead. What a waste. I posted back with: That has nothing to do with the topic of experiencing EV drive. That also attempts to misrepresent Prius by omitting the fact that the Prime model is an EV for the first 25 miles... full electric-only driving up to 84 mph.
- 8-28-2019 Superiority, part 4.** He then got angry: "*Sure it does. You will be polluting most every day via the gas guzzling Prius, especially in winter. It is called a fact, ALL versions of the Prius guzzle gas and pollute the environment. Prius owners are virtue signalers.*" That attitude was easy to detect at that point. The insult to ALL owners of Prius made it undeniable. He wanted his superiority to remain untarnished. I was threatening his position. So, it was time to push back: Typical, changing the topic upon getting caught trying to mislead. Prius Prime (the plug-in model) dramatically reduces pollution to the environment. Entire commutes can be done using nothing but electricity, including winter. It delivers EV speed up to 84 mph and has a heat-pump that will electrically deliver warmth for the cabin in temperatures down to 14°F. Claims of virtue are an attempt to evade those facts by twisting it to an ALL absolute. Again, they discovered city & suburb electric bliss long ago, no plug necessary.

- 8-28-2019** **Superiority, part 5.** No surprise. It got quite a bit worse: "*typical, a Toyota propagandist deflecting the fact they have no EVs and all their cars and trucks are destroying the environment. Where are the fuel cells? ROFL!!!!*" The back & forth had become a great example of nonsense just like I had to deal with in the past. It was history repeating itself all over again, again. I always find that repetition fascinating. There's an aspect of the human existence which people tend to follow. It can be remarkably predictable. They refuse to acknowledge facts not in support of their beliefs and respond with insults as a defense. Efforts to change the topic are nothing new. That's been done for ages. Catch is, there is now a term for it. That label coined for such behavior is the "*What about?*" technique. Belief is sighting something else that is worse will forgive whatever issue is being discussed. That's classic evading, now with an means of drawing attention to the effort. I wrapped up the posting with: Thanks for providing the "*What about?*" example. That literally has nothing at all to do with the topic of experiencing EV drive.
- 8-29-2019** **Superiority, part 6.** Sure enough, there was no response. He gave up the fight. I called out his attempt to mislead. It served as a great reminder of how rhetoric persisted for so many years. There was always a hope of squashing early-adopter competition by false pretense. That was a bad sign, evidence early on that Volt would face serious challenges. Overcoming them never, hence its death. Spin will lead you to believe that wasn't way. But there's simply no way to justify such a massive investment in technology to blend engine & motor only to abruptly abandon it mid-cycle without any means of succession. No passing on to a preferred platform, like Trax or Equinox. GM just let it die when there was no longer any means of sustaining what had been given the impression of superiority. Having such heavy dependence on the \$7,500 tax-credit was overwhelmingly clear evidence of not being "*vastly superior*". Nonetheless, this owner felt the need to defend it. 12 years earlier, I sighted concern for the "*trophy mentality*" ...and that's exactly what kept it from making any progress. My ask of "*Who is the market for Volt?*" was on-going confirmation of a vehicle unable to reach the mainstream audience. To be superior, you don't have to do anything fancy. Prius introduced EV driving to a large population, period. It did. That's a fact. I enjoyed "*Stealth Mode*" a little over 19 years ago. No plug necessary.

8-29-2019 **That Attitude.** It lives on, despite Volt now being dead. Sadly, that makes it even easier to mislead about. Detail like how poorly it was loaded with safety features compared to Prius Prime is very difficult to show or even draw attention to. So, there will be a lot of assumptions in that regard. Fortunately, most enthusiasts never bothered with items on that level. They stuck to the basics. For example: "*You must have missed the 160k+ Volts sold over the years.*" Reading that today was annoying. It reminds me of the tax-credit for Prius, which was half that, was only for 60,000 vehicles, and remaining available at full value for only 9 months. That's a significant difference often evaded from discussion in the past. So now that this is in the past, I suspect it will too will be ignored. I'll keep providing the detail anyway: All heavily were subsidized. GM exploited the \$7,500 tax-credit opportunity for conquest sales... none of which impacted the status quo. Their dealers still push as many traditional SUV and Pickup guzzlers as possible. Notice how the technology was simply abandoned as the subsidy phaseout approached? It was a massive opportunity wasted. Just imagine if GM had actually rolled out that design to a Trax or Equinox. As for the narrative about a Prius coffin, you in for a big surprise. This year brings about a new look for the regular hybrid, a mid-cycle update for the plug-in, and an AWD model. Combine that with MSRP low enough to compete directly with other vehicles on the showroom floor, it reveals the game is far from over... quite unlike what happened with Volt. Think about how many sales each automaker has each year. Notice how insignificant 160,000 over 8 years really was? It's important to keep focus on the bigger picture, how much true change is actually taking place.

8-29-2019 **Electric Car Age.** An article with that title was published today. This was among the first comments posted: "*It amazes me how much the average person overthinks and complicates the whole EV purchase...*" That's ironic, since the typical guzzler purchase is basically with little to no consideration. How many people do you know of who didn't focus on other detail of there purchase decision? What any technical aspect of the propulsion system even considered at all? If so, did that decision of engine size take more than just a quick glance at the window-sticker? Heck, I've known countless people who didn't even take that much time when choosing not to get a hybrid. It was pretty much thoughtless. That means the plug choice must be with a simplistic approach if you want to appeal to ordinary consumers. The whole KISS philosophy is priceless advice. I responded to that comment accordingly: Actually, you are also overthinking it. Reality is, the average person will notice whether or not is has a plug. If interested, they'll ask if it is one of those with an engine back up. That's all. This is why I continuously state "*know your audience*" as a vital bit of information when discussing the post tax-credit stage, where major growth without subsidies is essential. Reaching mainstream consumers is dramatically different from enthusiasts, which means that growth us going to be far more difficult than simply appealing to early-adopters.

8-30-2019 True Growth. How many times you seen a variation of this: *"ICE sales are in the early stages of collapse, a situation that will not be helped by any upcoming recession. EV sales are booming with a growth rate..."* The understanding of statistics has been a fundamental problem with hybrids right from the very start. So, it goes without saying plug-in vehicles will face the same challenge... if not more so. Still to this day, 20 years later, many people have no idea the MPG measurement is fundamentally flawed. That's why most of the rest of the world doesn't use it to measure efficiency. In fact, that's why the *"kWh/100mi"* rating for electric-only operation was introduced here... to overcome that flaw. Sadly, many EV owners don't understand it still. Anywho, those are common examples of how numbers can be misinterpreted. Data alone isn't enough, as I attempted to point out: Don't allow percentages or subsidies distort expectations. It's more informative to look at actual quantities instead, especially those post tax-credits. The initial boom is low-hanging fruit, catering to enthusiasts. Shakeup of some sort as that stage comes to a close was anticipated. Tesla will likely plateau. GM and Nissan are already there with their EVs. GM's entire plug-in hybrid appears to be dead in all but the market for China. And we are in a holding pattern for VW. As for legacy automakers seeing a threat from EV, that doesn't make any sense. It's the need to end dependency on oil and the need to reduce environmental impact, not battery operation. In fact, the reverse is likely. Growth opportunity in the plug-in market will be their path to survival. How some legacy automakers travel that path will be interesting. Each will end up taking a different route. There's a massive potential for reaching deep into the mainstream to come from Toyota. Plug-In hybrid models of Corolla and RAV4 present strong potential, as Prius Prime is about to soon demonstrate with its mid-cycle update rolling out right now. It basically comes down dealer appeal. If you can draw showroom shoppers with very little effort, without sacrificing profit, you've got a winner.

8-30-2019 Ford Explorer Hybrid. The 2020 model will introduce hybrid tech to a platform which should have got it well over a decade ago, following Escape hybrid. After all, Highlander had a hybrid model, even as the platform continued to grow in size. In fact, next-gen about to rollout in February. Efficiency bump is anticipated to be in the mid-30's too. That makes today's reveal from Ford a bit of a head scratcher. 25 MPG is the combined rating for the AWD model. How is that competitive with anything? It's somewhat bizarre how the automaker thinks premium for a hybrid system is worth that. Of course, this is for the domestic market here in the United States. Over in Europe, a plug-in hybrid model is on the way. With a 99 horsepower electric motor, it won't be as EV centric as Prius Prime with a 91 horsepower, since Explorer is so much larger of a vehicle. Oh well, at least it's something.

- 8-30-2019** **1,000 Posts.** End of tomorrow will mark 3 weeks since he hit the 80,000 post count. This morning, it was already up to 80,966 total posts. That's an average of submitting 48 responses per day. He's posting so frequently, content is beyond lacking. It's just mindless clicks at this point. No one else comes even remotely close. I get really annoyed when quantity is valued over quality, especially at such an extreme. More is not better. All that activity on his part takes away opportunity for others. It's one of those lessons which should have been learned in kindergarten. You know, sharing. Ugh. I'm glad others notice how much he was altering the dynamic of participation. (That's a polite way of stating he has become a troll.) Overwhelming a forum with thoughtless banter brings down its value. Those looking for a venue to actually gain from the sharing of observations & experiences have a harder time finding it when so many posts contribute nothing to the thread. I know, my complaints do little. He clearly has no intention on posting with any type of critical thinking. However, there is an ignore feature. So those that do find so many unconstructive posts a pain to deal with can simply make them invisible.
- 8-30-2019** **Unrealistic Expectations, criteria.** Here we go again: "*If they can bring EVs with 200+ miles range, 125KW, and prices in the low \$30+K range...*" I know this is going to anger some Volt owner. It's inevitable. Goal setting was a fundamental problem for them. They'd measure success with arbitrary values. What are they basing those requirements on? 300 miles has been the distance to match for over 2 decades... since that was the basic minimum back in the 90's. I remember being satisfied with 300 back then and blown away when hitting 500 with my first Prius. Now, automakers include a massive tank to deliver similar range. (18 gallons at 30 MPG is 540 miles.) As for the charging speed, most consumers have no idea what that number means. Heck, even many EV owners really don't know what that equates to in terms of time needed for a full charge... or even partial. Price? Really? How are you going to convince someone looking for a sticker-price in the 20's that spending so much more up front is really worth it? That's incredibly difficult if the person simply scans the showroom floor to reveal there's only 1 plug-in choice offered. That's not a good endorsement. Think about what RAV4 hybrid is selling so well now. Everyone knows about Prius, but many would prefer the technology in a different body style... and such a popular SUV presents a golden opportunity. That's the ideal for attracting those who would not have otherwise been interested. Paying a little more up front delivers effortless efficiency gain, without requiring the exchange of any knowledge. The consumer already knows a plug isn't required. That's why adding a plug to Prius first sets the stage so well for a plug-in hybrid model of RAV4 later. It's the same pre-education effort... the very thing that was recommended to GM with Volt. Just think about how popular a plug-in hybrid Trax could have been. Oh well. That is what happens when you set unrealistic expectations.

- 8-30-2019 Unrealistic Expectations, familiar.** My response to the nonsense (lack of critical thinking) was as follows: That sounds painfully familiar. Remember 12.5 years ago? There were similar categories of criteria, setting expectations for a paradigm shift. If this could happen, this would result. Unfortunately, that placed the bar too high. There was no way it could realistically happen. And as we all witnessed, GM fell well short of that criteria. Seriously, how is the situation with VW any different? A small, expensive car doesn't stand a chance in this market, the land of giant guzzlers. Success in Europe means what for the VW business here in the United States. For that matter, how will success be measured? There's a profound difference between appealing to enthusiasts and actually changing what loyal customers purchase. Seeing a real effort being made with ID now is what was said about Volt prior to rollout. It was to be the start of real change; instead, it became a popular niche among early-adopters. The end result was production ceasing and no change at all to the status quo. Keep in mind how much effort there will be to fight plug-in progress. The technology achieving certain specifications is far from enough to get people to switch their purchase preference.
- 8-30-2019 Unrealistic Expectations, hype.** You want a great example of it? Go no further than GM's homepage. Oh my! It's all loaded with hype. There are several promotions for AV (Autonomous Vehicle) and EV (Electric Vehicle) technologies, making it appear as though that's the dominant product for the automaker. When you try to get actual vehicle information by clicking on the "Brand" link, a photo of Bolt covers your entire computer screen. (On a phone, you have to scroll down to see the rest of the image.) Then when you finally click on "Chevy", you see nothing but guzzlers... Silverado... Corvette... Blazer... without any trace of efficiency offerings. In other words, if you go directly to the Chevrolet homepage instead of GM, there's no trace of Bolt. I found that discovery fascinating. I tried the same for Hyundai. What a profoundly different experience. It was a variety on the homepage, a wide selection displayed up front. I tried the same and got the similar results with Honda, Toyota, Ford, VW, BMW, Nissan, and Chrysler. The hype we get from GM is very much a standout. That's why when I recognize the pattern repeating, I point out those red-flags right away. Enthusiasts of GM have been the enablers, allowing ambiguous releases to fuel hype, resulting in unrealistic expectations being set. This is why I pushed so hard for goals over the years. Enthusiasts would declare victory, sighting success on measures without any accountability. They simply claim that measure achieved had been goal all along. When it reality, it fell well short of what had been hoped for. That formula for disenchantment is what doomed Volt from the beginning. That's why there is concern now about the same emerging for EV merit. Rather than consider what mainstream buyers will actually buy, they fixate on values are somewhat arbitrary. Remember the "40 mile" expectation?

8-31-2019 **Android-Auto.** The process is beginning. 2020 Camry will get it, but detail hasn't been provided yet. There was only a vague mention, enough to stir discussion. I suspect that is in preparation for the upcoming Auto Show circuit. Those types of "*it's coming*" announcements are common practice to raise awareness that preparation is underway for reveals. I get frustrated at times with those online who pride themselves for being well informed, but don't actually bother to demonstrate critical thinking. They fall into the trap of assumptions. Ugh. Usually, it's the quest for detail that drives participation online. But sadly, fallout from propaganda of the past... like Volt hype... lowered the bar so much, there isn't much call for merit anymore. Vague is accepted as enough. That's why I get attacked when pointing out assumptions. People don't like when you draw attention to the fact that they made have made a mistake. In this case, it's an oversight related to what is actually included in the infotainment suite. The assumption continues to be that navigation will be the centerpiece of the system. No where has that ever actually been stated. That's a problem. I pointed out that missing detail asking how the HUD would be integrated: Navigation instruction not provided via the heads-up-display would then appear to be a rather major oversight. Those not understanding why Toyota didn't switch years ago now have an additional complication to consider. Loss of a feature, especially one that useful, isn't a good thing. We all know Toyota waits to do it right, rather than rushing to market like some other automakers. It's like any other type of upgrade. There are tradeoffs. Short-term gain can result in a long-term setback or an additional cost later.

8-31-2019 **Understanding Software.** More and more, it appears most people complaining about the lack of Android-Auto from Toyota didn't include any real thought about what that actually would require. That's based on the assumption I keep encountering with regard to navigation. People expect that to be the heart of the infotainment system... hence the seamless integration everyone desires. Doing that would mean customization to get the HUD (Heads Up Display) to present driving instruction. Those distance & arrow illustrations would be lost without some extra programming to work with the projection hardware. This is why first waiting for the software switch from phone-centric to car-centric was so important. Work could not even begin until that new platform was delivered. It simply made no sense trying to adapt deprecated coding. I kept my response less technical though, attempting to provide a simple analogy to help with the understanding of the software involved: Let's not forget how new large data plans are to most people. Being restricted to just a small amount or not even having data, was the norm prior to the last few years. In terms of vehicle ownership, that's extremely recent. So, there wasn't really as big of a market as those sounding off about falling behind actually made it out to be. People simply weren't in the mindset of bridging to their phone yet, which meant the benefits of doing so were still an unknown to them. Experience with Bluetooth should make that clear. Notice how many here complain about Toyota's software only to find out their phone is extremely old? Knowing that, it makes no sense rolling out any faster. You end up paying for it from having to deal with fallout from that older tech. My own experience is finding people at home having issues because they are still using a very old router. So even though their modem is providing great speed, the signal over Wi-Fi is severely impaired, resulting in a terrible user experience. As a software engineer for over 25 years, I'm well aware of how painfully long adoption of applications truly takes. You may get the user to upgrade, but that in no way means they will actually use the new features you provided. In fact, more often than not, they won't. Toyota is obviously also aware of that problem. Most customers embrace change very, very, very slowly.

9-01-2019 Horribly Inaccurate. Makes you wonder what the intent was upon reading an article so inaccurate. Was the misleading content intentional or did the writer research so poorly he was basically clueless? This was the title that caught my attention: *"Is the plug-in hybrid beginning a long goodbye?"* It posted July counts and arbitrarily compared them to 6 months ago. That's a bizarre metric. Seasonal cycles distort number naturally anyway. That's why everyone else uses annual comparisons. Anyway, this is what made me sigh: *"The plug-in hybrid came to Americans' attention in 2008 with the introduction of the Chevrolet Volt. Unlike prior hybrids like the Toyota Prius, which relied on a gas engine with a battery backup, the Volt reversed the formula and depended first on an electric motor that refilled by plugging in. That battery could power a trip of about 25 miles, after which a supporting gas engine would kick in."* It was a long-winded claim with false information. Ugh. The year was 2007 and the promoted distance expectation was 40 miles. It was the following sentence that clarified the writer's purpose: *"Fast-forward to this year, with all-electric models like the Tesla Model 3 and the Chevy Bolt gaining traction, and the outlook for plug-in hybrids is hazy."* That's not a fast-forward. If it had been, mention of the much anticipated mid-cycle update of Prius Prime would have been included. Also, Bolt sales have been terrible, dropping not gaining. Nothing about Leaf sales struggle is a dead giveaway either. This was clearly a propaganda article. Cherry-Picking like that makes it un-debateable. The clincher, though, was the close of the article: *"In July, Tesla Inc. sold more than 13,000 Model 3s, more than four times as many as the next most popular electric car, the plug-in hybrid Prius Prime."* Lack of regular 2019 inventory to make way for the updated 2020 model is good reason for sales to be lower. Though, some select dealers took advantage of the clearance opportunity, so there was actually a very short-term spike. It all comes down to sustainability in the end anyway. Volt was doomed due to its limited reach. There were only so many early-adopters interested in a conquest purchase. Tesla had a much larger audience, but there is uncertainty of what level sales will settle at. A single offering isn't enough to sustain the business as a competitive automaker either. Tesla could end up relegated to being a specialty vehicle without a diverse product-line. Toyota, on the other hand, is quite different. We already see Prius & Corolla as plug-in hybrids and expect RAV4 to eventually become one as well. Needless to say, I was quite annoyed with the propaganda stir. It's some of the same old nonsense emerging, yet again.

9-02-2019 Properly Selling It. That infotainment upgrade is stirring a new category of discussion. Most people have no idea how to market something. Enthusiasts of the past I battled with for over a decade learned that process the hard way, in a very painful manner. It's not like I did try countless times to share insight. They just plain didn't want to listen. So when I see that same behavior playing out again, I have to wonder what the outcome will be this time. Today, it was: "*Android auto is amazing. I use it on my phone which is mounted next to the useless 11-inch screen...*" It went on from there, but lacked substance. I provided this in response:

You see what makes Android-Auto better, but misrepresent the built-in screen to promote it. How is that actually constructive? The preferred means of conveying that better message is to point out why it was worth waiting for. What improvements does the interface switch from phone-centric to car-centric bring to make it a compelling choice to say goodbye to the existing interface? This is very important when it comes to upgrades, since some existing features people like will change. You want to make the tradeoff so appealing, the user welcomes it.

Fundamental shortcomings in the way people promote change is a very real problem faced in the automotive market. Look at how disastrous Volt was. The way GM handled that technology upgrade basically doomed it from the start. They had no clue how to draw interest. That "*230 MPG*" campaign collapsed almost immediately. The "*40-mile range*" campaign fell apart when real-world data was finally revealed. The "*1000-mile tank*" campaign lacked any type of cohesive message. And of course, the campaign to claim superiority to Prius depended upon outdated information.

See what was in common with each of those failed campaigns? None of them stated provided a clear ultimate goal. What exactly is the overlying purpose of that technology? Without understanding that big-picture intent, it just becomes a boondoggle to the consumer. Don't forget how powerful that "*good enough*" attitude can work against you. Why would they bother when it appears the existing system is working just fine?

9-03-2019 **Soon.** The wait is almost over. Sales results for August will be posted tomorrow. It will be the first month when the mid-cycle update to Prime was actually available. Though limited to those initial rollout markets still, it's the step forward everyone recognizes as an obvious improvement. Toyota's stance within the affordable-for-all category is becoming very difficult to deny. This comes at the same time as GM is about to face another 50% reduction of tax-credits due to the next stage of phaseout being reached. That puts them in a position where attracting loyal customers to Bolt is basically impossible. Their hope-for-the-best strategy is beyond excuses. It failed, miserably... which begs the question... will Toyota finally get recognized for perseverance of patience? Rather than give in to conquest like GM did, it was a matter of refining technology and holding back ramp-up until it could reach the right audience. There's no way to argue Prius doesn't target Toyota's own loyal customers. But now that enthusiasts see Corolla PHV doing the same thing and the potential RAV4 PHV could have, it's time to move on. The trophy fight is over. Only early-adopters cared about the supposed "*leadership*" within the stage of subsidized sales. Very soon is when the true race begins, the one to win the hearts of ordinary consumers in the form of actual change to the status quo... when we witness plug-in offerings replacing traditional offerings. When that inventory on the dealers lot begins to embrace change, clearly moving beyond just being a niche, we can call it a successful next step. The first big moment in that next stage is about to happen... very soon.

9-04-2019 **Real Impact.** This was interesting: "*Get ready for year-over-year monthly declines until something changes. The 2020 Bolt EV will help a bit, but both GM and Tesla are going to struggle to really make an impact unless their full Federal Tax Credits are restored. Outside of the Bolt EV and Model 3, the only really compelling EVs are either too expensive or too limited in availability to see high-volume sales.*" Notice how far we have come away from cannibalize comments? That concern of automaker choices competing amongst themselves was given up so long ago, most people have forgotten that was actually the point. It wasn't conquest. Group-Think has become so bad, they have completely lost touch with goals. This is why I was so hard on Volt enthusiasts, asking for that very think. Clearly state what the objective is. You wouldn't expect such a constructive request could erupt into a personal attack. I just wanted to know why the design was being promoted. What was it to achieve? Ugh. Having no clue anymore what it means to make a real impact, you don't stand a chance of moving forward. Which direction is that? In other words, where do you want the technology to take you? They obviously don't know. Efforts to scope a points has obscured what the race is all about. I keep trying to get them back on track with the reminders: To make a "*real*" impact, sales cannot be subsidized. It's all about changing the status quo, which means competing directly with vehicles people find on the showroom floor. We're stuck in the early-adopter stage until that happens. Realistically, if there are new tax-credits, they should instead be used for installs/upgrades to where people park overnight. Once a household/apartment gets a that 240-volt connection, purchasing something with a plug or something with more capacity is a no-brainer.

- 9-04-2019** **Purists Fighting.** The idea of absolutely no gas consumption is an interesting one. Those pushing it couldn't care less about how their electricity is generated or how efficient their electricity consumption actually is. They just try to demonize all vehicles that having anything more than just a battery for supplying power. Stuff like this is really starting to stand out: *"You still contribute to accelerating global warming. So you do make a difference for the worse. That is the inconvenient truth about hybrids. They are not zero emission and that is the problem."* It's becoming a real problem for those simply trying to end the reign of traditional guzzlers. The idea of transition is unacceptable. The discussion of electricity source is unwelcome. They only support EV purchases, period. I keep my responses to them brief & bitter: That short-sighted attitude is how efforts are lost.
- 9-05-2019** **Drawing Conclusions.** When the time is right, you'll know. Sales don't tell you that. They only inform you the technology itself is worthy. That's why the long enough claim is pointless: *"The point is that hybrids are *not* "reaching the masses" although they have been on the market far longer than attractive BEVs. I know more pure BEV drivers than hybrid drivers, and sales speak for themselves. You would be right if 20, 30, 50% of all cars were hybrids by now. They were around long enough."* Remember the difference between want & need when drawing conclusions: Prius Prime isn't even available nationwide yet. So that vague "reaching the masses" with a generalized "hybrids" claim is pointless. Reality is, the \$27,600 starting MSRP combined with the mid-cycle update rolling out now is that formula for reaching the masses. Toyota waited until the heavily-dependent-upon tax-credit Volt was no longer a market impediment before even bothering. It simply made no sense to, knowing GM was only just milking market for conquest sales. And with an end so predictable (phaseout trigger), it was easy to set the stage in the meantime with the introduction of Corolla hybrid & PHEV along with the upgrade to RAV4 hybrid. After all, what reason would there have been for rushing to market?

9-06-2019 **Falling Japan Sales.** Nissan Leaf is struggling. There are a variety of reasons why, especially here. But over in Japan, influencing factors are uncertain. So, we're having quite a discussion about that related to August results. Naturally, the topic grew to include Toyota... and the "falling behind" narrative: *"Toyota say BEVs are no good and that fuel cells are the future and unfortunately Japanese consumers buy into that absurdity. Japan's auto industry will be destroyed in the coming decade as they will be too late to the BEV transition to be able to catch up."* Even the term "BEV" reveals evidence of the push for a specific technology, rather than just embracing EV propulsion in general. The "B" is for Battery. And type of on-board generator is looked down upon by purists. It's really turning into a counter-productive issue. And since they refuse to even listen, I've given up on the hope for any type of objective response. So, replies are for the sake of conveying information to lurkers: Pushing that narrative becomes harder and harder as the rollout of Prius Prime continues. Even with inventory in the United States limited to just half the regions, growth of demand is undeniable. When the center and southeast of the country finally gets supply, the plug-in push will finally be underway. Of course, the announcement back in June about Toyota introducing 10 BEV models in the early 2020's should have put an end to the FUD effort anyway. That's 6 global models coming based on the e-TNGA platform. Those are all-electric vehicles spanning a variety of vehicle types & sizes. In other words, what you claim Toyota is saying simply isn't true. In fact, their plug-in aspect resembles the approach VW is taking. The fact that Toyota is also pursuing fuel-cell vehicles is called product diversity. They are an automaker not putting all their eggs into a single basket by spreading risk and offering choices. Lack of patience and the hope readers are not well informed is what some here hope to exploit.

9-07-2019 **Fighting Design.** Problems like this are quite common. What for key phrases, such as: "...it can be really helpful." Drawing a conclusion requires detail to support it. We didn't see that; instead, it was an inquiry that turned into a debate without substance. It's surprising how things like that get out of hand. Newbies fall into that trap. As well informed forum participants, we do our best to provide insight as to why the conclusion is incorrect. That happened this week with a question of whether or not owners put an additive in their coolant to reduce temperature. Having never even encountered such a product, I suspected that was something for people who race or use heavy-duty equipment. This was my post, with the hope of bring the posts to a close:

Fundamentally flawed assumptions are very much a part of Prius's rich history. The first of which was that more EV (engine off) driving, the better the efficiency. That may seem wrong now that there's a plug-in model and faster EV speeds, but back when there as only the regular hybrid, we would routinely see new owners attempting to squeeze out as much EV as possible. They didn't understand that the gas-engine provided electricity could return higher overall MPG when blended instead.

In this case, the assumption is that more heat is bad. Informed owners know that Toyota went to great lengths to provide a system that generates as much heat as possible as fast as possible. Heat is necessary for cleansing emissions. It is also used to warm driver & passengers. The higher temperature is an essential element of the hybrid system. Countering that by adding a chemical agent to reduce temperature will fight the very design Toyota strived to deliver.

You may have grown up and been taught that maximum cool is very important. In fact, that may still be true for older technology. It is not for the system in Toyota hybrids though. Acts to override intended configuration will result in a penalty. With this additive, the system will have to work harder to reach & maintain expected operating temperature, resulting in lower overall efficiency.

9-07-2019 **Familiar Attacks.** Looking through the long series of posted comments on the August sales article, I found this: "*PHEV with less than 20 miles of AER are pure horseshit.*" With such a wide audience on that general EV venue now, rather than the daily blog for Volt in the past, there's hope of trolling success with that same old bait. I'm curious what the results will be now that GM's supposed plan to abandon Volt in favor of Bolt is proving to be yet another "*over promise, under deliver*" situation. I combat those efforts with facts. Today, it was: Notice how the topic of "*kWh/Mi*" is rarely ever mentioned and an arbitrary cutoff value is brought up instead? Seriously. It is really unfortunate the guzzling of electricity gets a blind-eye but the topic of small capacity gets the spotlight. Enthusiasts of Volt hated the inconvenient truth of their prized vehicle delivering an EV rating of "*31 kWh/100mi*" compared to Prius Prime at the much more efficient rate of "*25 kWh/100mi*". They'd do everything possible to draw attention away from that to focus on range instead. Since when is using a lot of electricity less impactful to climate change than a system with EV drive which strives to deliver the most efficient means of electric travel? Wasting cleaner fuel is still waste. Most electricity does not come from carbon-free sources anyway. If an person buys a PHEV with a small-capacity battery but mostly drives within its EV range, how can you criticize that with a profane label?

9-07-2019 **Get With It!** That demand from a "*gotta laugh*" comment about the speed at which progress is taking place was yet another one of those individuals not considering the big picture. It was a continuation of understanding the difference between want & need. Enthusiasts don't ever really get it. That's why I had so much difficulty in the past trying to have constructive exchanges. Their priorities were focused on desire, not necessity. That interferes the understanding of change and recognizing challenges. That's why the rush to market can be futile. Not being properly prepared has consequences, as I try to point out:

How is that different from other legacy automaker schedules? Mainstream impact is many years away still for all of them. For that matter, why must progress be measured in any particular manner? Change of the status quo is still change. If a compliance offering leads to a for-the-masses offering, great.

Consider the approaches from the non-luxury choices. GM is well known for "*over promise, under deliver*". Volt didn't lead to any actual change, the plug-in hybrid technology was just abandoned. VW is a lot of talk now, seriously lacking sustainable substance. Their building of hope seems realistic though. Most enthusiasts can't stand Toyota's focus on moving their entire fleet forward, rather than focusing on extremes. But their opinion means little with regard to ordinary consumers. There's a good outlook from Hyundai/Kia, once they are finally able to increase production.

In other words, debunking myths is just a start. There is far more to address when it comes to being able to reach showroom shoppers. Remember, the point is to achieve sales able to compete directly with traditional choices without incentives or subsidies.

9-08-2019 **Advertising Campaign.** We are starting to see both television & online advertisements for the new Prius, specifically the AWD model. With a refreshed look and that ability to handle snowy conditions better than a typical sedan, there's new opportunity. The commercial I have seen repeatedly already features a drive on a snow-covered road where the available roof-rack is taken advantage of to transport skis to a mountain resort. It's a compelling ability most people probably wouldn't even consider. Thinking of a Prius as something for recreation like that isn't typical. Promoting that helps to draw attention to the new look too. For those who haven't been paying attention, they're a new audience. Hopefully, it will aid with the redefine of car choices. Seeing sedan options fade away is rather odd. But as the RAV4 hybrid continues to confuse messages by becoming a new crown holder for mainstream efficiency by delivering 40 MPG, despite being a big midsize SUV, there's a growing need to highlight what Prius still has to offer. This is especially important, since Prime is preparing to step into the spotlight.

- 9-09-2019** **Discontinued Support.** We get word every now and then about a charging-station having issues. It is usually because the parking-spot is often abused by people who just plain don't care. Some are traditional vehicle owners who feel plugging it isn't important. Some are plug-in owners who feel the same way. The latter is especially disturbing. When they park there but don't bother to actually use the charger, it sends a terrible message to everyone. In every case, we don't get squat for support. There simply isn't any input from whomever oversees the well-being of the chargers. Other reports related to support are about vandalism. I know of several chargers that the handles have been broken in a way that would never happen from actual use. It's quite obvious someone smashed the latch intentionally. Sadly, that sometimes ends up becoming news of it getting removed. The expense of repairing or replacing isn't ever part of the plan. That's why new of upgrades is on the level of miraculous. It almost never happens. Installing more is a rare event as well. Older charging-stations simply vanish. Hopefully, that will change... someday.
- 9-10-2019** **Upgrades.** There's a lot more to the upgrade of the infotainment system than people realize. Aspect ratio of the screen is yet another impact that had been overlooked. It's a reality that makes the hope of retro-active updates a problem. Some features simply won't fit. So, some of the new convenience improvements can't be taken advantage of. That hardware verses software difference is what being backward-compatible means "it will work, but not entirely". That isn't all bad though. Knowing new the design of Android Auto is auto-centric makes it a worthy upgrade. Phone advocates should take note. They don't though. This is why things get overlooked. Another example is wirelessly connecting. Did you realize most phones won't get. That upgrade is still to come. Having to plug in with a cord each time is easy to dismiss as an inconvenience while arguing online. But when you get in the car to drive, that's an entirely different matter.

9-11-2019 **Abandon Spin.** I liked coming across this: *"Toyota becoming the "standard" for PHEVs when pretty much every other auto maker is abandoning PHEVs in favor of putting all EV development money into BEVs?"* It's a statement ending with a question-mark. What is that supposed to actually mean? Having an outcome of misleading is the point. Antagonists make efforts to feed a narrative. You only notice it when stepping back to look for patterns. The consistent message of abandonment becomes obvious then. The easiest to see late last year was when GM announced the end of Volt production. The message conveyed by enthusiasts was solidified, GM would embrace Bolt as their one-and-only strategy forward. EV, the very antithesis of EREV, would become the new standard. It was easy to claim when nothing was actually happening. The entire world was watching Tesla, since it only had a few weeks remaining of full tax-credits. But now as GM is also in the phaseout stage of tax-credits, the situation looks much different. That heavy investment in Volt technology was for what? Nothing changed at dealers. In fact, the dependency on SUV and Pickup sales to sustain the business is becoming a critical liability. Union strikes are expected as a result when negotiations officially begin next week. Sound familiar? We saw the same disaster 12 years ago... only this time, the situation looks worse. Falling back on tradition isn't an option this time. It's about to get ugly. That means more spin is inevitable. What will its focus be? For now, it's on PHEV becoming the standard for Toyota. That's a classic diversion tactic. Pay no attention to GM... I posted this reality reminder: Refinement to EV operation is a benefit for both types of vehicle, PHEV and BEV. That electric technology is interchangeable. Claims of Toyota not investing is just rhetoric, efforts to divert attention from Toyota's hybrid success to rapidly move away from traditional offerings. It's that **how to appeal to existing customers** which others have not found a way to address. As for the other automakers abandoning PHEV itself, that's a cold, hard reality of design choice. Toyota found a means of delivering very high efficiency for both EV & HV operation at low cost. A simple look at Volt, you can see GM simply couldn't match. That technology was expensive and wasted both electricity & gas in comparison. So, it was abandoned.

9-12-2019 **Solid-State Recharge.** Ever think of the potential possible with better battery technology? The elimination of liquid or gel electrolyte from regular rechargeable batteries to create the solid-state type should allow dramatically faster charging. A solid electrolyte wouldn't be anywhere near the fire risk. There is the potential to store much higher energy densities as well. It changes the way we look at how much capacity is really needed for a plug-in vehicle, especially if the expectation of longer cycle life proves true. You could recharge more often for shorter durations. We're still a few years off before the experimental chemistries now show a practical means of becoming commercial products. Costs will be high even when those designs become worthy of using in vehicles. Our transportation outlook will change of when that finally happens. So, all the crazy now is really just a chapter in history... ramblings of enthusiasts and early-adopters.

- 9-13-2019 Good Grief.** Seeing a new perspective is difficult, in general. You tend to fall into the trap of not expecting big change. Ironically, that's what holds back the enthusiasts. They suffer from a group-think of believing change only comes in the form of "more" of something. That's why range & speed is so dominant of a discussion topic. In fact, that's basically all I ever heard from early-adopters. This is why their attention to the needs of business was basically non-existent. Good grief. You learn in Economics 101 that more is not necessarily better. Heck, that's true for introductory Engineering class as well. Ugh. That's why what is happening with Ford is so easily overlooked. I pointed out my observation: Ford pushing the EV model of Mustang as a SUV marks a fundamental shift in marketing. Here in Minnesota, niche cars like that gets stored away during the cold season. That would be a profound waste with an EV, especially since Tesla has proven capable on snow & ice. So, we see Ford attempting to rebrand. Why not? After all, you're going to see a lot of advertising for the AWD-e model of Prius. Able to handle adverse driving conditions is a selling point, something not to be ignored with the move to electrification. In fact, that is likely a big contributor to the strong appeal for RAV4 hybrid. It's an AWD platform edging closer and closer to offering a plug. That means redefining Mustang for it to survive in this newly emerging market.
- 9-13-2019 2021 VW Golf.** A pre-production next-generation Golf was spotted without camouflage. Since ID 3 is expected to replace the EV model, this will become the dominant plug-in hybrid platform for VW. There is supposedly a current generation with a slightly smaller battery-pack as Prius Prime (8.7 kWh verses 8.8 kWh), but it's not available in the United States. The expectation is a larger capacity for this market. Though, that would consume much of the cargo area, which is smaller than Prius to begin with. Thoughts are that the higher horsepower output of the engine make it terrible in regards to both efficiency & emissions. So, there's no telling what will ultimately happen. It may simply never rollout if all goes well for the ID family anyway. The 4 is expected for market, a taller body for those here who overwhelmingly prefer SUV over hatchback styling. That impacts cost, weight, and efficiency... In other words, it just more to add to the pile of speculation & hype. We really won't know until actual production starts. And even then, that doesn't guarantee high-volume sales.

9-14-2019 **Watching Inventory.** I'm still watching inventory Prius Prime. The counts goes up more than it goes down. That over change is a climb. They are all 2020 models all limited to the initial rollout area, with the exception of a very small number of special-order deliveries elsewhere. It's that long awaited ramp-up. Seeing market spread will be next. But as next year's model, that puts it ahead of the game. Early September is several months ahead of the schedule anyone should expect. Though, I can see antagonists already anxious to attack on the basis of it not being complete yet. There is always that spin. No matter what happens, they'll find a way of making it sound negative. That's how you know they have nothing of any merit to combat with. Getting the established markets in a position of being well stocked prior to moving into new territory is a sensible business move. After all, the measure of success comes through sales. Achieving change in mainstream purchases is the goal. So, seeing the coasts get all the initial delivery is a logical first step. Advertising is pointless until everything is in place. That means the secondary market, those of us in the central part of the country and that region in the south-eastern states will indicate when the time is right. When we (I'm in Minnesota) start seeing ready-to-buy inventory on dealer's lots, that day has arrived. I remember it happening in May 2002. That was a long time from me taking delivery in Early September 2000. Over 2.5 years of waiting. It was the same strategy then too, limited to special-order delivery until the market had reached an acceptance point. That's how reaching ordinary consumers is achieved. You push the technology to those who can help establish and work out details of how to combat antagonists. This well-proven approach is worth what seems an agonizing wait. Keep watching inventory. That's a key indicator of progress.

9-14-2019 **Electricity Storage.** The hope is this becomes more and more of a problem: "*But while it's not as efficient as direct electric powertrains, it is a clean and dense way to store power. Especially in countries like Germany, which currently has more power than it needs and nowhere to put it, there's a case for producing hydrogen with renewables when there's extra capacity in the grid.*" It simply isn't realistic to build massive bank of batteries for that excess. Keeping in in tanks though is a different matter. We already do that with gas anyway. Being able to deliver that to customers either as hydrogen itself or doing the convert on-the-fly to power chargers makes sense... especially when you consider the expense of a bank of chargers. Serving high-demand use that way could be more realistic than the expense of infrastructure for transmission. It's an interesting challenge to address. What is the best way to store electricity in the wide variety of situations we face? Sadly, that type of critical thinking doesn't happen often online. In fact, most commentary suffers from group-think.

- 9-15-2019 National Drive Electric Week.** This is what I shared on the big plug-in forum, as the first post in the topic: The big event in Minnesota yesterday that I participated in was great. It was a well represented ride & drive, offering wide variety of vehicles to learn about. I got to park nice to the flashy red Model 3 with my flashy blue Prime. On my other side was the Pacifica. Price was overwhelmingly the question most on attendees' minds. That meant I got quite a number of "*beautiful, but too expensive*" comments directed to the Tesla. Interestingly, the Chrysler minivan price was less of a concern due to it's very generous interior size. Starting with 120 volts for charging, then later upgrading to 240 volts, was the approach I heard the most often in conversations. It was clear many would be more than willing to try something with a plug, but unwilling to take the level-2 plunge right away. Range seemed a total non-issue. The "*switch over to gas*" aspect of PHEV operation seems to have become well understood at this point. Perhaps the inherent nature of Prius being a hybrid lends itself to the mastery of electricity & gas blending. So, adding a plug is just an obvious upgrade to the design. Overall, this year was an amazing experience. Market perception from just a year ago has changed rather significantly. The combination of climate change awareness with the attention tax-credit phaseout has stirred has been quite helpful toward move away from traditional offerings. It now seems a much less intimidating step for the ordinary consumer to take now.
- 9-15-2019 Solar Improvements.** Today we got a glimpse of Toyota's advancement for their next-gen solar design. These improved solar panels bump efficiency from the current commercial standard of 23% to a very impressive 34%. That is quite an upgrade, more than the typical generation refinement. It delivers the potential to add as many as 27 miles while parked during the day. In a bizarre sense of looking at the situation, that's an impossible perpetual machine actually built as a working prototype. You wouldn't ever need to plug it in if that's all the farther you wanted to drive... especially since charging can also take place while you drive. Realistically, cost & efficiency won't be that perfect. You get the idea though. It increases the green factor. Being able to contribute less to carbon emissions is helpful. That's a genuine reduction worthy of continued research & development.

9-15-2019 **Coming Disaster.** It should be no surprise that GM is at the center of our automotive mess. They are again putting the well-being of their business on high-profit guzzlers. That's was a big problem yesterday, when Drive Electric events combined with the auto-show launch in Frankfurt. But then news came this morning of drone attacks in Saudi Arabia, crippling half their oil production. That will cause oil prices to surge. Adding that to the pressure from both electrification and climate-change sure makes things interesting... knowing an old problem is about to return. Tomorrow, GM union workers will likely strike. That's 50,000 wanting fair wages, affordable healthcare, job security, and a few other issues resolved. How can months of negotiations failing be dealt with when so many other pressures are growing? This is why the push for consideration of the bigger picture is always so important. Laughing at Toyota for taking such a different approach certainly doesn't so bad in that perspective. Focus much be well balanced. Simply pushing a technology because it is "*better*" doesn't mean business will thrive as a result. This is why so many of the arguments online are meritless, not worth wasting time on. Advancements forward are complicated. Don't be fooled by enthusiast posts. Ask how the claimed superiority will actually help all the players involved. If something is omitted or overlooked, there may be problems to come. In this case, we expect the coming disaster to be morning headlines confirming a strike has begun.

9-16-2019 **Controversy.** After all these years, you wouldn't think issues like this continue to come up: *"I have also been confused about the charging to 80% vs 100% to reduce battery degradation controversy. Reading the forums most of the opinions seem to be..."* That word "*opinion*" is frightening. There should be no doubt whatsoever. It has been well established fact for many, many years now. Nothing remains to speculate about. Ugh. This shows the effectiveness of FUD. Efforts to confuse are on-going. Antagonists never let up. They feed discussions with subtle hints to make you question the wisdom of those who are well informed. It's quite frustrating. That's why I keep pushing for higher and higher quality video with lots of detail, as well as commentary embedded along the way. That is a means of communication to convey wisdom those hoping to undermine haven't figured out a way to attack. Video has proven a very useful weapon in the arsenal against their efforts. It's quick & comprehensive. It also means I don't have to go into great detail when posting. I can just provide a more-info link. That kept this response short & sweet: The pamper zone should have been common knowledge since day 1. For me, that first observation came way back in 2000, with my first Prius. That avoidance of full or empty was part of the design for battery longevity.

- 9-16-2019 Self-Charging Attack.** Looking for an excuse, an article was published to draw in participation. That's a bad sign. I remember in the past when a media source would publish something just for the sake of getting attention. It was rather obvious too. A simple search of their past showing they had no interest whatsoever in Prius, Toyota, or even green technology was a dead giveaway. Many of the performance magazines feel into that category. They were losing some of their audience and started to become desperate to restore interest. That ultimately failed. People move on just as quick as they appear. The enigma of Prius is unique to only certain venues. That's why the big Prius forum has not only retained massive audience, it as also remained true to the quest of clean & efficient transportation. Needless to say, I was annoyed by the blatant attack today focusing on "*self-charging*" as the means of stirring post activity. Ugh. Oh well, stuff like that is always an opportunity for exposition: Prius & Corolla both have PHEV models now. CH-R will be getting an EV model next year. There is an expectation of a Lexus EV reveal at the upcoming LA auto show. Claims of no interest from Toyota to deliver plug-in choices have no merit.
- 9-17-2019 Cylindrical.** News about Toyota using cylindrical battery-cells for their other plug-in hybrid was the big discussion today. I was curious where the topic would be taken. Most of it was related to Tesla, since they have the same supplier, Panasonic. No one touched upon what I thought would have been addressed, the difference that shape would make with regard to overall physical packaging. Focus was entirely on business, rather than engineering. That was a odd switch. After the day came to an end, I finally jumped in posting: No one has posted the most obvious still, after all this time to comment. Interesting. Look at the battery-pack for Prius Prime/PHV. The packing favored affordable & robust. The design of the stacks didn't fit well as a result, due to the size & shape of the prismatic cells. Giving cylindrical a try in Corolla PHV was the logical next step. Remember, Toyota likes spreading upgrades across markets & vehicles.
- 9-17-2019 GM Strike.** It is well underway now, unfortunately. Intriguingly, the highlight outside of the usual pay and healthcare coverage concerns is preparation for a mostly electric future. The union is well aware of how that will require fewer workers. That's a big deal when there are over 46,000 workers spread across 33 sites. How should that impact be handled? This is something that was never addressed. GM management avoided the topic, choosing to isolate efforts with Volt, rather than integrate them into the fleet. It was very much a niche. Never being part of a bigger plan is how Bolt was handled too. From the outside, the plug-in tech appeared to be the future. But from the perspective of production & sales, it was nothing beyond an experiment to test market acceptance. There wasn't ever a next step. This unknown is how negotiations fell apart. They saw the "*too little, too slowly*" concern as a very real problem. Executive action was to just stay the course and hope for the best. That trust enthusiasts put in them was sadly misplaced. Despite all the evidence showing how terrible of a choice that was, they did it anyway. Some people refuse to accept warnings. Now, the sadness is placed upon those workers now on strike, hoping their future includes electrification efforts... even if it means fewer doing that work.

- 9-17-2019** **Compliance.** Don't you just love encountering this: "*They're just compliance cars.*" It's meant as an insult, to belittle the technology. That's fairly effective too, since most people never question the assessment. They just accept that label without consideration of facts. Online posting helps with that type of propaganda. It's the type of rhetoric used with the hope of normalizing... you know, downplay to conceal importance. That is how detail gets overlooked. Vital aspects of design are simply never addressed as a result. That provides an easy means of dismissal. I do all I can to call out those attempts, like the one today: Compliance implies the vehicle is sold at a loss to compensate for a regulatory requirement. Proof that Prius Prime or Corolla PHV are not profitable simply hasn't ever emerged, since both designs leverage existing hybrids that are part of ordinary production. Adding a plug through a simple upgrade is a very meaningful way to deliver even cleaner emissions and even higher efficiency. In other words, it's yet another meritless claim.
- 9-18-2019** **2020 Honda CR-V Hybrid.** It's nice to hear about Honda's effort to move forward, but today's announcement really didn't tell us anything vital. It was the usual press release focusing on engine size & horsepower. What I found intriguing was the speculation that it would deliver higher efficiency since Accord hybrid has a combined rating of 48 MPG. Huh? The combined rating for Camry hybrid is 52 MPG. It simply made no sense; yet, no one called out that statement from the article. Comments posted just praised CR-V hybrid for the expectation of being more efficient than RAV4 hybrid based on that incorrect logic. I was annoyed that no one bothered to actually check the claim. It was a sad statement on how lazy we have become. Accepting what you read at face value, without ever questioning merit, is a terrible idea. Ugh.
- 9-18-2019** **California Waiver.** Our awful president, who has become hell-bent on the idea of undoing everything related to bringing us forward, has raised the stakes yet again. Now, it is an attack on California. He wishes to pull the emissions waiver they've had for decades. The claim is this is necessary "*in order to produce far less expensive cars for the consumer, while at the same time making the cars substantially safer.*" Then he went on to say "*there will be very little difference in emissions*" if emissions are managed on the federal level instead. And of course, none of that would be complete without adding "*you will be out of business*" fear if you don't accept the change. We have seen this very thing play out in the past, over a decade ago. The very opposite resulted. We got vehicles that were much more dangerous than ever imagine that guzzled gas... and sadly, jobs were lost from the struggle to sell enough of them. Ugh. It's the presence of evil. He just plain does not care about the logic. It's all about finding ways to make more money by eliminating regulation. That's such an embarrassment. I never imagined having to deal with such greed & stupidity. Destroy what you could have long-term for a short-term gain.

- 9-19-2019** **2020 Ford Escape Hybrid & PHEV.** Today's announcement was strange. The market for Europe will be getting a plug-in hybrid model of Escape. Why we won't here in the United States is a mystery... a bizarre decision without any reasoning. It's a big "Huh?" Of course, the strange expectation of an underpowered traction-motor is a mystery too. Will it really be as small as previous press releases have hinted? Though lacking in detail, there was a mention of having more than 30 miles of all-electric range from a 14.4 kWh capacity pack. That battery size could deliver that, potentially. But the question of how is unknown. But then again, the measure of efficiency from the European measure is different. Their testing results always result in more miles than what we get here. So, perhaps it all makes sense for there. After all, we already saw that very thing play out with Mitsubishi's Outlander PHEV rollout.
- 9-20-2019** **Lipstick.** Insult. Belittle. Offend. They do whatever it takes with online posts to undermine progress. It's really sad. Every now and then though, it backfires. I'll end up being inspired from a stir of information being accidentally revealed. Those subtle clues are what I'm always on the look out for. That provides a means of fighting back on their own terms. It's quite devastating, because there's no good way to respond. They get cornered and just have to give up. Today was such a situation. I saw this: "Lipstick on a pig." It wasn't a clue to any aspect of design they fear or something they have been working to conceal; instead, this was just a witty comeback. I was pleased to post what came to me in response too: Bacon comes from pigs. Pretty much everyone likes bacon. What are you saying?
- 9-22-2019** **Video: Mostly Highway Commute.** This is the back route to work for me. It's 26 miles. That's 7 miles longer than my usual route, but a great example of using more battery. Being mostly highway, that's more demanding of the electricity supply. So, I've been looking forward to capturing the drive. Despite being longer, it can be quite a bit nicer in the winter during extreme driving conditions. Traffic just flows along, rather than getting jammed up from the much more dense situation when closer to the cities on the bigger highway. At one point, I drop the pedal to the floor to demonstrate the EV power available even when you are already driving 65 mph. It gets up to 84 mph using only electricity without struggle. That's nice to know the gas-engine will remain off, despite the demand for a burst of speed. In the end, I make it to the ramp at work entirely with EV. There, I can plug in to recharge my Prius Prime. Watch it here... [Prius Prime - Mostly Highway Commute](#)

9-22-2019 **Endlessly Committed.** It's nice to see a request for help to understand the rhetoric: "*Can anyone point me to an article or serious discussion on why Toyota is so endlessly committed to hybrids (ie ICE engines basically), and still hasn't got a public push into pure electric vehicles?*" That impression of no EV interest is the narrative being pushed hard now. It's an effort to distract from problems other automakers are having. Keeping the focus off of them supposedly helps. Ugh. Refusing to acknowledge what Toyota is actually doing to promote a move to plugging it is how you confirm what they are up to. With that in mind, here's what I provided as material to ponder:

Simple. HV --> PHEV --> EV is the most effective means of changing the entire fleet rapidly without sacrificing business in the process. Look at how much of a disaster the EREV --> EV approach was for GM. They rolled out a horribly expensive design which dealers weren't interested in.

The reality-check in the situation is having appeal to existing customers at an affordable price. That's exactly why RAV4 hybrid is such a strong seller. Not only does it meet that criteria, it also sets the stage for a PHEV model. At the same time, that cleaner and more efficient HV is preventing more traditional vehicles from being purchased.

What other automaker has such a non-disruptive plan for dealers to embrace a large portion of their fleet with battery-pack offering so quickly? RAV4... Camry... Corolla... Avalon... Highlander... and of course, Prius. And that's just here. C-HR and a variety of other hybrids are offered elsewhere.

Corolla hybrid becoming a PHEV already (the next step beyond making Prius a PHEV) is evidence of Toyota pushing forward with electrification of their hybrids. That's quite contrary to claims of falling behind. The upcoming EV model of C-HR will help to further silence naysayers.

Again, look at the bigger picture, how dealers will embrace change. A one-hit-wonder dependent upon tax-credits doesn't actually change the status quo.

9-22-2019 **Sightings & Change.** There's a lot of patience required and a lot of rhetoric to deal with. Eventually though, you do get in a glimmer of hope... real progress you can measure: Here in Minnesota, where Prime is still special-order only, we spotted 2 yesterday. I can't wait until Toyota finally rolls out to the other regions. Delay until the mid-cycle update was a wise move. It avoided the now obvious fallout GM is having with their disastrous subsidy-dependent design. And of course, the regular model-year cycle for 2019 hasn't even come to a close yet. So, there's a few months of waiting still. But in the meantime, stir for PHEV interest emanating from strong RAV4 hybrid sales will be a nice attention boost for Prius. Patience is a virtue you must learn when it comes to Toyota. That's an automaker who doesn't give in to short-term gain. Their attentiveness to true long-term advancement can both be painful and distressing. At times, it feels like lost opportunity. But the ability to actually affect the status quo requires it. Think about what it takes to get a dealer to embrace change.

9-22-2019 Can You Explain? Shortly after posting the video, I got asked about extreme winter conditions. This was the standout comment: "*It seems it would be very harsh on an ice cold engine to kick on at 75 mph.*" I was happy to follow up with: There are videos of that already, except my garage isn't heated. I leave from it being in the 20's inside to temperatures much colder outside, getting onto a 70 mph highway just a few blocks away. No big deal. The system is designed to use the battery to protect the engine during the warm-up cycle. Watch RPM on those winter videos. You'll see how draw of the battery-pack is heavy while that process is taking place. Despite that, there's still ample power to merge onto the highway.... and that's the older generation of plug-in Prius. The newer generation of Prius takes on even more winter challenges. It includes a battery-warmer and a heat-pump. So, the electricity can be taken advantage of even more. Down to 14°F, you can enjoy EV driving without the engine ever starting. When the temperature is 0°F or lower, the engine will pre-warm anyway. Watch the aftermarket gauge data. You can see how the system was designed to produce heat very quickly. So, that "*ice cold engine*" situation won't actually happen. There are a lot of videos on my channel, with more data being supplied as my ability to capture it progressed. Here are 2 examples: [Prius Prime - Single-Digit Winter Commute](#) & [Prius Prime - Charge-Mode in Winter](#)

9-22-2019 Rationalizing Failure. Those years and years and years of Volt hyped I blogged about sure make for interesting reads now. So much hope was based upon meritless claims. All fell apart as a result. Lack of substance will do that. It has left some with the chore of trying to make sense of the mess remaining. For example: "*The rationale for an EREV is that it can go anywhere in a world without fast chargers but that world is gone... Another thing that must have factored in their decision is that a Bolt is worth 3X as many CARB credits...*" The market doesn't fit into such an expectation. Reality is harsh. Here's why:

First, that perception of a world with convenient DC charging is still very much a fantasy. Thankfully, the technology is proving realistic, but the practical nature of it becoming common is a long way off still. Think about how many vehicles are actually on the road and will be in need of a quick recharge. Think of the expense. Think of who & where.

Second, delivering something with dependence on CARB sales is short-term thinking. But the decision logic related to cost was sound. Bolt delivers a 2.88 ZEV credit $[(0.01 \times 238) + 0.50]$. Volt delivers a 0.83 ZEV credit $[(0.01 \times 53) + 0.30]$. With so little of a price difference, there wasn't good reason for Volt to continue.

Third, wider audience plug-in hybrid choices are coming. They'll nicely compliment & promote EV adoption in households. Think about how strong of a draw RAV4 as a PHEV will be. Compared to the seating & cargo for Volt, they're entirely different categories despite the potential for similar pricing.

When tax-credits have expired and the need for change reaches far beyond just CARB credits, the view of what should get offered looks different. Enthusiast delight with a niche offering doesn't necessarily translate well to high-volume, profitable production & sales.

9-22-2019 Harsh Reality. There are always a few who absolutely refuse to accept what happened: *"The Volt is (was) the greatest car that virtually nobody bought, because of laziness - not willing to adapt to plugging in regularly - and a generally wrong (hateful) perception of GM. Every second car on the road should be a Volt. Such a shame."* That type of spin is exactly why I documented as much as I could while it was actually playing out. I was quite obvious they would attempt to rewrite history later to conceal what really happened. I refuse to allow such an act. Not learning from history is how mistakes get repeated. This was my reply: It wasn't hate, it was misrepresentation. Volt was a great enthusiast car. That didn't mean the design or approach would be one for the masses though... which in the end, proved to be the case. The niche was well fulfilled. Both Model 3 (standard plus) and Prius Prime deliver 25 kWh/100 mi for EV efficiency. That puts the 31 kWh/100 mi rating for Volt into perspective. For HV efficiency, Prime Prime delivers 54 MPG and Volt 42 MPG. Then finally, comparing Prime's base price of \$27,600 to Volt's base of \$33,520 pretty much tells the story on fundamentals. Prime came better loaded with its base model too. Sorry, but that's the reality of the situation. Selling to the masses means recognizing different priorities. To be a high-volume profitable vehicle, range & power simply isn't as important. Think of what dealers consider for what they stock as inventory.

9-22-2019 The Industry? Gotta like this: *"...the industry can't wait for more EVs to be sold before increasing the number of charging stations, they need to increase the number of charging stations first."* That's yet another example of no critical thinking. Lack of detail should stir concern. Not having any actual "who" or "how" information doesn't though. The assumption is someone else will address the problem. It will just get resolved without any help from you. Ugh. That's why I ask questions: How would the automotive industry achieve that? A simple example is seeing the benefit of having chargers where people tend to spend at least an hour patronizing that business anyway... like a coffeeshop, restaurant, or theater. It seems sensible, until you try to figure out how. What benefit is there for any specific automaker to invest in any specific location or even a chain? Usage would have no correlation to vehicle purchases. In other words, there is no actual "industry" to direct initiatives. Heck, even trying to enforce minimum requirements or safety standards is a major undertaking. This is why Toyota is pushing their focus-on-the-masses approach. You start with a gain not requiring infrastructure change, but offering a gain if you choose to upgrade... something to entice as well as retain future value. With Prius Prime, nothing beyond an ordinary 120-volt outlet is needed. If you decide to install a 240-volt outlet later, charging time is reduced. Waiting for some landlord to install chargers for their business lessor simply isn't realistic.

9-27-2019 Fuel-Cell Distraction, FUD. Almost a full week of no real plug-in news about anything was somewhat bizarre. Seeing an out-of-the-blue attack on hydrogen from EV enthusiasts emerge as a result to break the silence was a predictable outcome. I was annoyed, especially when the focus was on spreading FUD (Fear, Uncertain, Doubt) rather than something actually constructive to stir decent discussion. So, I punched back: FUD about fuel-cell tech is a distraction from the bigger picture, an effort to misrepresent. The entire shipping industry via water (container ships) is being pushed to finally clean up its act. That necessity to stop guzzling oil is about to become a regulation reality. An obvious solution is to embrace hydrogen, the economics of which are profoundly different from that of passenger vehicles. That's true for commercial road (cargo & people) transport as well, which will follow. So, whatever nonsense is stirred here about fuel-cells being a dead-end equates to a futile effort to stop the inevitable. The tech will co-exist with plug-in vehicles.

9-27-2019 Fuel-Cell Distraction, Dead. It didn't take long before the discussion turned against PHEV. The desire is to throw all support in favor of EV and just letting everything else die by declaring it dead. Ugh. Needless to say, they certainly try. It's always a cobbling together of supposed facts to portray a narrative to support their claim. I found myself punching back again: Anecdotal observation would give that impression. But if you've been watching Prius Prime, the step forward should be obvious. 2020 model is a mid-cycle update, perfectly timed to take advantage of GM's fallout. In the established markets, the update is seeing both inventory & sales growth. That puts it right on schedule for rollout to the rest of the country within the ordinary model-year calendar. It's a move to help build plug-in reputation, both for reliability & affordability. Whether or not the current offering is an EV or a PHEV only matters to enthusiasts. Know your audience. Their customers will focus on the electric-only driving experience & price. Both of which set the stage well for a next offering, like a plug-in hybrid RAV4. Think about how well Prius Prime promotes EV purchases. The family starting with a PHEV will naturally consider an EV for their second plug-in vehicle in the household. It's basically a no-lose situation for dealers hoping to transition away from traditional offerings without having to take much of an inventory risk. Keep in mind, the gamble that VW is taking really doesn't really do anything to entice existing VW customers. An owner with a Tiguan now won't have an EV equivalent for many years still. Rollout will begin with smaller vehicles that have a much higher price tag.

9-27-2019 Fuel-Cell Distraction, Reluctance. That narrative to give the impression of defeat, helping to convince those of PHEV death, is to emphasize an impression of FUD with regard to the participant. It's a means of reinforcing the idea of technology failing to deliver. Antagonists worked really hard to fortify their false portraying of the true situation. It's really sad. Oh well. I just keep punching back: What some people label as "*reluctance*" others see as patience. Toyota packaged an extremely advanced heat-pump, an impressive carbon-fiber hatch, flawless dual-wave glass, and remarkable traction-motor efficiency together into a discreetly delivered as a next generation of Prius. Notice how all those naysayers about Prime focus only on power & range? Their avoidance of the technology employed speaks volumes. They refuse to acknowledge the advancements delivered, especially with regard to being both reliable & affordable. I do find it amusing how claims of being behind with the technology have no basis in actual market delivery. All those Prius Prime owners, and now Corolla PHEV owners, are now driving electric-only miles. They couldn't care less of Mirai contributed to that or not. EV driving experience is the same regardless of how the electricity is supplied. Each vehicle using those EV motors, power controllers, heat-pumps, etc. help to reduce production cost. Heck, even the hybrids and fuel-cell vehicles share battery-cells.

9-27-2019 Fuel-Cell Distraction, Victory. At some point, they simply declare victory: "*...that BEVs have won the race.*" It was bizarre the first time I witnessed that. The antagonist will just assemble some facts into a summary, something to seemingly support the narrative. It doesn't though. They just pretend their mess of disassociated claims all make sense when put together. Sometimes, it is to the point of absurdity. In this case, it wasn't. Instead, the person simply excluded what didn't fit the claim. Again, I was annoyed and punched back. Who knew the fuel-cell discussion would end up being about everything but fuel-cell tech. Ugh. Oh well, I kept at it: That's called cherry-picking. You know the commercial & shipping market will see fuel-cells as a common technology. They will co-exist. How much will vary depending upon market. But that absolute of a single solution isn't realistic.

9-27-2019 Fuel-Cell Distraction, Only. Another means of undermining is to state an advantage as being exclusive. The idea is to keep focus on that, as if you are being objective. In reality, what you are really doing is working to prevent any other advantage from ever getting attention. That single-mindedness is easy to maintain, since most online discussions have difficulty achieving any depth. It's a terrible means of conveying complex scenarios. The thought process is broken with the greatest of ease. Squirrel! Anywho, it was this today: *"HFCVs offer exactly one debatable advantage, faster fill up, and exact 0% chance of success in the passenger vehicle category."* I punched back with: No. There is another advantage many here desperately try to avoid mention of. It's the ability to store energy. Despite the fact that it is more efficient to hold electric in DC format using batteries, the idea of massive storage-banks simply isn't practical. In fact, the need for a lot of electricity quickly (think many 150 kW chargers all drawing at the same time) is a very real problem. That type of transmission is incredibly expensive. Getting supplemental electricity for those high-demand situations is an ideal application for a large fuel-cell stack located at the charger location. Get use to the idea of co-existence. To power our plug-in vehicles, we'll need power. Storage is a challenge to overcome. The ideal of solar & wind providing lots of electricity requires a means of putting it somewhere off-grid and being able to tap that supply rapidly. The oil industry won't just stop supplying energy. They'll be forced to switch to a cleaner & renewable fuel.

9-29-2019 Back to Offense. This was amusing: *"I'd argue that the more versatile and practical body type (a pickup truck or a "compact SUV" like the RAV4 or the Equinox) and faster charging speed at more locations are more important than the >250mi range."* It can hardly be an argument when that's what I have been saying for countless years. So, I just repeated the same sentiment, but pushing it, not in any regard a response to attacks anymore. That stage is over: Those are fighting words. I got attacked for years from that very suggestion. Volt enthusiasts absolutely hated me for pushing the idea of diversification. Equinox using Voltec (the tech in Volt) required a sacrifice of range, since it would be far less aerodynamic and much more heavy. Keeping it somewhat affordable made that situation even worse. But adding to the impractical reality of poor approach was CHAdeMO fast-charging already available for Prius PHV in Japan. It wrecked any hope of their mantra of more range being better. GM's dependency on tax-credits and the result of never being able to appeal to their own loyal customers is what stands out most now. Even the desperate excuse of abandoning EREV in favor of EV doesn't save them from the reality of not having anything beyond just conquest offerings. The goal is to change status quo, phasing out traditional choices in favor of something with a plug. While we witnessed Toyota improving upon RAV4 hybrid to set the stage for a PHV model able to compete directly with the traditional model, we watched GM rollout a diesel model of Equinox and create a new traditional Blazer made in Mexico. All that nonsense about Toyota being so *"behind"* has been revealed as meritless rhetoric. And to those who lashed out at me for expressing the *"too little, too slowly"* concern about not spreading the tech to a more versatile & practical body type, you now understand consequences of not critical thinking.

9-30-2019 **About Face.** More partnership info about Toyota working with Subaru regarding AWD delivery of electrification choices was released today. We quickly got this: *"It's fascinating to see the quick about face of Toyota... Toyota for years was saying that the best way to lower CO2 was to use Hydrogen, and Hybrid technologies."* I saw that as an invitation to jump into the fresh discussion with lots more info:

The *"behind"* narrative only worked on those not paying attention. There is no about face. Progress has been on-going, just not easy to see.

For those actually seeking detail, they discovered Toyota's electric-motors offered outstanding EV efficiency ratings. They also saw that Toyota's heat-pump was the industry's most efficient offering. Upon further digging, they'd undercover the use of carbon-fiber in a surprisingly complex vehicle part. All of which are technologies that carry forward to an EV. It's refinement of production to achieve lower cost while also proving reliability which have a significant payoff later.

At the same time, we see plug-in experience advancing forward with Prius Prime and Corolla PHV. Next year, the market in China will get an EV model of C-HR. For us here, it looks quite likely that the next plug-in would be RAV4 hybrid.

In other words, all that rhetoric earlier this year about GM's progress as legacy leader was just the usual meritless hype. It comes down to being able to actually get dealers on board. That means delivering choices directly competitive with traditional offerings. From the shopper perspective, that equates to an appealing price (no tax-credit) and an effortless means of recharging (existing 120-volt). Those are traits Toyota is already showing success with.

September sales for Prius Prime will confirm that appeal progress. Despite still only being available to roughly half of the United States, there is obvious growth emanating from rollout of the 2020 mid-cycle update.

Use some critical thinking. Having a large number of vehicles switched to plug-in hybrids quickly will have far more of an impact lowering overall CO2 than a small number of EV deliveries. It has the immediate benefit of preventing a new traditional vehicle purchase. That purchase of a PHEV will likely lead to the next purchase being an EV. At the same time, it encourages the upgrade to a level-2 charger at home. It's a win-win-win situation. Don't listen to the *"behind"* nonsense. It's not an about face, change of direction either.

9-30-2019 **From The Ashes.** There's nothing. To think, all that praise for GM's leadership... It was an incredible way to start a year of fallout. Enthusiasts continued to push the narrative of Toyota being hopelessly behind, on the verge of collapse. I saw that as reflection. Such heavy dependency on tax-credits and those sales only resulting in conquest was a sign of trouble to come. Adding to that the reality of profit coming only from the large guzzlers, it was a recipe for disaster. Sure enough. Strikers are voicing their upset. Volt is dead. And we don't hear anything whatsoever about Bolt. This last we was silence. Having no hype to blog about was strange. It was the reveal of hopelessness. There had been talk of pushing negotiations for Union workers to get production of EV pickups as their focus. The high-cost and low-volume expectations for that make it unrealistic though, especially with it not even starting for another year or two still. This is the result of "*too little, too slowly*" not being taken seriously. That concern to ensure the market was established prior to triggering tax-credit phaseout was genuine. They pushed me back instead of pushing GM forward. Those terrible enthusiasts were enablers of this disaster. So much opportunity missed. Ugh. Their final hope has been something rising from the ashes. That looks very, very unlikely.

9-30-2019 **Raise Awareness.** You can't make all the people happy all the time. It's just not realistic. When it comes to Prius, that means the more advanced users (owners with lots of experience) tend to desire additional information. The detail they desire simply isn't there though. This is why some seek out aftermarket devices. That's a means of getting more without having to ask anything of Toyota. Some do complain instead: "*It's a pretty stupid design.*" That was said about the question we see pop up on the screen upon shutting down when the system is hot and the temperature outside is hot too. The owner wanted the ability to specify that setting permanently. I pointed out: Know your audience. Toyota does, exceptionally well, as they have proven in the past. For this situation, it is an audience of those new to plugging in who mostly depend upon 120-volt charging. That makes asking the question quite sensible. It raises awareness, providing a subtle reminder of the importance of keeping the battery from getting hot on a regular basis. The last thing you want in an emerging market is a "*set & forget*" feature. No amount of arguing will change that. Far too many Prius owners of the past simply ignored the refuel message. Complaints about the battery not being fully charged because the \$@%^# cooling system ran in the meantime simply isn't worth it. You must make the choice each time for the non-scheduled charges. Sorry, but with over 25 years of dealing with users software doing wild things to their computers, I'm in full agreement with Toyota about using the "*raise awareness*" approach.

9-30-2019 **Balance & Disruption.** Discussions have taken on a quality of starting fresh. In a way, that is exactly what's happened. GM support has completely vanished and there isn't an expectation of anything from any of the other automakers until next year. We are in this strange dead zone, where a transition is taking place but people are not sure what will become of it. Legacy automakers are still lost. Tesla is in a place of uncertainty. The political outlook is grim. Who knows what will happen with the economy. And of course, people are still afraid of change. That just leaves us with traces of rhetoric to keep discussions from evaporating. End of quarter should bring interesting speculation, as well as a wake up call. That will be interesting. In the meantime, I repeated my summary but to a changing audience: It's the Tortoise and the Hare situation. While others were racing ahead and showing off for praise, Toyota remained steady and true. Pleasing enthusiasts and early-adopters simply hasn't ever been a priority for them. Their focus is on the masses, their own showroom shoppers. This is why dealers have been so willing to carry Camry and RAV4 hybrids as regular inventory. That variety is essential. It's about getting the right balance of tech & platform to result in genuine change without disrupting the business. It's ironic that many here actually want disruption. How is that type of inventory uncertainty a way to sustain profit to pay everyone involved in the production, distribution, and sales process? Problems like the Osborne effect are very real. So even without the political & environmental turbulence, there are major obstacles to overcome. Think about how many battery cells the hybrids are requiring. That's a ramp-up no one here has been paying attention to; yet, it is priceless experience necessary for mainstream EV offerings. Put another way, Toyota has been busy with requirements such as that for profitable high-volume sales to the masses. That is not where others have been.

9-30-2019 **Catch Up.** This is where the "*know your audience*" really comes into play. That old question of "*Who is the market for Volt?*" revealed those enthusiasts didn't have a clue. They were so obsessed with the engineering, they didn't bother to learn about the business. They figured a vehicle like that would appeal to everyone. They were wrong, very wrong. So as we emerge from the early-adopter stage (clearly defined by the availability of tax-credits), we must recognize that many priorities will be different. Willness to trade range for interior space simply is not acceptable. That's why VW isn't even bothering with ID3 here in the United States; instead, we will be getting the larger ID4. This is the reason seeing statements like this send a chilling reminder of mistake repetition: "*The only way for Toyota to catch the pack now...*" It's that group-think of online participants that are well informed and more than happy to make sacrifices believing everyone else shares their view. Ugh. I pointed out that's not the situation with: Enthusiasts here keep pushing the idea that faster & farther is the goal for all automakers. Toyota is not compelled by conquest. Toyota is taking a different path. So, there is nothing to catch up to. Focus is delivering vehicles able to compete directly on the showroom floor. That means MSRP is a much higher priority... hence starting prices of Corolla hybrid at \$23,100, Prius Prime at \$27,750, RAV4 hybrid at \$27,850, and Camry hybrid at \$28,250. Those are vehicles fighting for sales today. Each purchase means a traditional vehicle was displaced by something cleaner and more efficient. That's why new offerings, like the AWD Prius, are being explored too. It's all about actually changing the status quo at their own dealers, not chasing some pack after a distance trophy.

- 9-30-2019** **Huh?** The announcement that Toyota will have a partnership with Subaru has really stirred interesting posts... from those who clearly don't have any historical background. We've seen that approach at different levels of complexity for decades. Sharing technology is nothing new. It's simply a part of the automotive business most aren't aware of. Heck, even the most simple "*rebadge*" rollouts go unnoticed. So when it comes to something related to propulsion system, that big unknown is no surprise. It makes any discussion of the path forward challenging. If you mention diversity, their minds explode. Solutions that are not one-size-fits-all are pretty much impossible to constructively post about. Rhetoric thrives on simplicity, so you get bombarded by efforts to prevent critical thinking. Ugh. Despite that, I tried anyway: Someday, there will be an EV in that size offered here. The first elsewhere will be C-HR. Its hybrid model already shares the same platform as Prius. That is targeted for the European market though. The EV model will be the Chinese market. When we get something, who knows what body it will use. The likely next step for Prius here is to make the plug model standard. Keep in mind the flexibility Toyota puts into their design. This is why the real-world data Mirai provides for that 113 kW traction-motor is so valuable. It's getting an entire generation shakeout before even being offered to the wider audience. Remember, Prius was available in Japan for 2.5 years before rollout in the United States. And when that rollout finally took place, Toyota delivered it with an upgraded system. Gathering knowledge from a Subaru partnership fits right into that.
- 10-01-2019** **No Background.** The new month started with an analogy that just plain did not work... unless you weren't paying attention at all over the past two decades. Unfortunately, that no background problem is quite common. People make observations, then draw conclusions. Lack of any study leads them down a confusing path. I attempted to raise awareness of that missing information. Sadly, it probably won't help him. Luckily, we have lurkers who learn from posts. So, it's never a total loss: Out of context, that could be a convincing argument. But when you consider how the market has actually played out, that analogy doesn't work at all. BMW was the automaker without a plan, just an innovation which management could not agree upon how to proceed with. GM was the automaker with a plan, but it was an "*over promise, under deliver*" situation to the extreme. Toyota has a clear progress map they've been following. Each vehicle will get a hybrid option, one that will be upgraded successively to bring about a plug option. It shows solid commitment to their dealers, ongoing value of their product (used sales), and an easy to understand move forward across the entire fleet. As for partnerships and supplier choices, that type of activity is normal business. We've seen it for decades. That's how the major automakers became major. As for the claim about who the future belongs to, I suggest study of innovator's dilemma. Toyota is demonstrating a succinct means of avoiding that situation.

- 10-01-2019** **Sleuthing.** The thread started back in February of this year was my choice of revival for news related to Android Auto. It mentioned the need for us to do some digging ourselves, pointing out that information is usually available if you are willing to hunt for it. I seek that type of content all the time. It's what ends up in the logs for future reference. That builds background for setting realistic expectations. It also helps with the effort to be patient. Tiny bits of news are better than nothing at all. In this case, it was the next clue to upgrades related to the infotainment system: Today was the announcement that C-HR will be getting Android Auto. If you have been watching rollout of Prius Prime (2020 mid-cycle update), no news makes sense still. Sales in established markets are showing growth. Adding a highly anticipated feature would derail that effort to finally expand to the rest of the market. Imagine the demand spike! It's not Toyota's way. They prefer spreading upgrades throughout the years to keep interest fresh. In fact, that on-going improvement approach has been around since even before Prius and has proven very effective.
- 10-01-2019** **Understanding Sales.** Today, quarterly results will be shared. That means a lot of commentary will be posted from those who have little background or simply don't pay close attention. So, I jumped into the thread on that big EV blog to provide some information related to Toyota: Keep in mind that Prius Prime had an inventory burndown prior to the 2020 mid-cycle update and those models were only available in roughly half of the country. Near year-end, hope is the middle & southeast of the United States will finally get the opportunity to sell Prius Prime beyond just special-order. It made sense waiting until the update, especially with tax-credit phaseout having such a significant influence on original offerings. With a starting MSRP of \$27,750 and being immediately available at all Toyota dealers, it's easy to see the potential... that juggernaut we have all been waiting for from a legacy automaker.
- 10-01-2019** **EV Market.** September results were shared today. I obviously had something to say about the comments being posted, especially to one that was over the top optimistic: Careful. How many of those sales are to ordinary consumers? Reaching the mainstream audience is far more difficult than appealing to early-adopters. Tesla did a marvelous job of picking all the low-hanging fruit. Hope from doing that was to build up high-volume production while establishing a reputation to draw in the next stage of shoppers. It looks promising in that regard, but for how many? The higher price tag, lack of convenient trade-in, and lack of body choices means there are challenges to overcome still. Success of Model 3 is absolutely fantastic, but keep in mind how difficult that next step in market penetration will actually be. This market alone (United States) will see somewhere around 16M sales this year. That limits a perspective of "*utter domination*" to just the plug-in audience, not a measure with regard to the rest of what's offered nationwide. There's a lot of potential, but it won't be easy. Look no further than GM for a dose of reality. Enthusiasts celebrated sales of Volt while refusing to acknowledge they were really just conquests with no affect on the status quo. GM dealers just kept selling traditional GM choices to loyal customers looking to replace their aged GM vehicle. We need true change. Put another way, ask who the competition is.

10-01-2019 **Who?** I get annoyed when limited-scope observations become meritless generalizations. You can't take short-term results based upon a single configuration and expect them to translate well to mainstream demand. That's how many fall into the innovator's dilemma trap. Yet, no matter how much you try to point out the mistaken perspective, it becomes a problem anyway. Hope overrides logic. I keep trying to interject some critical thinking into discussions. It's difficult to tell how effective content like this is though: A plateau of sales at 15,000 would represent a great selling niche, something not unheard of in the automotive market. To get to the next stage, significant growth is required. The current stage is filled with those who cross-brand shop and take advantage of tax-credit opportunities. Legacy automakers appealing to those who shop the showroom floor is the next buyer to target. Call them whatever you want. I label that as the "*will my mom consider it*" stage. A major component to that is to diversify. It must be made available in different configurations. That's how the technology breaks away from niche and becomes mainstream. If mom doesn't even take time to explore the choice, we don't stand a chance of achieving the goal of ended traditional vehicle production. That audience beyond those who purchased a Model 3 are far more fickle than most here are willing to accept. We need to recognize how much more difficult growth really will be. That means careful observation of what actually compels shoppers to take a closer look... and to hell with specifications. Far too many here are well informed, with engineering backgrounds and no fear of embracing new technology. That isn't at all representative of an typical consumer.

10-01-2019 **Sales Down.** As expected, I was personally attacked. There are a handful of let down GM enthusiasts still looking for someone to blame. They see me as a good target to let out their frustration. Being disappointed about the utter abandonment of that technology they had endorsed for over a decade is one thing. But for nothing to replace it, that's too much to accept. Bolt should have simply taken over, as far as they were concerned. That was never realistic though... and they didn't want to accept my insight pointing out why. So, this is what they get now: It's just a stage. The natural progression of replacement technologies is for the candidates unable to sell well beyond early-adopters to cease production. Volt was too expensive, too small, and too inefficient. Being able to compete directly with traditional vehicles simply wasn't realistic. That doesn't mean other PHEV designs won't succeed where GM could not. In fact, GM itself may attempt to deliver another configuration capable of high-volume profitable sales. The next stage will begin, one that actually focuses on the masses rather than enthusiasts and without the benefit of tax-credits. Those choices will be quite different than Volt, despite also being PHEV.

10-02-2019 Really Sad. The start of this next quarter triggered the next tax-credit phaseout stage for GM. Most of the comments posted were pointless. It's far too late. The article highlighting the situation stated it this way: "*The task for GM, in a more mainstream segment of Chevrolet brand, is much more challenging.*" I had much to say. So, I waited a day, then posted the following:

Purpose of the tax-credit was to address that challenge prior to phaseout, so the automaker could take advantage of the switch to unlimited quantity upon reaching the 200,000 trigger.

Tesla did a phenomenal job of achieving exactly that. It was a genuine effort to strive for a high-volume production able to capitalize on that opportunity.

GM didn't bother. Right from the very beginning, the question of "*Who is the market for Volt?*" was asked. It was quite clear GM was using those tax-credits for conquest rather than make an effort to actually change their own offerings. Instead of evolving that tech into a form-factor their own loyal customers would actually purchase, it became just facade to garnish praise.

Meanwhile, GM released ambiguous information to feed enablers, those who supported the squandering of tax-credits by labeling automakers taking time to do it right as "*laggards*". It's a debacle on a monumental scale only now becoming apparent, despite all the warnings along the way pointing out the concern for that very situation. The deadline approached, yet GM did nothing to address it.

In other words, the technology in Volt should have been diversified years ago. Spreading it to a far more popular platform would have carried GM forward. Rather than introducing both Trax and Blazer as traditional guzzling SUVs, they could have featured a Voltec model. The extremely popular Equinox could have been an excellent choice as well. Instead, all GM customers have no plug-in hybrid whatsoever... despite most of the tax-credits having been used to advance that very technology.

So much opportunity was wasted. It's really sad.

10-02-2019 Sales Perspective. Among the final counts to be posted were those from GM. With the market down double-digits here for most automakers, the added pressure of striking workers made for a grim outlook. That's why I needed to post some realistic perspective on the celebratory remarks related to Bolt sales: That last-minute scramble to purchase just before tax-credit phaseout reduces from 50% to just 25% made the spike quite predictable. The real measure of progress will be sustainable sales at a profit once those subsidies are gone. This current stage is filled with early-adopters, people who take advantage of discount opportunities for new tech just like that. Each automaker must advance beyond sales of just 200,000 over multiple years anyway. Sales in the United States last year alone for GM were 2,036,023. For Ford, they were 2,381,635. For Toyota, they were 2,128,201. Both growth and diversification is vital; otherwise, what's the point? Plug-In sales will continue to be overwhelmed by traditional guzzlers. It turns into a situation where dealers don't even bother if a next step isn't taken. That's why the current tax-credits should be allowed to expire. If a new round of subsidies are introduced, they should be focused on infrastructure. Encouragement to get homeowners & landlords to install/upgrade charging capacity is what will help promote sales growth... on the scale that really makes a difference.

10-03-2019 PHEV Down, BEV Up. That was the summary of sales. It was a recounting of the worldwide market as of August... which really doesn't tell us much. We're in a state of change. The same is true for China and Europe. So, what can you truly learn from just that particular slice of time? Turns out, not much... except if it was to find out how EV enthusiasts are taking the actual detail. That "up" is really only a tiny amount. That "down" is a temporary shift due to GM and BMW struggles. This is the nonsense that emerged: *"PHEVs were a great idea - 20 years ago. Now, they are a joke and automakers cling to them in hopes that this "EV thing" will pass. How's that going for you Toyota? BEVs are the future."* I jumped on the opportunity to respond: That narrative is a joke. The well informed are keenly aware of how an affordable PHEV will contribute to the widespread acceptance of BEV later, but with a benefit immediately. Toyota's design is able to compete directly against traditional vehicles without tax-credit dependency. The starting price of \$27,750 for Prius Prime delivers 84 MPH top EV speed, electric A/C, and heat-pump to enjoy that EV future today without any range-anxiety concerns. It doesn't even require any upgrade at home either; an ordinary 120-volt outlet supplies all the electricity you need for recharging. It also encourages the upgrade to 240-volt charging without any pressure upon purchase. In other words, your attempt to downplay is being called out. I fill up my Prius Prime every 2 to 3 months. My commutes are entirely electric. I take advantage of the 55 MPG it delivers from time to time. To answer your question, it is going well for Toyota. The same design will work well as a RAV4, as it has already been proven with Corolla PHEV. The difference between hybrid and PHEV is basically just a matter of adding more battery, a one-way clutch, and a plug.

10-03-2019 **At least 50%.** I had to ask the question. What does "...at least 50% people which can charge EVs at home..." actually mean? It was on a new discussion thread about charging infrastructure. Most of the posts were beyond vague, lacking detail to such an extreme there wasn't really anything to take away. Those comments were nothing but echoes of the past. We are not seeing any progress. Lack of advancement is how you lose interest. Enthusiasts become disenchantment if you take to long. In fact, that's exactly why the GM followers of Volt were fewer and fewer. That "*too little, too slowly*" wasn't taken seriously. Point being, there must be a push. Mine is now in the form of directing focus away from public chargers. It's all about charging at home now. There's lots of opportunity. Let's do something about it. Here's my latest comment on that subject:

The basic rule of "*40-amp line will deliver 200 miles in 8 hours*" in itself is far from common knowledge still. So, the effort required to run conduit & wire from service-panel to new outlet location is a complete mystery for most people. How does one even get a ballpark cost estimate when every home has a completely different wiring situation? And that's just addressing the challenge to provide electricity for a single vehicle to recharge. Support for multiple vehicles adds complexity.

This is a topic many advocates dance around, avoiding it by focusing on just the low-hanging fruit... those already interested and willing to spend setup money in addition to just the vehicle purchase. Trying to get an ordinary suburb owner with a cluttered garage and electricity coming into the house on the opposite side isn't easy to setup. Those who have a detached garage in an alley and their service-panel on the house don't have it easy either. Yet, these are included in the 50% that technically could.

This is why starting with PHEV that encourage a post-purchase upgrade will help significantly with infrastructure investment. The homeowner will become comfortable with the need and be willing to spend the money to upgrade. That naturally leads to the next vehicle purchase consideration to be an EV. It's an effective means of getting a household to embrace plugging in.

Notice how none of that has anything to do with public rapid charging.

10-04-2019 Infrastructure. Forcing conversation beyond the immediate EV market is getting easier. In the past (when Volt dominated headlines), there was no vision beyond just enthusiasts. In fact, they absolutely refused to even acknowledge there was anything beyond plug-in offerings. It was a blatant effort to force a narrative. They simply didn't care about what the rest of the automotive industry sold. Those blinders were on so tight, any mention of "Who?" resulted in an onslaught of personal attacks. I sure am glad I took the time to document all that. It's almost hard to believe so much fight came from the "vastly superior" group. They exerted so much effort to undermine the very technology that was helping to promote plugging in, it's difficult to grasp. They truly didn't know their audience; however, some of us do. Here's my take on the situation as it stands right now:

Charging "*infrastructure*" is not well understood. Most people have no clue how a site with charging-stations is establish or maintained. Cost of tier-3 service (high capacity power during peak demand) alone is a major deterrent. So even without addressing how to pay for the equipment install, there's that very ownership real issue to address. Then of course, there is the sad fact that a charger could break or get vandalized, as well as dealing with the problem of ICE'd spots. All that sours appeal. Why would any legacy automaker to ever pursue, especially when you consider how many locations would actually be needed? Heck, even just installing some chargers at a dealership isn't likely to happen.

Starting with PHEV purchases is the ideal for rapid penetration into the mainstream. They stir interest for at-home upgrades, the most vital part of charging infrastructure. Getting households to install L2 chargers is the game-charger. Once we start seeing those 240-volt 40-amp lines appear as the norm for overnight charging (capacity for 200 miles in 8 hours), the purchase of an EV becomes a no-brainer. That reduces the need for public charging rather significantly.

Toyota is way ahead of the curve in this regard for legacy automaker push. Plans are underway to convert production in Kentucky to build more of the extremely popular RAV4 hybrid. Already delivering 40 MPG, it's an ideal platform to attract the masses. Adding a plug is only a matter of inserting more battery and a one-way clutch, as Prius Prime has already demonstrated. That's a cost-effective means of reaching the massive potential in our SUV-crazed market.

Preparation on that scale is absolutely vital for electrification to finally break out beyond subsidized sales to enthusiasts. Offerings of long-distance EV alone won't be enough. That's too slow and too few. Affordable choices starting with just enough EV capacity to cover a daily commute puts plug adoption in the fast lane. That will provide a major boost to ending traditional production for setting the stage to plug in... which is exactly what the RAV4 hybrid has addressing right now.

It's the change to "*infrastructure*" that we really need to focus on. Far too many here don't look beyond the immediate EV market.

- 10-05-2019 Cat Tree.** Having a hatchback is great. You can squeeze in a surprising amount of cargo. It will carry rather high & wide objects too. But when all 3 dimensions come into play, it can be a tight squeeze. For us, that meant trying to figure out how to also deal with it being deep too. Unlike the chairs, table, lawn mower, power washer, plants, coolers, lumber, and other objects I transported this summer, this one needed to fit without any ability to be wiggled in. One massive piece makes it harder. To my relief, the larger cat tree (4 levels with a tunnel in the middle) actually fit. The lift & twist maneuver presented doubts. But that worked. We have officially been able to carry everything needed inside just fine. The craziest cargo transport is still the queen size bed. It was the air type. All those pieces of the frame, the shell, the pump, as well as the pads and inflatable chambers needed to be carried in a single trip. 2 people on a 2-hour trip with all that inside ended up working worked fine. We even brought the coffeemaker and a few other things for the move. People are happy. Cats are happy. Meow.
- 10-06-2019 Personal Gain.** This was fascinating to read: *"He's so deep in the pocket of the fossil fuel industry, he's literally sacrificing the planet's future for personal political gain. He pulled out of the Paris climate agreement and froze fuel economy standards the Obama-Biden administration put in place for cars, and he's preventing California from implementing its own higher standards."* That op-ed from our former vice-president certainly summed up the situation well. What an incredible mess. It is what happens when people get lazy & complacent. They allow corruption to work its way in. Left unchecked... which is what happens when barriers are removed... it becomes a situation which causes damage. In this case, we see a president who just plain does not care and voters who really don't understand the impact that could have. This is why I so often asked the *"Who?"* question of the Volt enthusiasts. They claimed to be in support of mainstream consumers, but their actions clearly were not for that audience. It was a very clear conflict they absolutely refused to acknowledge. They'd just pretend all was ok and found enablers to provide validation. Look what became of that. GM has basically nothing to show for all that. Over a decade later, their dealers look even worse off. Not only is it nearly impossible to find a hybrid or plug-in, there are far more guzzlers than in the past. Cars are getting phased out in favor of lower efficiency vehicles. How is that resulting lack of choice not a sacrifice?
- 10-06-2019 Lost Everything.** GM didn't try. I raised alarms to the point where no one wanted to deal with me anymore. Opportunity was being wasted and they just plain did not care. Some still don't, hence this comment today: *"And while the Volt is a PHEV, it is definitely the best PHEV ever made."* It was more damage-control from an enthusiast. Knowing the EREV concept has been exposed as meaningless propaganda, the lack of any substance to work with means pretending nothing is wrong. Ugh. I punched back with: Best PHEV ever made, for enthusiasts, is the most concise manner of identifying Volt. That's pretty much a universal sentiment, which I agree with. It's easy to understand why GM didn't carry it forward to the SUV platform though, as they had intended back with the first generation design (that Saturn Vue plug-in Two-Mode). Plans carried forward still put too much emphasis on range & power, making it a very expensive approach. Nonetheless, it's easy to see how popular a Trax, Blazer, or Equinox with that tech could have been despite the challenge of price & efficiency. What did GM have to lose from trying? They pretty much lost everything from not.

- 10-07-2019** **2020 Update.** The category for PHEV is rather screwy right now, very much in a state of transition. Toyota has worked to steer clear of the tax-credit entanglement GM caused for itself. That meant waiting for Prius Prime's nationwide rollout to include the mid-cycle update. Fortunately, it ended up working out rather nice. The final stage of phaseout was triggered for GM last week and Volt is down to just 300 remaining unsold. That basically puts the 2020 right on schedule for 2020. In other words, marketshare growth is realistic. We can expect more over time too. Toyota's recent announcement to begin using their big Kentucky production plant for building RAV4 hybrid sets the stage nicely for a PHEV model of RAV4 to follow.
- 10-07-2019** **Moving the Needle.** This is that boil-the-frog situation again, but now with plugs: "*Gas is too cheap to move the needle for PHEVs IMHO. If you want to go clean then BEV is the only way to go. If you don't care about that, then the savings just aren't enough for people to care about switching. If gas was \$5 a gallon I think we'd see adoption increase rapidly.*" No matter what economic pressure there is, that's never quite enough for things to actually play out. So, enthusiasts make excuses by raising the bar. It's a big problem for the top-down approach. Fortunately, bottom-up doesn't have that issue. So, his IMHO is basically worthless. Opinions change. Facts do not, which I pointed out: History has already proven that seemingly realistic IMHO still unable to deliver. A decade ago when gas was over \$4 per gallon, the needle really didn't move for anything with a plug. Along the way, we have learned how much tax-credits helped established EV presence... but has yet to claim an audience beyond those who would purchase something green anyway. It's all about reaching beyond that audience. Hybrids taught use that formula for success. The ones that stir interest from those who couldn't care less about green have a price directly competitive traditional vehicles. The most obvious sensation is the RAV4 hybrid. That large of an AWD vehicle delivering 40 MPG for a price well within the price shoppers would be willing to pay anyway... \$27,850. Regardless of what the price of gas is, watching that hybrid become a plug-in hybrid will capture the imagination of ordinary consumers. They'll be able to purchase something with a plug that can deliver an all-electric commute. So what if they have to plug in for more EV range? It requires special effort. Just plug into a standard 120-volt outlet overnight. That's all. As much as we all desire BEV, it just plain is not realistic for the masses... yet. Only a single generation away is not a long time to wait anyway. Everyone can enjoy some EV driving in the meantime, while also moving that needle. Think about the contribution PHEV will do to help rapidly wind down traditional vehicle production, in addition to helping promote L2 upgrades at home. BEV will happen, just not yet for the masses. So, don't overlook the tech capable of providing a convenient bridge for accelerating mainstream acceptance.
- 10-08-2019** **Naive Comments.** Stuff like this is sad to read: "*I would like the 50 miles like the Volt.*" They simply have no idea what that actually means. It seems reasonable. The reality of the technology verses business is a harsh one though. There are very real tradeoffs to address. Most people are totally unaware of what they are. So, we get comments like that without any good outcome. They either just abandon hope or become disenchanted. Lack of information will do that. Enthusiasts spreading hype make it challenging to deal with. That means keeping replies to such comments brief: That large battery contributed to Volt being discontinued. It added too much to the cost, reduced both EV & HV efficiency, and prevented rear middle seating.

10-08-2019 **Awesome!** Every now and then, you encounter someone that's naive and the situation has a very positive outcome. That typically comes from simply not paying attention, where they really don't have any opinion because they weren't in the market. You really don't lose hope or become disenchanted when you aren't in the game anyway. If you're not shopping for a vehicle and have no plans to anytime soon, something a surprise like this happens: "*2020 Prius has a 3rd seat? Awesome!*" That came from a current Prius owner who is perfectly content with it. The impression I got was when the time comes years from now to shop for a replacement, he'll just compare what's available then. It's the go-with-the-flow approach. That's the same thing we see now with computers. When something new is always around the corner, you don't bother to get involved in the market until the time comes to make a purchase. Enthusiasts don't really understand that audience... which is why they have such difficult time recognizing why "*Who?*" matters... which is why I appreciate the sentiment of awesome. That was a great comment to read.

10-09-2019 **Process.** There are some who simply aren't aware of what it really takes to deliver something in high-volume, with sustainable & profitable sales. So, pretty much no matter what you post, they'll argue with it. Not fitting their expectations of process means they are woefully behind, to that. This provided interesting insight to that conundrum: "*They need to be a lot further along in the process than a concept car.*" Believing there is only one path to success is a very real problem. This is why I clash with enthusiasts. For that matter, it's why I end up arguing with those who believe new technology must always come from expensive vehicles. It's bizarre how they dismiss Prius, which has been amazingly successful and was always affordable... despite often being the vehicle which Toyota's technology debuted on. Anywho, that expectation of a specific step-by-step to be follow is madness. Talking about stifling innovation. You want inspiration & experimentation to come from any source in any manner. Creativity can not be forced in a specific manner. Ugh. Each refinement or replacement leads to a greater outcome, regardless of how it is achieved. It's one of those face-palm moments: There is no "process" to follow, only a set of components to develop & refine. For Toyota, they already have motor, controller, heat-pump, battery-chemistry, software, charging, etc. well refined. The only thing left is a variety of packages to put that tech into.

- 10-10-2019 RAV4 PHEV.** We got a tease from Toyota today. There will be a 2021 PHEV model of RAV4 coming next year. That's right on schedule, taking full advantage of the void GM is leaving behind and racing to get in front of Ford's PHEV debut. Of course, I'm most curious if it will be labeled as PHV or will carry the "*Prime*" naming... since my history intertwines with such a choice. But I digress. :) This new model will be the most powerful offered. That's intriguing. Highlights will be "*spirited acceleration, nimble handling and impeccable style*". It will also bring the Supersonic Red color to RAV4. Nothing else was shared. It really was just a tease. Fortunately, we got a specific date to focus on. It will during the Los Angeles Auto Show media days, on November 20, 2019. The expansion of choices is what will shake the industry. Having both a car & crossover offering incredible efficiency for an affordable price is what everyone has been waiting for, especially dealers. They'll be happy to carry Prius Prime when RAV4 with a plug becomes a draw. It's a very strong endorsement for the technology. That's the forward looking support they have wanted before taking the plunge. Investing resources in selling a niche is quite a risk, hence neither Volt nor Bolt actually changing anything at dealers. This coming from Toyota is quite different. You could easily see level-2 chargers getting installed for test-drive opportunities. When you have a top-selling vehicle stirring interest to plugging in, there's a lot of potential.
- 10-10-2019 New Warranty.** This announcement today is quite significant: "*Toyota is extending its hybrid battery warranty from 8 years/100,000 miles to 10 years/150,000 miles. The new warranty will apply to Toyota's entire 2020 hybrid, plug-in hybrid, and fuel-cell lineup.*" It's a profound step forward, directly addressing the biggest concern people have about anything with a battery-pack. Naturally, there was an immediate backlash to such an endorsement for their product. Spin is inevitable, but this time was remarkably quick and very easy to debunk. The claim was that Toyota has become so desperate to save rescue hybrid sales from their supposed downfall that they are extending warranties to retain customer confidence. I found it quite telling. That duration is the coverage all automakers were required to provide for ZEV ratings for many years now. It was a fundamental qualification often overlooked. With 20 years of history, what evidence is there that customer confidence was fading? We're just seeing ordinary market change, where there's a shift to a more preferred type of vehicle. In this case, it's the SUV... of which the hybrid market was pretty small in the first place. But now that it is growing, that means reaching out to an entirely new audience... one that simply has more concerns.

10-10-2019 **Smug.** More telling statements: "*Woo Hoo. Toyota has finally introduced the 2011 RAV 4 to compete with the Gen 1 Chevy Volt.*" That came from a new discussion topic about range expectations from the upcoming RAV4 plug-in hybrid. Some people never learn from mistakes. It's the same old nonsense. They obsess with a single trait and sacrifice all else for the glory it brings. That's the trophy mentality I pointed out potential serious barrier way back when Volt was first announced. Just a few months after the initial reveal, the bragging started. It made no sense. There was nothing of any merit to support such an attitude. Without any substance, the "*vastly superior*" mantra emerged. It was futile, of course. But that fate would take well over a decade to happen. Why would range alone be the determination of success or failure? I pointed out what should be obvious at this point. Clearly, it is not. A few still see the need to pound their chest in hollow victory, as I continued to deal with: Volt failed because it targeted enthusiasts, those who were more than willing to take advantage of the tax-credit opportunity for short-term enjoyment of range & power in a small vehicle that would never appeal to the masses. Seriously. It was doomed from the start. The technology itself was a different story. Born from the Two-Mode Plug-In we were promised a decade ago, it should evolved to the very thing Toyota is preparing to rollout. Think about how popular the affordable 40 MPG hybrid RAV4 already is. Think about how Toyota is planning to build it locally, using that large plant in Kentucky. Think about how easy it is to add a plug and larger battery to offer a PHV model. RAV4 PHV will be able to compete directly on the dealer's showroom floor without any subsidies, just good old fashion shopper appeal. Smug all you want about Volt, but that is something it never achieved.

10-10-2019 **Only Reason.** This is why most enthusiasts never break out beyond their niche: "*The only reason so many PHEV owners stick with 110v charging is because they almost all only have a 3.6 kW charger. And while an L2 charger cuts the charging time in half, they can usually still charge fully on 110 in under 6 hours.*" That's the look backward perspective, refusing to acknowledge early-adopter rollout is quite different from what finally makes it to mainstream audiences. In fact, that's exactly why Prius Prime is still only available in established markets. It makes no sense rushing, when you know change is coming anyway.,, for example, faster L2 charging. He further went on to claim: "*And by the time this (RAV4 PHEV) hits the streets, the VW ID.4 will be available with respectable EV range and likely not much more money than this, especially with the federal tax-credit (assuming it's still available a year from now).*" Again, that's not looking forward. Tax-Credits are limited to 200,000 per automaker. How many does VW have remaining and how many ID vehicles are they expected to sell annually? That rose-colored view of the upcoming world isn't realistic. I was happy to point out why: That outlook of the immediate future is far too optimistic, based on enthusiast perspective. Focus on what will actually work for the masses. It takes time to ramp up production and to get infrastructure in place. Toyota sees the right-time, right-place opportunity. That "*only reason*" is weak at best, and depends upon outdated & incorrect information. L2 chargers on a 40-amp line are quickly becoming the standard. That delivers a solid 7.2 kW charging rate, perfect for 8-hour overnight recharges... which deliver 200 miles of EV. So what if the first plug-in for the household doesn't exploit that full potential. It immediately an EV experience for the daily commute, representing a dramatic reduction of emissions & consumption, as well as encourages upgrades. With over 16 MILLION annual sales in the United States alone, it makes sense to target the masses... who are overwhelmingly in favor of a large vehicle like RAV4. Seeing a choice like that delivering 25-30 miles of EV represents a huge step forward. It will be a big rattle to the status quo without actually requiring much from either consumer or dealer. btw, how big of an impact do you really expect ID.4 to actually have? VW is less than 1/5th the size of big automakers here in the United States (GM, Ford, and Toyota).

10-10-2019 **Too Late.** Gotta like this attempt to outright dismiss: "*Nah, too little too late. By 2021 there will be so many BEVs available that PHEVs just won't be in demand that much.*" It was very easy to reply to that: Demand for an affordable large AWD plug-in won't be that much for a vehicle offering EV commutes and high MPG long-distance travel? You've lost your mind if you think there's an audience buying that load of garbage. Toyota is squarely targeting mainstream consumers with such an offering. Consider price. There are currently 4 models of hybrid RAV4 available, ranging from \$28,100 to \$36,630. Prius Prime starts at \$27,750, which is within the range for regular Prius at \$24,200 to \$29,250. That sets an expectation of PHEV model of RAV4 to be a very nice balance of price & ability, quite realistic for some showroom shoppers. As much as we would like BEV to be cheap & abundant soon, that just plain is not going to happen. While we wait, we'll get a few really sweet but expensive choices that favor those willing look beyond mass-appeal challenges. Learn some patience and help the rest of us encourage PHEV sales to stimulate household upgrades. What do you think the percentage of PHEV buyers that start with 120-volt charging will end up installing 240-volt charging within just a few years of ownership? Of course, now that tax-credits are coming to an end, the "*too late*" is basically meaningless anyway.

10-10-2019 **Too Early.** There are a few tending to damage control still: *"Too early to say the Volt failed... If you take the long view on Toyota plug ins it is too early to judge either. This article is not about the Volt though."* I find efforts like that telling. How can it be too early for a vehicle who's production has been cancelled without a successor to follow? What is there to hold onto at this point? I was happy to reply to that:

This article is about diversifying PHEV tech, exactly what Volt failed to do. After countless posts about how GM should have spread Voltec to a SUV platform, the reality that Toyota is well into their plans on doing that is vindication from all those *"behind"* and *"laggard"* claims. That rhetoric was really nothing but damage-control. Everyone knew the tax-credits were being exploit for conquest. So, none of the *"too early"* nonsense is going to take hold. It is meritless, just like those claims that Volt marketing was the problem. Trading range & power was a terrible decision, because it targeting the wrong audience.

Enthusiasts aren't what changes the status quo. It's the showroom shoppers, those loyal customers looking to replace their old Toyota with a new Toyota. GM didn't want to appeal to their SUV buyers with a plug, because that would have collapsed their dependency on high-profit guzzlers. It would have been an incredible example of the Osborne Effect. Toyota has avoided that by delivering a next-gen RAV4 hybrid and a mid-cycle updated plug-in Prius to satisfy the immediate demand... which it turn supports the transition away from traditional vehicles. It's a clever way of pulling the entire fleet forward. Even Corolla gets the hybrid option and already has a PHEV model elsewhere. btw, the next-gen Highlander hybrid is about to make its debut. And it too will be produced locally, here in the United States... which brings us back to Volt yet again. It was the successor to Two-Mode, the GM hybrid tech for SUVs. Remember the PHEV model of Saturn Vue?

10-11-2019 **Progress.** Having several years of agile experience and actual certification in the process, it's fascinating to see those without the background stumble to understand why such a different approach is being taken. They wonder how it could possible be considered an effective means of achieving progress. I take delight from having real-world experience from my career. The fact that is just happens to have such an overlook with my pursuit for greener tech is an amazing coincidence. Ironically, even the word *"synergy"* comes into play for both work & personal interests. Anywho, I encountered someone today who shared a background with continuous improvement also wise to the ways of agile. I posted: The point of a next-gen upgrade is to deliver something that achieves greater market penetration. And since Toyota quite literally changed the world with Kanban by providing an effective means of delivering continuous improvement, they have become the worldwide model of progress. Of course, that reality rubs some here the wrong way. Making adjustments along the way to adapt to an ever-changing market breaks their mantra. It's what happens when you set goals based on specifications rather than stating a business objective. The feedback from enthusiasts doesn't provide much with regard to mainstream consumer purchase priorities anyway. Just look for the absence of critical thinking by asking big-picture questions. For example, How will a plug-in hybrid RAV4 impact Toyota dealers?

10-11-2019 **Failed.** Quite upset about me being so blunt about Volt's failure to advance beyond just a niche, I got this: "*The Volt has sold as many as the Prius plug-in and Prius Prime. So I guess the Prius plug-ins failed too.*" Unable to deny anymore, acknowledgement with an inclusion is the next move from a disenchanted enthusiast. Unwilling to allow history to repeat again or to allow purpose to be forgotten, I'll keep posting reminders of what actually happened. It's interesting to see how intent was disingenious even way back then. So to see the outcome so accurately reflect those observations as that past was playing out, I'm intrigued to see what happens this time. This is how I put it: Purpose of the tax-credits was to establish a technology for the fleet prior to phaseout. That meant spreading it beyond the introductory vehicle to something mainstream. For GM, what was rolled out in Volt should have offered in a high-volume profitable vehicle, like Equinox. That didn't happen. Too late. Volt failed. For Toyota, there are nearly 90,000 tax-credits still available and the tech in Prius Prime will be rolled out to RAV4 prior to triggering phaseout. Purpose fulfilled.

10-12-2019 **Serious.** Much was said about the upcoming RAV4 plug-in hybrid. Ultimately though, there's always going to be a purist unhappy with anything but an absolute: "*Toyota does have a lot more credits left....but they are now selling multiple PHEVs that will use them up. I guess they just don't think BEVs will be a serious thing.*" Knowing this was just another troublemaker, the response was easy to provide:

Taking BEVs serious means working hard to change what their dealers offer. Pushing a variety of PHEV choices is a clear effort to move the entire fleet forward, supporting a very real impact for sales to their own loyal customers. Working bottom-up is an extremely effective means rapidly phasing out traditional vehicles. You appeal to those who are most resistant to change.

Watching GM pander to enthusiasts, wasting limited tax-credits in the process, achieved nothing in the end. A simple verify of that is to look at any GM dealer's lot. How many non-traditional vehicles are physically available on site for immediate purchase? They are all still guzzlers. Volt is dead. Bolt sales are lower Volt were. It was an incredible opportunity squandered. To suggest Toyota do the same is both irresponsible & irrational.

Know your audience. In this case, they are those looking to replace their old Toyota vehicle with a new Toyota vehicle. Attracting interest with the very popular RAV4 hybrid starting at \$28,100 is proving quite effective. Drawing attention to a model offering a plug doesn't require much at that point. In fact, focus won't even be on limited range. It will be a question of how fast can it be recharged. Potential buyers will envision their daily commute in EV and random errand running in EV. In other words, to insinuate Toyota isn't using tax-credits effectively is to turn a blind-eye to what is really needed for a paradigm shift to plugging in. Breaking the status quo takes far more than just appealing to early-adopters.

10-12-2019 **Juggernaut.** I'm on the offensive now. So this was thoroughly enjoyable to post: RAV4 hybrid is Toyota's juggernaut. Throughout the hype years of Volt, focus by enthusiasts was always directed to Prius. No matter how much I pushed to draw attention to how much more powerful of a hybrid system Camry had and the enormous potential RAV4 had, there was this underlying denial. When the need for diversification of Voltec was brought up, the response was to attack the messenger. Allowing the message of technology spreading meant acknowledgement of GM's failure to actually do anything to change their status quo. Their dealers wanted no part of anything requiring a move away from profitable guzzlers. Now, here comes that spread of technology from Prius to RAV4... from a hatchback to an AWD crossover. If anyone believes moving forward from a 28 MPG model (AWD LE) to a 40 MPG model (AWD LE Hybrid) for just \$850 isn't an easy decision, they've lost their mind. This sets the stage for a massive migration away from traditional offerings. Why wouldn't you get the hybrid model? At that point, stirring curiosity about the model with a plug becomes a simple matter for salespeople to promote. You just plug it into the existing outlet in your garage overnight for a full recharge. In other words, for those of you who attempted to undermine Toyota by using "*behind*" or "*laggard*" labels, it's time to face reality. The quiet giant is about to awake.

10-13-2019 Electric Pickup. UAW (United Automobile Workers) negotiations are not going well. Lack of agreement with GM management for nearly a month has avoided getting contentious, but that is expected to change. Something must happen. No one can afford work to be halted for so long. Word has emerged that a settling point could be for an upcoming electric pickup to be build in a Detroit assembly plant planned to be sold. This was a comment made in an article on the big EV forum about the situation: *"It's kind of a pity that GM wasn't able to make a more smooth transition from the Volt (retired in February) to a new plug-in electric model."* I wasn't about to let that opportunity for contributing my own insight:

Recall the facts. Way back in early 2009, the automotive task-force assigned to oversee GM's bankruptcy recovery efforts raised a *"too little, too slowly"* concern about Volt. They wanted GM to actually do something with the technology. Even back then, there was the impression Volt would become a showcase vehicle without any type of planned succession. And sure enough, that stumble to go nowhere is exactly how the situation played out. GM flaunted their conquest sales without ever making an effort to spread that *"EREV"* technology to any vehicle in their fleet. When Volt died, so did any chance of a plug-in hybrid becoming mainstream for GM.

Looking forward, how should an *"electric pickup"* be approached? That very same concern applies. Just building a small number of them for early-adopters to snatch up really doesn't accomplish anything. What type of pickup? Will it be a basic model which people rarely actually use the truck as a truck or will focus be on true heavy-duty abilities? Think about the audience differences. How many will be produced? There's the issue of profitability too. When should we expect high-volume production?

It's very easy to see GM messing up yet again. After all, they already went through this with hybrids. Remember what Two-Mode was supposedly designed for? GM never gave us any clear direction. Intent remained a mystery even after rollout began. That lack of any real plan carried over to Volt, hence the origin of that concern. Don't forget about the *"over promise, under deliver"* problem either. In other words, watch for the vague & ambiguous announcements. They were first raise red flags about something coming up short. Watch for the lack of accountability too. No concise goals is a dead giveaway.

In short, false hope is very easy to build. Don't give pity for what has been a series of pitiful outcomes. Look forward and insist upon detail.

- 10-14-2019** **At Home Upgrades.** Seeing the bigger picture often requires a nudge, especially with a comment like this: *"Sure beats buying an L2 charger and having an electrician come out to wire a higher voltage line to my garage."* I suspected the poster hadn't actually given it much thought. Providing detail is what I do. So, I did: L2 charger installs are currently the focus of electricity providers, with many scrambling to offer rebate programs. That charging infrastructure you establish in your house will become their profit focus in years to come. Having that means of selling you more electricity is a major win for them, hence finding a means of providing a subsidy for you. In our case, we got \$500 for each line (2 Primes = \$1,000). That's a big deal for any household planning to purchase more than just a single plug-in vehicle. Think about it. Most people only have capacity for just one 12-Amp draw overnight. This is why all the current sales during the tax-credit stage is really just low-hanging fruit. Those early-adopters look at the situation very differently from how mainstream consumers will consider plugging in. It's easy to get someone really excited about the technology to make due with L1 charging just one vehicle. But to truly change the status quo, it's getting the reluctant & second vehicles to embrace the idea.
- 10-15-2019** **Frustrating.** It is fascinating to watch a former foe, one who fought so hard to get me banned, now totally at the mercy of fate. His protective venue is gone. That daily blog for Volt died a slow death, where one by one the enthusiasts became disenchanted and left. 4 months ago, posting was shut off. There has been nothing since. Today, he tried to join a big EV blog discussion by venting frustration about GM having basically abandoned the EV market here. The mid-cycle updates for Bolt did not impress. I seized the chance to provide some exposition, along with some comment: Frustrated. Really? All those years of not sharing the *"too little, too slowly"* concern expressed about tax-credits being wasted on conquest sales weren't frustrating? Rather than spreading Volt tech to a popular vehicle, like one of the SUVs, it was shoot the messenger who pointed out the opportunity being missed. GM was well aware that they catering to a niche. Volt clearly wouldn't ever appeal to mainstream consumers. Enthusiasts refused to acknowledge that painful reality though. Instead, they endorsed that race in the wrong direction, hoping for some type of miraculous market change. It was a monumental mistake. The lesson learned is know your audience. Understanding priorities of ordinary shoppers by clearly stating goals directly targeting them is how to avoid repeating the same disastrous outcome. What does a person walking the showroom floor of a GM dealer truly consider important in the purchase decision?

10-18-2019 **Void.** There's nothing anymore. It's a strange sort of silence. Without any news or rumor or even hype, posting has dropped off dramatically. Loss of another 25% of tax-credit money for the final two quarters has killed what they had always leveraged as an expectation. It was foolish to expect subsidies to last, but that was the gamble they took. No miracle to save their flawed plan happened. I watched so many enthusiasts jump ship. Then when it finally sank, the few remaining kept the dream alive rather than face reality. At some point, no one will even know what I'm posting about anymore. There will be a discussion thread highlighting some recent plug-in news and I'll make reference back to that history... you know, stuff beyond the void, documented here so there's a record of just how stubborn & close-minded some people can be. They'll obsess with deliverable to a point where they become blinded to the original goal, unable to remember what they originally set out to do. That void can be helpful. You don't have some of the past to compete with anymore. Failed ideas are much easier to overcome the next time around when you have experience to better identify and better suggest what happens next.

10-20-2019 **Regret?** I know there was frustration, anger, disappointment, and dismay from this particular individual over the years. Not sure about regret though. That vehicle, for that matter a technology, he had defended so fiercely over the years was now dead. Much of his actions turned to shooting the messenger. He didn't like my pointing out of facts. Trying to get me banned didn't work. Trying to make me feel unwelcome didn't work. Heck, even trying to befriend me didn't work. I stuck to facts and he didn't like it. So, seeing this today got me curious: "*After the way they treated Volt...*" Speaking out about GM was not his forte. That change was clearly bitterness at work. Regret? Not sure. Perhaps I'll find out in response to what I posted:

Now it is understood why focus shouldn't have been on the engineering. All those "too little, too slowly" warnings, starting before Volt was rolled out, were genuine concern about the "*over promise, under deliver*" history repeating again. GM played that game already with Two-Mode. Those excited about the potential Volt offered turned a blind-eye to the realities of business, what had already become a disastrous effort to break away from the clutches of traditional guzzlers.

When gen-1 of Volt failed to attract interest beyond the realm of early-adopter sales, raised concern resulted in push-back from hope built upon ambiguous releases by GM. Sound familiar? That is what's happening again. Passionate enthusiasts will feed claims without merit. It's a wasteful cycle. So much opportunity ends up being missed.

As for the legacy dealership being a major stumbling block, that's a "*know your audience*" problem. Those wanting to promote the technology often don't recognize they are who has the greatest impact to automakers, not consumers. As much as supporters work to educate & excite people about what plug-in vehicles have to offer, it makes no difference when they cannot be easily purchased. True progress means getting inventory to change.

With so much history of delivery disappointment, we really need to focus on what actually changes the status quo. You want to make a difference with potential buyers, focus on getting their homes upgraded. That preparation for multiple vehicles in a household to all recharge overnight is what will sway dealers to stock more plug-in vehicles. Knowing their sales can be quick & easy makes all the difference. In other words, it's time to look beyond the petty arguments of power & range.

- 10-20-2019** **Nonsense.** It is always interesting to read stuff like this: "*GM is the biggest US auto company so they afford to do things their way. Low end cars are not going to be over-engineered like the Cadillac or Corvette. Their EVs are NOT cheap because they are NOT low end cars ok?! Your innovator's trap is utter nonsense.*" That's utter nonsense. GM is a big business with stockholders & dealers expecting them to deliver sustainable profit. The strike taking place right now should make it overwhelmingly obvious there is an expectation from their own production workers as well. For that matter, what about the obligation to suppliers? The very idea that not having to deliver upon expectations is absurd... hence the "*over promise, under deliver*" problem GM can never seem to shake. My interest comes from witnessing how deep the denial goes. Not wanting to face reality on such a scale is extraordinary. Yet, I see it all the time. In response, I keep pointing out the consequences of such denial: Volt is a great example of innovator's dilemma. It was intended to be a mainstream product... and your own response confirms it failed to achieve that. Not a Cadillac. Not a Corvette. It was expensive and only appealed to a niche... hence production ending. The nonsense is claiming that top-down approach was a better choice than bottom-up. We see a lot of potential with the latter, because there's still ample tax-credits remaining. GM's are used up. No plug-in hybrid SUV yet... and no effective means of delivering anymore... hence the dilemma.
- 10-20-2019** **Backward.** I added this to my reply after posting: "*btw, You have a backward.. Biggest means they have the most to lose.*" That really stirred some anger... of which, I'm not going to post. Quoting that doesn't serve any purpose. Point being, it was exactly what he didn't want others to know. Was he aware of that himself? I have no idea. But that word of such exposure is a painful reality he obviously didn't want to address. GM rambling on for years about how Two-Mode was going to revolutionize the industry. It was a constant impediment to Toyota that ended up being a colossal waste. Volt emerged out of those ashes, the non-truck implementation of the same technology. Despite going from prototype to production with a plug and being optimized for that platform, it was also a remarkable waste. Nothing became of the technology. Even the second-generation Volt (technically gen-3 Two-Mode) struggled to survive. GM still had no real interest in finally delivering a plug-in hybrid SUV, despite the prototype Saturn Vue SUV using Two-Mode with a plug having been promoted for availability an entire decade ago. No progress is what? Sounds to me like a massive loss of opportunity.

10-21-2019 **Very Angry.** Taking out their frustration on me is nothing new. This one was especially noteworthy though: "*SO WHAT?!?!..THEY CAN AFFORD IT!!!! YOU DONT GET IT NO MATTER WHAT...SO STFU ALREADY!!!!*" It was in defense of GM, who clearly lost a lot from so poorly managing Volt. Making excuses has become a momentous effort now. There's nothing left. All the damage-control reasons have been exhausted. It's over. So, they turn to Bolt for rescue. That isn't going well either though: "*The ONLY problem I see here with BOLT (VOLT too but its no more) is that its a COMPACT car size...*" It was the use of the word "only" that got my attention. I couldn't resist responding:

That rant above and this are history repeating. Clearly, that is not the ONLY problem. As the lesson from Two-Mode taught GM, the problem of pricing is far too big to ignore. That's why when Volt was first revealed, a target price of "*nicely under \$30,000*" was set. That was what Volt would need to be for sales to be both sustainable & profitable. With an aggressive timeline of 2010 for initial rollout and using up tax-credits prior to first generation completion, it was a reasonable goal.

Failing to see (or choosing not to), the trap of innovator's dilemma became the fate of Volt. Rather than capitalizing on the opportunity to adapt the technology, GM focused on feedback from their early-adopters. Trouble was, they were enthusiasts who didn't share the same priorities as ordinary consumers. That doomed Volt to fail. And it did. Production has ended without any successor. There is no plug-in hybrid available at the dealer for a loyal GM customer to purchase. That technology GM invested in has simply been abandoned. A green choice for the masses is still not delivered.

For a reality check, look at what Toyota has done. With roughly 90,000 tax-credits still available, the push to green the fleet is well underway. Camry, Corolla, Avalon, RAV4, Highlander are all common vehicles offered as hybrids able to compete directly with their traditional counterpart. Meanwhile, a mid-cycle update has been rolled out to Prius Prime, giving it the potential for nationwide sales no dependent upon tax-credits. Next month, the reveal of a plug-in model of RAV4 hybrid will take place. Combined with the revamp of the Kentucky plant to produce RAV4 hybrids, they are setting the stage for step forward with a potential for 500,000 per year. It is the very preparation GM never bothered to pursue. There was no effort to diversify.

Say what you want. That history is already written for GM. Whether the next chapter will have a better outcome depends upon those mistakes of the past being acknowledged and acted upon. If not, they could very well be repeated. Claiming the ONLY problem was being compact sized should raise concern. That is most definitely not the case.

10-21-2019 Agreement. Not everyone from that old argumentative time is angry now: *"I don't always agree with you, but I think the RAV4 PHEV is going to be a huge hit. GM has somehow managed to create a huge gap in their portfolio by not having..."* That use of the word "somehow" just buried within the comment was one of those ugh moments. How could that in any way have been unexpected? I pushed diversification for years. Oh well. It happened. Focus on what should come next is more important now more than ever. You think that will finally happen... asking sarcastically... Here's how I replied: It's more basic than that, a problem hiding in plain view. GM is obsessed with powerful vehicles. Worry about the *"trophy mentality"* came immediately following the reveal of Volt based upon how Two-Mode was falling apart. It was quite obvious power had been traded for actually being green. In other words, it was a matter of want winning out over need. Volt was doomed long before rollout even began. There was a glimmer of hope when gen-1 sales began to really struggle, when even the big price reduction did nothing to improve the situation. Hope of a second model, one configured for the masses, would actually come to fruition. Instead, enthusiasts chimed in and created a terrible enabler situation... encouraging GM to go even further down that range & power path. It not only sealed the fate of gen-2, it also created barriers for diversification. Meanwhile, the rhetoric grew to downplay Toyota's effort to do exactly that, diversify. Their plug-in upgrade was a simple matter of adding to their existing hybrid system. It was a profitable path to a wide variety of offerings. We see that happening too. Both Prius & Corolla hybrids now offer a plug. RAV4 hybrid is on the way to taking that next step too. In addition to that, we see a serious ramping up of RAV4 hybrid production, an undeniable setting of the stage for high-volume. I listening to all of those attempting to belittle Toyota with *"laggard"* and *"behind"* slander. They'd do everything they could to endorse the problem with a legacy automaker attempting to top-down rollout new technology to a market clearly not open to change. It has been confirmed a terrible decision. How could such a giant avoid the Osborne Effect with so much economic, political, and environmental problems stacked against it? Stepping back to look beyond the green factors, there's the simple matter of survival. GM followed profit when it was financially in trouble. We're seeing the same thing happen again.

10-21-2019 We Got Specs! Toyota just provided some specs on their upcoming e-TNGA platform. That's their EV program under development. Battery capacity will range from 50 to 100 kWh. That puts them in the just-under-200 to the somewhere-in-the-300s range for distance, spread across the variety of vehicles. Things are going to get interesting. Of course, I fully expect this reveal of information to be completely forgotten. Online posting about Toyota is mostly rhetoric. Getting actual news providing some specs for the upcoming EVs they are working on isn't exciting if you depend upon lack of detail. Having a poorly informed audience is how the antagonists thrive. Oh well. I now have a bit more to add to the arsenal. More weaponry is on the way too. A little bit more than a month from now the LA auto show will begin. That should be interesting.

- 10-21-2019** **Attacks.** Speaking of fighting antagonists, there's an endless supply of the rhetoric they spew. Fortunately, I recognize the patterns and now have refined what & how to reply. Some of their quotes aren't even worth repeating. It's the same old substantless nonsense. Avoiding facts is the dead giveaway they aren't even trying. That was what today turned into. He got tired of my posts, attempting to downplay them as rambling. That's the expectation when you post something business related. Economics, Advertising, and Market are all topics that don't hold the interest of those who thrive on range & power. My response this time to that was: If you don't want to hear "*ramblings*" about business approach for the transition from ICE to BEV, please use the ignore feature. Understanding impact to automaker, dealer, and consumer is important to some, so stopping the share of that information will not happen. As for that next 5 years statement, it leaves out some vital detail.
- 10-21-2019** **Troll!** No surprise, the attempt to call me out by exclaiming "*troll*" happened. That's inevitable. It's what happens when they simply want a venue for validating each other, rather than actually considering the situation and doing something about it collectively. I kept my acknowledgement of the desperate act to get me to stop focusing on business brief: The warning was that GM wouldn't spread Volt technology prior to tax-credit expiration, missing out on the opportunity as a result... and that's exactly what happened.
- 10-21-2019** **Uncompromising.** Some don't ever give up: "*The fact that my Volt can get me to work and back 112 km on EV only and makes your argument null and void. Sorry, but Prime will lose against my Volt with my foot only halfway down. Volt gives uncompromising performance in any circumstances.*" That typical chest-pounding to avoid recognition of problems is a very predictable outcome. It is one of those play-to-the-audience maneuvers. That gets you an applause, but doesn't actually accomplish anything. I really can't believe that childish behavior persisted for so long. So my work to remain ignorant is a bizarre waste. Though, that is the problem with change. Some people just plain don't want to. Pretending a niche vehicle will appeal to everyone is an act of denial easy to call out; yet, they do it anyway. Oh well. It was time for another brief reply: Attempting to dismiss cost by touting "*uncompromising performance*" is exactly the problem, a major factor that contributed to Volt's demise. That enthusiast perspective (putting the importance of range & power over everything else, especially price) is a disconnect with mainstream buyers.

- 10-22-2019 Worst.** I really get a kick out of reading these posts: "*Currently, Toyota makes the vast bulk of its income on ICEVs. PHEVs were a bridge technology that is long past its prime. It combines the worst of both technologies.*" The reason I like that is it provides evidence the antagonist really doesn't understand how the system is designed or operates. They literally just accept the rhetoric from others about it being a poor choice and never use any critical thinking to consider any detail. It's just the passing along of hearsay. I have learned to deal with it: Claims of "*behind*" require a forced engineering-only perspective. In other words, that intentional disregard for business is the basis upon which the "*laggard*" narrative is formed. Put another way, it's an effort to distract from the bigger picture. Reality is, Toyota has been focusing heavily on transforming their dealers... the true customers of the product they produce. If dealers are unwilling to let go of traditional inventory, no green technology will succeed. Seeing Toyota's push for RAV4 hybrid and the stage that sets for the RAV4 plug-in hybrid debunks any "*future*" argument. It is proving an extremely effective means of breaking the status quo. This is why bridge technologies are so important. Consumers cannot purchase what dealers don't carry. Being able to deliver a choice for quick & easy transition to both HV & EV is a best of both worlds situation.
- 10-22-2019 Digging.** Here's more of that same, tired rhetoric: "*PHEVs are OLD tech and arguing different doesn't serve you.*" It's interesting how some people will choose to fight plug-in vehicles that don't achieve their threshold of acceptance. Why? If it's affordable and does its part to promote, what's the problem? In other words, abandonment the "*No Plug, No Sale*" propaganda is underway. We're back to the mature perspective again. The obsess with new, disregarding tech that no longer stands out. It's the early-adopter perspective. They give the impression they'll do all they can to promote what they embrace, but in reality they move on as soon as it loses its edge. That disinterest for anything beyond initial rollout can be fatal to some products. The plug-in vehicle in particular needs the voice of experience. Sharing of stories producing real-world is priceless. Those researching a purchase will find results relevant to them compelling. The catch is, much of what an enthusiast shares isn't what a mainstream consumer would ever find familiar. That's why my videos attempt to point out what they would observe first-hand on their own, with some extra detail to help explain why they may find it interesting. In short, it is in no way OLD to them. As for the enthusiasts, here's how I told him what really matters: Prius PHEV, Corolla PHEV, and the upcoming RAV4 PHEV all use electric-motors, battery-packs, plug-in chargers, electric cooling & heating, and controllers/software to deliver an EV driving experience. Watching you dig deeper and deeper into your effort to mislead about how that tech plays a role in Toyota's future is serving me well. Keep digging!

10-22-2019 **Too Slow.** Rhetoric is never ending. Some simply won't give up. Their spin comes about by omitting detail and misrepresenting outdated information. That nonsense becomes "facts" they repeatedly post. Belief is that repetition will reinforce itself. Since most people don't bother to research, it works well to establish a narrative. At that point, the antagonist doesn't even have to explicitly mention the perceived shortcoming. It becomes a common belief. Catching it early is, hopefully, an effective means of preventing that from playing out. In the case today, it was pretending Toyota had only recently embraced change. I'm not going to stoop low enough to repeat what was said. Quoting a source who doesn't care about the truth gets old and serves to reinforce the narrative. So, I'm just going to share my response, an opportunity to provide some history & perspective: February 2012 is when I got my Li-Ion Toyota. That's over 7.5 years ago, no way "*recent*" in any respect. It was a Prius PHV. The 7-seat model of the regular Prius V followed shortly, also using a Li-Ion battery. Then in 2015, all Prius models except the ECO switched to using Li-Ion. The narrative of Toyota being too slow primarily comes from those doing damage-control for GM, which ended up resting on their laurels rather than spreading the tech to the rest of their fleet. Meanwhile, Toyota actually is spreading their tech.

10-22-2019 **Old Tech.** He kept going on and on, attempting to portray the technology Toyota utilizes as outdated. It's the same old "*mature*" spinning, where the antagonists tries to convince you that isn't the next natural step following early-adopter acceptance. You have to wonder if the person doesn't care about mainstream buyers or doesn't understand much (or anything) about the engineering. With so many component sharing opportunity, being able to leverage reusability on a massive scale should be obvious. In fact, achieving high-volume production is the most common means of lowering cost. It's a business fundamental completely absent from these discussions. I wanted to find out why, so I asked:

Are you really that poorly informed about how PHEVs actually operate?

- electric-motors
- battery-packs
- plug-in chargers
- electric cooling & heating
- controllers/software

Each of those elements vital to EV operation are part of the PHEV design. It's a win-win situation, offering an easy step forward while refining production of those shared components at the same time.

- 10-22-2019** **Avoiding Detail.** Even when you get some type of acknowledgement about a topic being avoided, there's the problem of detail. That recognition comes with an effort to prevent any type of in-depth discussion. If something is called out as important over and over again, they'll finally give in but don't allow any further attention. They just declare a conclusion has been reached and refuse to address it any further. That's a textbook antagonist move. I draw attention to that behavior: You're avoiding the details of how & when... which is why debates with you serve the purpose of helping to reveal weaknesses in the effort to penetrate mainstream markets. Your use of absolutes and careless disregard for cost & timeline are confirmation that BEV cannot reach that audience of ordinary consumers alone. Without the bridge PHEV can provide, BEV will just continue to only appeal to enthusiasts. That big picture is harsh. No generous \$7,500 subsidy makes growth far more difficult. Dealers aren't interested in a low-profit vehicle which requires a lot of effort to sell. No amount of debating with me will change that reality. It's a cold, hard fact. This is why an approach such as Toyota's, transforming the fleet from traditional to hybrid to plug-in hybrid is a promising step forward. It requires almost nothing on the part of dealer or salesperson or consumer. They simply purchase that technology stocked as regular inventory and get a quick how-to during the delivery process after papers have been signed. That's it.
- 10-22-2019** **Gotcha!** At some point, the avoiding detail by keeping things vague will fail. The next move for the antagonist is to just change the topic entirely, but remain within the category. It is the "*What about?*" strategy on a less obvious scale. Today, it was: "*You're avoiding the reality of climate change.*" He attempted to twist my callout of avoidance by claiming I was doing the same thing. I wasn't. It was really just a tolerance for accepting the discussion taking the long way. I knew it would eventually circle back around to my original point of shared components contributing to the advancement & growth of the fleet. I was delighted to point that out too: Gotcha! Climate Change is very much a priority. Reality is, deployment of PHEV will have far more of an impact. So what if their capacities are smaller. Daily commutes will become electric. That would be a massive benefit and it would be spread of far more of a popular much, much, much faster than BEV. No amount of cost-of-ownership debate will change the fact that most people simply don't care. RAV4 with a plug is something they'd be willing to consider though, even if there is a premium required to get it. This is why the effort with Prius Prime to prove out the technology prior to taking the next step was absolutely vital.. and the rhetoric of early-adopters meaningless. Lastly, I find it incredibly amusing how deep your denial goes with regard to the EV driving experience PHEV can deliver. The hope is you will eventually acknowledge that all-electric is all-electric.

10-24-2019 Compliance. Our president has exploited the reality that misrepresentation of a term or concept often enough will eventually distort its meaning to the point where people forget what it actually means. That's what we see with "*compliance*" from antagonists. They'll portray it as something slightly different, over time spinning it more and more. It is basically an effort to confuse. When that happens, there isn't much you can do. Their undermining has proven effective. Ask people what "*Global Warming*" actually means? Think about the original definition when the term was first coined. The use of the word "*Hybrid*" falls into the same category. It was intentionally misrepresented so often and in so many different ways, what it originally was intended to depict is lost. Anywho, knowing that, I kept my response brief: The term "compliance" is so wide of a term, it really doesn't have any meaning anymore. If you were to claim it is for CARB credits, then we'd point out how the factor & volume numbers actually equate... but you didn't. There's also the reality that pretty much every new green-tech starts out in the compliance stage before becoming a standard anyway.

10-24-2019 Home Setup. Online posting isn't just offense & defense of the new technologies. Sometimes, you actually get to address a constructive topic. Today, it was about home setup. There are those who genuinely want to advance a step or a few steps forward. They seek advice, asking questions with the hope of detail applicable to their situation. Others are individuals who will go out and teach what they have learned. That was the case today. We started with the basics. This is the message I try to convey to those not even aware of how to start: 40-amp line (240-volts) will deliver 200 miles in 8 hours. That rule-of-thumb is what we share at plug-in events for the basic knowledge people need as a basis for starting home setup discussions. Keep in mind, most households have more than one vehicle. That's why starting out with just a PHEV works out well, since it gets people plugging in right away (no intimidation making the decision at the dealer, knowing 120-volt works fine) and contributes heavily for the desire to upgrade to 240-volt later. The hope is that will stir interest in running multiple lines at the same time, getting the entire garage/driveway setup complete for all vehicles in a single effort. It's that entire household need many here fail to address.

10-24-2019 **How Much?** Placing value on something immaterial is a challenge. When it came to hybrids in the beginning, the value of smog & carbon emission reduction was zero... from antagonists. They absolutely refused to put any monetary attribute on a trait clearly defining the primary purpose of Prius. They always focused on saving gas. That was a contributing factor to why Volt had so much of a problem appealing to the green audience. It was neither an efficient electric-only vehicle nor an efficient hybrid vehicle nor a clean hybrid vehicle. When you looked at kWh/100 rating, MPG rating, and emission rating, they were all disappointing. The claim of "*vastly superior*" was easy to debunk, and without even taking cost into account. That's why the attitude we see today persists. It came from years of pushing misrepresentation & downplay agendas. Their own propaganda backfired. That's why I continue to ask questions. Today, it was all about asking for quantification of value rather than just accepting vague comments: Notice how many "*enough*" and "*get by*" and "*can live with*" comments come from discussions like this? They all make the same mistake of not knowing audience. As well of a job supporters try to do to make a compelling justification for avoiding the expense of a 240-volt upgrade, they fail to address security. Ordinary consumers tend to want a secure feeling of knowing no matter what the circumstances, they'll always be able to recover at home. With only a 120-volt connection, there is no message of strong confidence. Think about how much of a draw SUV sales were in the initial boom based upon safety alone. It made no sense paying so much more for so much less of an efficient vehicle, and there was no proof they were any safer. (Turns out, they were actually less safe.) But people were willing to pay that premium anyway. Knowing that even upon a late evening out (for pleasure or necessity) there will be no worry whatsoever about having enough charge available for the following day for whatever activities take place is worth how much?

10-25-2019 **Renewed Rhetoric.** Attacks on Toyota are really ramping up. That's a sign of increased awareness. They know change is coming. The death of Volt revealed serious problems for GM. Prior to production actually ending, belief was that Bolt would take over. That idea wasn't even challenged. Enthusiasts shifted over from EREV to EV without any reason of merit. There wasn't any substance to support their stance. Confirmation of that recently is why focus shifted over to Toyota. Being called out for not having any cards to play with or even any prospects on the horizon is a very uncomfortable position. Losing battles is one thing. Losing the entire fronts is another. Neither plug-in hybrid nor electric-only worked out. GM is screwed, especially when you step back beyond the technology to notice the chaotic nature of their business. Production is a disaster. There's no clear message anymore... hence getting irritated with Toyota. We see TNGA rollout has been so successful, there's no argument e-TNGA will follow the same process and result in similar returns. It's the plan GM never had, but should have. That's why I was constantly on Volt enthusiasts, to the point where they developed a hate for any type of business objective. Some still do, as I addressed today... witnessing the old rhetoric become renewed: Why are you spreading such misinformation? That is clearly incorrect. A quote from this website a few months ago stated the situation with the following: *"In the early 2020s, Toyota would like to introduce 10 BEV models worldwide, including six global models, based on e-TNGA platform."* Just because Toyota is diversifying their offerings by delivering a variety of choices doesn't mean they are ignoring BEV development. In fact, it's really quite the opposite. EV propulsion tech from PHEV offerings, like the upcoming RAV4 PHEV, will clearly make its way into other plug-in vehicles... including those without any gas engine. Toyota has stated their EV offerings will span many platforms: Compact car, Medium crossover, Medium sedan, Medium minivan, Medium SUV, Large SUV. In other words, they are much like other automakers, releasing small bits of info telling us about future rollouts.

10-25-2019 **Actions?** Level of desperation is easy to detect at this point. In fact, it's astonishing how bad things are getting. In the past, we had rhetoric. That was substanceless online babble. Very little was provided in terms of actual deliverables. Conquest sales were looked upon as representative of what would happen following the early-adopter stage. So, there wasn't any real outlook in terms of what actions were expected next. GM was given a free pass to exploit. Notice how different the situation is now with VW. We get dates & quantities on a regular basis. They may seem rather far-fetched and downright unrealistic (since no actual audience has been defined), but that's still way more than what we ever got for Volt. Much more is expected from ID and a lot faster. This is why actions taken by Toyota are so irritating for them. They see actual change. That's extremely difficult to argue. Impact to the status quo can be measured. Heck, it's so obvious, even ordinary consumers are starting to notice. I like that. Dealers do too. So, it is with great pleasure to post stuff like this now: You mean Toyota pushing their new TNGA platform across their entire fleet to replace traditional offerings with a wide array of hybrid choices, setting the stage for taking the next step with their e-TNGA platform specifically for EVs? That's going remarkably well, so much so, the big plant in Kentucky will be switching from Camry production to RAV4 hybrids. We know that there is a PHEV model of RAV4 on the way too. How does that not show a fast, profitable, and sustainable means of delivering EV later in high-volume? Notice how everyone pretends GM's anti-EV campaign with Volt never happened and that VW will magically transform a large portion of their business rapidly to EV choices even though nothing has been delivered yet? Ford making announcements now about several reveals on the way really don't tell us anything either. Ford simply stopped producing Energi vehicles and their EV was basically just a showcase vehicle. Changing the topic to fuel-cells to avoid acknowledgement of the actions taking place is telling. Toyota understands their audience. Toyota offers diversity for a variety of market needs. Toyota's actions clearly confirm that.

10-25-2019 **Volume.** It's the part of supporting plug-in vehicles rarely taken seriously. Everyone wants lots to be sold, but they really don't invest in the issues preventing growth. The best we tend to get is infrastructure build out... which does nothing whatsoever to entice dealer interest. Inventory expansion is a matter of diversification, not just pushing more of the same vehicle. The term "*volume*" should really be expressed as "*spread*" to more accurately express the desired outcome. Think about how different RAV4 is from Prius. The plug-in models, perhaps both could carry the "*Prime*" label, show an undeniable effort to step forward... well, 2 steps actually. Yet, some don't see it that way. In fact, some don't even notice how quickly change is happening. They stay fixated on the past. In a way, it is a game. Learn from the previous play, then take advantage of that right away. Realistically, most people don't have a good grasp of scale. Issues of quantity & time are often misunderstood... especially when there are so many intentionally trying to misrepresent. I try my best to share helpful facts to keep everyone aware of the bigger picture: That chart shows Toyota expects to have over half their sales non-traditional within the next decade. That's serious phaseout of guzzlers, a very high volume. What other automaker is striving to achieve change on that scale? Specifically with regard to the Ford topic, how much will a Mustang-Inspired Electric SUV transform the rest of their fleet? What kind of volume should we expect from them? GM's failure with Volt, an unprofitable niche without any successor of that technology, should have taught those here about setting realistic expectations. Appealing to showroom shoppers is far more difficult than pleasing early-adopters. Also, keep in mind there are only so many battery cells available. Even with serious production ramp-up, there's still the reality that 1 EV will consume roughly the quantity of cells needed for 5 PHEV. (60kWh distributed as five 12kWh capacity packs.) That makes a big difference when trying to reach a massive & diverse audience. Lastly, note that your source is nearly 2 years old now. Quite a bit has changed in the industry since then.

10-25-2019 **Keeping It Real.** Some people say it, but don't. What they deliver is tends to be overly simplistic. That's really easy to do when posting online. Those venues and the process don't promote detail or follow-up. A majority of posts are nothing but quick hits. It's a means of entertainment and self-gratification more than being a source of constructive efforts. That's just the way it is. You need dedicated private forums and in-person meetings to get true work done. In other words, some type of accountability is required. Hiding behind an avatar isn't real. Nonetheless, it is a good means of shaking out ideas and looking for weakness in arguments. Think of it as preparation for the "*real*" world. The topic of setting up chargers at home is still new enough to not have many problems with rhetoric, yet. This was part of today's discussion on that: The use of "*real*" implies the question focuses on difference beyond price. Considering an audience of ordinary showroom shoppers, not early-adopters, the biggest purchase decision influence is how the vehicle will be charged. For the masses, charging will take place at their residence overnight. Volt demonstrated the limits of 120-volt charging. 13 hours for 53 miles is a maximum. To leave for work at 7:00 AM, you'd have to start the charge during peak-load hours at 6:00 PM. That means a BEV requires a 240-volt charger for traditional-equivalent daily range. For a PHEV though, there's an engine available. So, getting by without any household upgrade is quite realistic. It's a good option for both buyer & seller. Expect PHEV sales to thrive throughout the next decade, side-by-side with EV offerings. They are both great starter & second vehicles for households embracing the idea of plugging in.

- 10-25-2019** **Untrue.** The effort to provide damage-control for Volt continues. There isn't much of that anymore. But when it emerges, the source is typically a past antagonist attempting to stir the pot. In this case, it was this comment: *"This sets it apart from most other PHEVs which blend battery with engine power under heavy demand at any speed."* I noticed his vague use of "most" with the hope to mislead. The expectation is no one will call him out on the ambiguous statement. No attention to detail allows assumption to take place... hence a successful effort to undermine. I called out today's attempt: Untrue. Prius Prime in EV mode will not start the engine either, even if you drop the pedal to the floor. That all-electric drive is unlike its hybrid counterpart, achieving a disconnect from any engine activity by literally disconnecting it via clutch. There are videos clearly showing that 68 kW draw of electricity, enough to merge onto a highway and drive in EV up to 84 mph. That can even be achieved while using the electric heat-pump at the same time.
- 10-25-2019** **Hold Mode.** If you can't misrepresent the market now, try misrepresenting the past. Ugh. He certainly tried. I'm not going to validate such attempts with quotes as much anymore either. That nonsense had its time. We learned from it and now move on. I will provide reminders of the history though: The older Prius PHV had it from day 1, way back in 2012. That "hold" mode was mocked & ridiculed, until 2 years later when Volt also got it. Another detail avoided is the fact that Prius Prime offers a charge-mode, which is surprisingly efficient. You can deliver a sustained 7.7 kW to the battery-pack and get 37 MPG all while cruising at highway speeds. It's a nice best-of-both-worlds feature, quite handy when you are on a road-trip with nowhere to plug in. We do that on our trips out west, storing up some EV capacity for use long after the engine has cooled. That electricity is handy for pre-conditioning too.
- 10-26-2019** **Losing Marketshare.** Obsessive focus on increasing EV range and the early-adopter market is a becoming a big problem for market growth. Many perceive the low-hanging fruit sales as a loss, one automaker taking sales from another. With a mature product, that could indeed be the issue to focus on. But when a non-legacy company is helping to break new ground, that's an entirely different situation. This is why Tesla shouldn't be treated the same as GM. There is nothing to phaseout. There are no old dealerships to convert. Heck, there isn't even existing staff to retrain. With GM, that has always been challenges enthusiasts simply dismissed. That lesson wasn't learned from Volt or Bolt though. The same blindness is a source of attacks on Toyota. They don't understand how the entire industry must work together to achieve mainstream change. Ugh. It's really unfortunate to have to address that still. You'd think real-world outcomes would help teach what should now be something recognized as the true problem. Sadly, that's not how rhetoric works. They spin what they want. I keep pointing out their oversight: That feel good story is really a narrative to avoid addressing the problem still faced by the industry. Battery technology (cost, density, and volume) are all still hampered. Research has always been pushing, striving to achieve those barriers to mainstream acceptance. Even now, as Tesla works to overcome saturation of the early-adopter market and loss of tax-credits, there is no guarantee the necessary growth will actually happen. However, Tesla's top-down approach compliments Toyota's bottom-up approach quite well. So, regardless of whatever online spin gets posted here, the effort continues. In other words, if you think marketshare is being lost, you really don't understand who the competition actually is.

- 10-26-2019** **Video: Test-Drive Suggestion (using Charge-Mode).** It was nice to finally have a chance to put together some detail to share on this topic. This is the kind of thing you cringe every time you hear about it. Sadly, being poorly informed or not making an effort is far too common. I've heard stories of people interested in Prius Prime, but ending up being disappointed at the dealer because no one bothered to charge the battery. Without that plug-supplied electricity, you don't get the full experience of EV (electric) driving. That's unfortunate. There is a handy solution though. Using Charge-Mode is a quick means of charging the battery. When you hold the EV/HV, rather than just pushing it, that feature will engage. It instructs the engine to operate beyond just HV (hybrid) mode. The result is electricity generate from gas instead of plugging in. That isn't the most efficient means of recharging the battery, but it is quite useful when you would like to go for a test-drive but the salesperson was unable to accommodate. Here's the video... [Prius Prime - Test-Drive Suggestion \(using Charge-Mode\)](#)
- 10-27-2019** **Not Ready.** Focus on Toyota from the Tokyo auto show was on the extra stuff the automaker does, side projects which are commonly not understood. That information is used to spin a "*not ready*" sentiment. It's annoying, but understandable. I pointed out: Trouble is, enthusiasts aren't actually paying close enough attention. Turning a blind-eye to Toyota's message of pricing is nothing new though. In fact, that was a major argument point against Volt even before rollout began. It was too expensive. That's still true an entire decade later. The cost-per-kilowatt problem remains a barrier for reaching the masses. So while waiting for battery technology to continue to advance, Toyota allows its engineers to indulge. Having that freedom to experiment, exploring the possibilities is priceless. It's unfortunate that opportunity is lost to so many. This builds a stronger development team as well as serving to help push the potential batteries have to offer. As for the disruption claim, it's interesting to see more posts from those thinking Tesla is the competition. It's not. Tesla is a major contributor to the effort to move away from traditional vehicles. Their top-down approach is complimented by Toyota's bottom-up approach. Both are working hard to appeal to very different audiences to achieve that same goal. In other words, the perspective of "*ready*" is audience dependent. The number of people unable conveniently recharge or to even afford a plug-in vehicle is enormous still. Not acknowledging that is doing a disservice to those who are struggling to overcome those challenges.

- 10-27-2019** **Lies & Hypocrisy.** There is quite a stir now, as audience changes. It's a look back at select history, giving a very distorted impression, at best. At worst, the new online participants will discover some narrative and follow it without question. The death of Volt was inevitable, since those enthusiasts pushing were terrible representatives of ordinary consumers. They certainly believed they were endorsing mainstream preferences though. Not seeing their effort was built upon lies & hypocrisy was a fatal mistake. How anyone could turn a blind-eye to so much conflicting data is remarkable. I would have never accepted the idea that such a large group could so easily disregard information like that. They did though. I replied back to the stir today with this reflection: We witnessed that quite a few times over the years. In fact, that's where the "*over promise, under deliver*" came from. It is odd that some still haven't figured out how that works. It's a matter of understanding audience. Who? When? Where? For example, advertisements are short-term. How many times have those here complained about "*self-charging*" with the implication that was the ultimate philosophy & approach for the across every division long-term? That's absurd. They are for at-the-moment sales; yet, they aren't treated that way. In other words, look for actual change. Do the actions taking place bring about a step forward? For an example of that, look at what happened with Volt. It never attracted GM's own customers. Sales of SUVs & Pickups continued to grow and sales of cars dropped significantly. Words of executives and promotions of the technology didn't result in any change to what the dealer's stocked as everyday inventory. It's quite remarkable how uptight some individuals get from announcements and how blind they are to recognizing true progress. Focus on outcome. What changed?
- 10-28-2019** **Moving Forward.** That stir continued on into the next day. Working with an entirely new audience on such an old topic is fascinating. They repeat the same mistakes, despite even more data disproving claims. It's denial on a scale you wouldn't ever believe. But then again, our history has a past plagued with believing what you want to hear, not accepting what you actually see. Ugh. To that, I say oh well and shared my observations: That's why "*know your audience*" came about. Toyota has never been interested in conquest sales. Looking at the disastrous outcome that had for GM with Volt, it has proven a wise choice. While the EV market matures, Toyota will push traditional vehicles out by phasing in hybrids, with RAV4 getting lots of attention... setting the nicely for the plug-in model to follow. What other automaker has such a simple process laid out for quickly moving their entire fleet forward?

10-28-2019 **Consequences.** Carrying rhetoric on, rather than learning from the past, seems to be this new audience's forte. Ugh. That's why history repeats. Oh well, again. I just keep sharing what I observe: Speaking of audience, it has been interesting to watch antagonists struggle with the steady progress Toyota is making. They have no clue how to effectively continue with their anti-EV rhetoric as the entire automaker product-line takes a step forward. And in this case with Lexus, it's several steps. The reason why is simple, they have no solid reasoning to explain how Toyota will fail. Descriptions like "*behind*" and "*laggard*" don't carry any weight when there's nothing of merit to support claims. That's quite a difference from the downfall we saw with GM. It was obvious how heavily dependent Volt was upon tax-credits. When expiration approached, cost was simply too high to offer affordable pricing and there were no other models to bear the burden. With Lexus being priced in a higher tier, that pressure isn't there anyway. Assisting matters, we'll see both hybrids & plug-in hybrids helping to push down cost through their volume from Toyota brand offerings. Launching an EV won't silence antagonists. In fact, they'll just find some other way of spinning the situation. Ironically, their efforts to undermine will end up helping to promote... since what gets posted will draw attention to the new offering... consequently, taking away attention from other discussion opportunities.

10-28-2019 **Group Think.** There's a mantra of old being bad that overweighs logic. Some just can't get over the idea that long-term outcome can come from long-term planning. It's bizarre how success is gauged upon trying something bold & new. The idea of steady & true (continuous improvement) is lost to this new audience. That makes sense though. A group of new participants may not have the background. No exposure to alternate approaches may give the impression alternatives are not possible. After all, the Volt enthusiasts were obsessed with a one-size-fits-all approach. They never ended up seeing the entire forest, fixation was always just the one tree. It's really bizarre when you see analogies & cliché playing out to such an extreme. It was like interacting a living caricature. Anywho, elements of that still persists... and I'm still dealing with it: That incredibly vague "*old tech and battery is the future*" reveals a lack of understanding how Toyota's hybrid system actually operates. Adding a clutch creates a vehicle capable of delivering all-electric commutes on a platform able to deliver profit in 2020. That's far from "*woefully inadequate*" in any regard. As for not understanding the tougher emission/efficiency standards, that comes from failing to look at the bigger picture.... which ties into your shared sentiment. It's a group-think problem. Focus is on just the newest offerings. As a result, ordinary choices are getting neglected. Toyota's mission is change across the board.... not to endorse token efforts.

10-29-2019 **Raising the Bottom.** California rules are a mixed blessing. CARB credits do indeed serve a valid purpose. They push automakers to innovate. That's change for the sake of change though. It doesn't actually encourage them to rollout any new tech across their fleet. In fact, what it really does is impose a minimum. There's no real incentive to advance beyond that artificial ceiling. It's an unfortunate reality many don't actually see. That's why the TOP-DOWN approach is favored so heavily. Focus on that paints a rosy picture. You get the impression of progress. Sadly, the benefit doesn't extend beyond the spotlight. That's why the BOTTOM-UP approach must somehow be included. Balance either within or from an industry perspective is vital. In that regard, we see Tesla and Toyota complimenting each other. It works well in early stages. Moving to the next step presents challenges. Seeing that isn't easy. Many online don't. That's where the rhetoric comes from. It can be difficult, if not impossible, to overcome. I keep trying: Good intentions on California's part have resulted in problems from some automakers. Rather than improve the emissions/consumption of their fleet, the outcome is gaming the system. Toyota sees no reason to endorse such behavior. It makes sense too. RAV4 hybrid is a large AWD vehicle delivering 40 MPG. It's profitable and sets the stage well for a plug-in model. The regulation from CARB doesn't push change across the board; instead, it encourages fleet offset. We end up seeing "*compliance*" vehicles for just those markets as a result. Often, they are low-volume and unprofitable. That creation of niche products is the reason for not wanting region-specific approach. A common standard raises the bottom. The other does not.

10-29-2019 **Distraction.** The rhetoric is endless: *"Because you don't need even a single EV to be compliant with CA's CAFE requirements. They are probably playing the distraction game so their competition would slow down investment."* The fight against it isn't hopeless. Change is slow & subtle, but it can be detected. It's a matter of pointing out the clues:

It is the distraction game. Ironically though, you've got it backward. GM rolled out an EV and had their enthusiasts spin stories to draw attention away from the reality that it did nothing at all to actually change their status quo. In other words, Bolt has been a token offering with no prospect of ever becoming mainstream. GM simply wasn't interested. Toyota on the other hand, wants their entire fleet moved forward... as evidence of their hybrid efforts overwhelmingly confirm.

Notice how Prius, Corolla, and RAV4 hybrids are all on the short path for their plug-in hybrid counterpart to becoming common? How does that in any manner reflect the claimed kicking & screaming attitude? When you look at the big picture, they are quietly pushing change within their own production. It's others who are spreading the lack of any current offering as somehow a massive resistance... like those in doing damage-control for GM.

Look at the other big legacy automakers. Do we actually see anything of substance from GM, FCA, VW, or Ford yet? None of them have rolled out high-volume profitable offerings either. In fact, Toyota is well ahead of them with regard to change at the dealer level. Inventory shifting away from traditional choices is undeniable. In fact, RAV4 hybrid is a runaway hit... so much so, the upcoming PHEV reveal should be quite a draw... enough to finally quiet those spinning stories.

That very real change on the showroom floor is what has the greatest impact... not the rhetoric we encounter online.

10-30-2019 **Knowing.** I heard arguments for years from early-adopters who thought they understood what mainstream buyers would prefer. It was madness. Failing to identify the mismatch, despite having it pointed out hundreds of times, turned into acts of obvious denial. This is why I keep pointing out the source of issue. Focus on the issue itself just encouraged the madness. Not wanting to accept a fundamental mistake in the market they claimed to be experts of kept me going, it provided a means of breaking through their rhetoric. In short, I saw they were wrong and wouldn't allow their misleading to continue. Here's how I describe it online, in the context of the on-going effort to provide damage-control for GM: That's why *"know your audience"* comes up so often. GM's customer is that who purchases vehicles from them, not who ends up with it in their driveway. Appealing to a regional manager submitting orders to stock inventory is far different from gaining thumbs-up from an enthusiast. Think about what they must consider for drawing interest to their dealer's lots. It certainly isn't the range-and-power nonsense we usually have to deal with here. It isn't anything related to emissions standards either. It's what they will easily be able to sell for a profit. This is why early-adopters have such a difficult time understanding why the next stage of sales is so much more difficult to achieve. It's a different audience requiring a different approach. RAV4 PHEV is most definitely different.

10-30-2019 **Intentions.** We seem to be reverting back to basic spin & downplay: *"Toyota on purpose chose to exploit the tax credits by making a low range PHEV that is the Prius Prime and have it slightly cheaper than the Prius. But the low electric range made it pretty useless."* Such a claim is easy to rebut. The enthusiast won't accept what you post, but it works out nice for conveying some history. After all, the online lurkers now don't have that background... especially with regard to intentions. So, I posted:

That's the standout statement on this thread. Toyota strived to deliver an affordable offering, one with a MSRP low enough to not have any dependency on tax-credits, and you spin it to look like they were gaming the system. That is just plain wrong. Toyota is well aware of how limited of a quantity the credits are and how vital it is to establish market pricing by setting a solid expectation long before using them up... which is exactly what they did. In fact, they did such a good job of that, there are credits still available for the upcoming RAV4 PHEV.

As for the "useless" claim, that's an act of pure desperation to post such blatant greenwash. Charging overnight 365 times (daily for a year), the resulting EV distance provided would be 9,125 miles. To say that amount of electric-only travel has no value is sad, a clear disservice to anyone promoting plug-in vehicles.

Again, Toyota's effort is to raise the bar for their entire fleet. Focusing on just a limited offering to fulfill a specific regulation isn't a complete solution. Certain offerings will get neglected as a result. Phasing out traditional vehicles with a rapid replacement of hybrids and plug-in hybrids ramps up the momentum for change. There's little resistance when you see the entire product-line adopting the use of batteries.

10-30-2019 ***I Don't Want Your Junk!*** I attended an event put on by the state of Minnesota. There's an effort to make it part of CARB (those states enforcing more strict emissions regulations than what the federal government requires). What level to commit to is what's being researched now... hence inviting a bunch of us to provide feedback. There was much to say from EV owners. The highlight though was when someone who was clearly struggling just to make an honest living finally got a chance to speak, then ended up screaming out that statement. She was really upset, hearing about the subsidies given for new purchases, then getting what she believed was no longer wanted as a used vehicle. Given the opportunity to address her directly (an unusual request) rather than taking the floor for general comment, I pointed out those used EV choices are not like ordinary used traditional vehicles. Even the state wasn't aware of this bit of info... *Toyota now provides a 10-year / 150,000-mile warranty.* A sense of awe overcame the audience, included that very frustrated person. With so little to ever need repair and such a guarantee from automakers, market perception can change. A used vehicle won't seem so used anymore.

10-30-2019 **Enhanced Hybrid Battery Warranty.** This is the official statement provided by Toyota about their warranty: *We're proud to announce a significant enhancement to our Hybrid Battery Warranty. Starting with the 2020 model year, every Toyota hybrid battery warranty is being increased from 8 years or 100,000 miles, to 10 years from date of first use, or 150,000 miles whichever comes first. This enhancement serves as an indication of our confidence in the quality, dependability, and reliability of our products.*

10-31-2019 **Used Market.** Armed with fresh feedback regarding audience, this was something I jumped at the opportunity to share.

A vital component almost universally overlooked when it comes to approach is the used market. If rollout begins with the highest priced new vehicles, there's basically no way someone who cannot even afford a new economy vehicle could ever afford something used from the top. It excludes that audience entirely. Focusing on customers who are looking for something new that's affordable means the used market will get supply... hence bottom. With all the publicity about how reliable and low-maintenance plug-in vehicles are, it makes sense ensuring that such a large group of shoppers are not overlooked.

GM actually gave that goal a lot of attention prior to the rollout of Volt, coining the phrase "*nicely under \$30,000*" to clearly identify the target they were shooting for. Unfortunately, GM did an absolutely horrible job of actually meeting their own goal... missing it by quite a bit. Ironically, their biggest competitor did deliver on that. The MSRP for Prius Prime, which is surprisingly well loaded for a base model, is just \$27,750.

Seeing how well Toyota hit the mark on affordability, it should be easy to recognize their next step... working to deploy that technology across the fleet. What other automaker has already demonstrated the potential to deliver a successor to traditional vehicles on such a massive scale without resistance from dealers? It's that bigger picture people online here continue to neglect. Remember, dealers don't just sell new vehicles. That used market impacts them financially too.

10-31-2019 **Cherry Picking.** When you get attack after attack, each attempting to spin a different topic without success, it's a good sign. Antagonists get and hope something will get the attention back on them. Each time though, shooting down their nonsense becomes easier. For example: "*Even an average BMW now pollutes less than an average Toyota.*" I was amused. He clearly just did a quick look at the chart published today and grabbed the next highest automaker, rather than considering the entire chart. Even more amusing was how old the chart was. That data was from 2 years ago. Think about how much has changed since then. That made the reply very easy for me and very difficult for him to argue: That's a great example of cherry-picking. Toyota's average is at 25.5 MPG. You went out of your way to avoid mention of Ford being at 22.9 and GM at 22.9 and FCA at 21.2 MPG. All three of those major legacy automakers are clearly trailing behind. Omission of important data is misrepresentation.

- 10-31-2019** **Poor Range.** This didn't work either: "*I have nothing against PHEVs, but their poor electric range is the reason their sales are slumping...*" It is ineffective, since it is so vague. Posting any actual quantity brings the discussion to a different place. So, I did: That's called anecdotal reasoning. You're making an observation, then drawing a conclusion unaware of other factors of influence. In this case, you seem to not realize Toyota burned down inventory, causing a sales reduction. That so-called "*slump*" was intentional. It made no sense whatsoever wasting tax-credits on the older model of Prius Prime to compete with the discontinued Volt. Waiting until the fall when GM was gone, then rolling out the updated model of Prius Prime while also revealing the upcoming plug-in model of RAV4 hybrid is why... vital information you did not include. And again, there is no way to spin 9,125 miles per year as poor. That's 76% of the annual average driving distance for most people. If they plug in at any other time besides overnight, their EV miles increase. That's a significant electricity benefit, period.
- 10-31-2019** **Supposed Studies.** His don't bother claim was made from a reference to some unknown studies. No source or even any data was provided. It just a horribly vague imply without any substance whatsoever. It went on to make this assertion: "*People installing a charger for such small electric range is a hassle.*" No detail at all is telling. But since I already knew his purpose was to undermine Prius Prime, there wasn't anything else to learn. So, I punched back: That reason you provided for why "*people don't bother to plug in PHEVs*" is the insight I needed to confirm you aren't actually trying. If you were, you would recant that claim and point out it was a spread of misinformation. The PHEV you have been repeatedly belittling only take 5.5 hours to recharge using a standard 120-volt outlet. Most households have several already in their garage. You just plug in the device that comes with the vehicle. There is no charger to install. Nothing about that is a hassle. As for the "*plenty of studies*" part of the claim, that's what I call useless. No reference whatsoever was provided as a source to support the statement, making it highly questionable when the study took place, who was studied, and what the scope of the study covered. Odds are, there was just some small sampling a number of years ago asking early-adopters what their opinion was of the technology back then. I eagerly await something constructive as a reply to this.
- 11-02-2019** **Scarcity.** The topic of availability is stirring discussion. Only those regions of the country which had offered Prius Prime prior to the mid-cycle update are getting deliveries. That makes sense. While ramp-up takes place, you really don't want demand to exceed capacity. So, focus on where there is interest already. Once flow of sales stabilize there, then move on to expanding territory. Growth is vital, but not if that requires sacrifice. Dealers are unwilling to accept that. They have plenty of other inventory to offer. Once Prius Prime becomes an easy vehicle to stock, then they'll actively engage. Unfortunately, the majority of those posting online don't recognize that aspect of the business... know your audience. So, I attempted to convey some of that information in manner others could comment upon: With regard to dealer inventory, it has been growing well in established markets. Watching online, I have seen the coming & going activity. Build up to have supply on-hand for attention the PHV model of RAV4 that will be stirred should work out to be really nice timing. Hopefully, shortly following that, the other areas of the country will start getting them. That's right on schedule for a 2020 model rollout. Everyone else getting them early is a plus. Waiting for other factors to first play out should really payoff. Some things show no benefit from being rushed.

11-03-2019 Dealer Misleading. Ugh! It's very frustrating... but by no means a surprise... to read this: "*On the Star Tribune opinion page, the president of the Minnesota Auto Dealers Association suggested that EVs don't work well in cold weather.*" That's blatant misleading. They work fine in the cold. True, range is cut quite a bit, but that has literally nothing to do with operation. In fact, the powerful electric-motors and battery-packs make them more reliable than traditional vehicles throughout Minnesota's cold season. Operation is not impacted. It's vague statements like that which supporters really resent. If he had been explicit, pointing out the reduction of sense of capacity (due to heater use) or the longer recharge time (increased for pre-warming), that's different. He didn't though. It was a blanket suggestion, void of any actual talking points. It's the situation where supporters don't get the opportunity to add comment about how EVs deal with the cold. For example, Prius Prime has a battery-warming system. Even in the dead of the Winter, my gauge shows the pack is maintained at temperature of 39°F while plugged in. That overcomes the impact of temperature on lithium battery chemistry when it drops below freezing. Keeping it above that threshold by staying plugged in is a simple means of addressing the cold. After all, how many people grew up having to plug in their vehicle overnight anyway? As for the driving itself, so much power from that low-end torque electric-motors provide is clearly superior to a combustion-engine turning the wheels. You get the benefit of regenerative-braking too. Having the electric-motor help slow the vehicle, rather than depending entirely on brakes which can lock the wheels, is also clearly superior. I find driving my Prius Prime here in Minnesota during the cold season a real treat. Think about how much gas I'm not wasting when stuck in heavy stop & slow traffic.

11-04-2019 Change. No longer reporting monthly sales is really hitting antagonists hard. They looked forward to attacking every month. In fact, I even saw a post last week anticipating the opportunity. It was a form of self-validation. They seek out a means for justifying support of a flawed approach. Each was easy to spot too. Just look for evidence of tax-credit dependency. When they quote purchase-price rather than MSRP, you know the scope of their view was limited to just early-adopters. A perspective which excludes mainstream consumers is doomed. Some are beginning to recognize the shortcomings of that approach. Assuming economies-of-scale and high-demand would have been well established by now was the mistake. They simply refused to be realistic. Pretending data which reveals an oversight doesn't help anyone... and they are now well aware of the consequences of not addressing that. I continue to point out that problem too. The change to quarterly results becoming the standard is painful for them. Everything related to their approach has been geared to micro. Having to shift to macro brings about a lot of uncertainty... and reveals they were clearly not prepared for this next stage. Oh well. It's not like I didn't say this was coming, as my reminder today pointed out: Limited scope of "*EV Market*" discussions made it a necessity. Participants weren't looking beyond what was happening in the here & now, making consideration of buyers beyond initial subsidized sales fodder for spin. Same nonsense every month is not what anyone in the industry should have to deal with. Switching to quarterly will better reflect what's really happening in the mainstream realm. That's what truly matters, not what enthusiasts say or do. Remember, the goal is get dealers to stock plug-in vehicles as regular inventory. That means volume well beyond the tiny monthly quantities we've been used to. Audience growth is difficult. It starts with a change of perspective. Think about those outside of the early-adopter groups really want to know about.

- 11-04-2019 Supply & Demand, lost.** That topic of scarcity opened up the opportunity for antagonists to launch a new attack campaign against growing interest in Prius Prime. It started with the usual: *"Toyota had the lead, lost it, but is not totally lost."* That's the simplistic measure of progress, based solely upon perceived efficiency... which translates nowadays to longest range. I find it quite telling when such a crude measure is depended upon. This is why Volt enthusiasts failed to understand the market. They never learned to look beyond just range & power. They brought about their own doom. I repeated that teaching moment for this new audience, who is quite unlikely to exhibit any more interest than the prior: Leadership is finding a means of reaching the masses. MSRP of Prius Prime overwhelmingly confirms Toyota has established a strong foothold in the upcoming market for affordable plug-in hybrids. You get both top-rated EV efficiency and top-rated HV efficiency as at price directly competitive with traditional vehicles, no tax-credit required. EV speed goes all the way up to 84 mph. Heat-Pump efficiency is the industry's best. What other automaker has delivered something capable of the same? You want more, plan to purchase the upcoming RAV4 plug-in hybrid. In other words, claims of Toyota having lost their lead are unfounded. As you say, it is not totally lost. They are an automaker who has strived to design a technology for mainstream consumer, something to bring about noticeable change at dealers. That is very much leadership, quickly unlike appealing to enthusiasts.
- 11-04-2019 Supply & Demand, behind.** That desperation to spin Toyota's position as behind continues on: *"Toyota get with the program, you will be left in the dust!"* I find it all quite vindicating. I did my studying and shared my findings with a wide variety of those willing to provide feedback. From friendly to outright hostile, they confirmed what played out and what is to come as a very effective means of change: It made sense for Toyota to remain only in the original markets (roughly half the United States) until the mid-cycle update was ready. That update (known as the 2020 model) is only now reaching decent supply levels in those markets. You can actually check inventory with just basic searches. The expectation is that 2020 model will be rollout out to the rest of the country sometime in the next few months, putting it right on schedule for 2020. Having waited means the introduction of Prius Prime in the center & southeast of country will be with seating for 3 in back. Combined that with some quick searches revealing the car itself is on it's 4th model-year, you've got evidence of Toyota leaving most others in the dust. Establishing reputation for a solid, affordable choice takes time.
- 11-04-2019 Supply & Demand, debate.** The typical media outlet will stir controversy to attract reading & participation on their website. This was a long since debunked claim from 2.5 years ago republished: *"And its gas engine might come on randomly and too often making its EV status debatable."* I was quite annoyed. That's the basic FUD from publishers, doing anything they can to keep strong stories from the past alive. From individuals, it is known as *"bait"* from a troll. I posted this to draw attention to the act: That statement in the opening of this article is not a subject of debate. It is evidence of having either inadvertently switched into *"EV Auto"* mode, a feature designed to ready the gas engine for brief bursts of power when called upon, or plug-supplied electricity was used up and the system was in *"HV"* mode. Because in *"EV"* mode, driving up to 84 mph and down to 15°F is all-electric. Even if you drop the pedal to the floor, the gas engine stays off.

- 11-04-2019 Supply & Demand, why.** This was a constructive comment that emerged out of the scarcity article stir: *"I don't understand why Toyota even offers the non-Prime Prius at this point, especially considering how many regular hybrids they have elsewhere in their lineup."* That's the kind of thing you get from someone new to the discussions, unfamiliar with any of the history and without any type of business background. They tend to come from an engineering interest, someone drawn to the technology with nothing resembling passion for sales. The aspect of economics tends to have little to no support in online discussions. That's why enthusiasts thrive and supporters battle with the mess they create. Knowing this audience, I kept my response to that inquiry brief: Those watching the rollout of TNGA know exactly why. It's all about raising the bottom first. The entire fleet gets that upgrade before taking the next big step... e-TNGA.
- 11-06-2019 Supply & Demand, reply.** I couldn't reply. Apparently, one of the growing sources for all-things-electric news will lock out posting after 48 hours. I started typing up a response to this, when I discovered the reply link wasn't available: *"Then it's weird they advertised against their own models."* It was a comment on the scarcity article from a person obviously not paying close enough attention to notice there is more than one type of message conveyed from an automaker. From big reveals, you tend to get mostly philosophy, direction, and strategy type information. From television commercials, you tend to get promotion of what's for immediate sale. Though, with all the misleading efforts at play, it is realistic to become confused. Also, there are certain automakers who are ambiguous by their very nature... to avoid accountability for having broken so many promises of the past. Anywho, I wasn't able to post this. In fact, I really didn't even finish my thought upon noticing it wouldn't be possible to actually reply. Ugh: The difference between advertising products and corporate plans is a concept lost to many commenting on articles like this. Of course, there are some who intentionally spin them to be thought of as the same. They most definitely are not. One is short-term. The other is long-term. In the case of the supposed "self charging" controversy, that's just marketing campaign for immediate sales. It has nothing whatsoever to do with expectations a few years from now. Remember, there are some who have much to lose from Toyota being successful with hybrid sales now and plug-in hybrid sales later. Think about how popular RAV4 hybrid has become. When the reveal of the PHEV model takes place in 2 weeks, there will be quite a number of enthusiasts upset by Toyota surge into the mainstream with such configuration that will undoubtedly be popular.

- 11-07-2019** **New Drive Videos.** I need to drive from St. Paul to a suburb on the opposite side of Minneapolis from time to time now. (We're preparing grandpa's house to sell.). It's a heavy traffic situation, cutting directly through a busy corridor during rush-hour. It's time to run the heater too, here in Minnesota. That makes for a very interesting commute. All that stop & slow driving, following by some highway travel provides the opportunity to add to the variety of video footage. My tires are only a few days old though, definitely not broken in yet. I'm also in desperate need of new wiper blades (which are on order now). The windshield was dirty and I had no easy means of cleaning it in the dark & cold. So, I just used this first drive as a chance to get sample captures. After all, this drive will be in the dark, something I have no experience with using the new camera setup. So, my attempt this evening was the complete effort. Sadly, I had an issue with the dashboard footage. It was underexposed. The rest came out well. Due to the timing & distance, I ran out of electricity just as I was exiting the highway. It provided a great example of how the hybrid system takes over after depletion. I can't wait to try the drive again. That next time, I will carefully check the settings on that dashboard camera. btw, seeing the approach of Minneapolis from the highway, then driving through the tunnel, looked great... especially in the dark.
- 11-09-2019** **Supply & Demand, deleted.** I have been checking that blog website to confirm the articles really do limit comment posting to just 48 hours. Turns out, they do. With so much new content provided on such a regular basis, it makes sense that they want to get readers to quickly move on to the next. I checked back on that scarcity article and was surprised to find one of the comments I had replied to was now deleted. It left my response out there, but the original source I was commenting about was gone. Fortunately, most of my posts include the original statement when it's buried within a long-winded comment. That ensures everyone knows what I was replying too. This is why I get so angered by that troll on the big Prius forum who never includes any quotes. You don't know what he's referring too... a common trait for dropping bait to stir discussion. In this case, it was nothing but a single sentence. It was also bait though, clearly an effort from an antagonist to provoke: "*Toyota get with the program, you will be left in the dust!*" The fact that it got deleted was intriguing. Did my reply actually get the message through? Not having a 2020 model widely available yet does make sense when we are still 2 months from 2020. Having next year's model debut just prior to next year makes sense... not several months earlier when dealers are still clearing out remaining inventory from the current year.

11-10-2019 **Local Supply.** A post first thing this morning on the big Prius forum was from someone local, commenting about the lack of inventory for the Minneapolis area. It's always nice to see local interest grow. I can't wait until supply actually becomes available. Then, I'll start up local gatherings. Those in-person encounters are priceless. They get to see the technology firsthand and get answers to the questions they needed to help solidify interest. There's very little point doing that until an immediate purchase is possible. So, I've been using the time while waiting for the mid-cycle update to finally reach local destinations to continue to collect data. I'll have lots to present by the time Winter here begins to fade. There's should be a ton of opportunity by then. In the meantime, I'll keep filming new video with narration. Preparing for a new User-Guide is already well underway. Things are falling into place. In the meantime, I posted this as a response: Minnesota isn't part of the original rollout market, so we have to tough out special-order only until the second wave. Fortunately, the inventory in those other markets is increasing and the sales swings are growing. That's a good sign. It's right on time for the upcoming PHEV expansion announcement too. With regard specifically to Minnesota, efforts are underway to become a ZEV state. That will result in a push for automakers to provide local supply. In also means new incentives. Work to provide public chargers is building. There's also an HOV access program starting next month. Stay tuned. 2020 will bring about change.

11-10-2019 **Late To Notice.** This couldn't have come any later: "*Something appears to have very gone awry in GM-land. The promised EVs aren't materializing...*" An entire decade ago, we saw the mess unfolding. From there, it got worse and worse. Enough not paying attention or blindly loyal will help keep real change from happening. History is allowed to repeat, to the point where mistakes become more and more consequential. Even the rhetoric sends mixed messages. There's no plan anymore. It's a big mess, as I was more than happy to point out:

For those watching GM way back when Two-Mode was first announced, the reputation for "*over promise, under deliver*" was already established. So when its failure resulted in the project to develop Volt, there was good reason to express doubt. When the bankruptcy task-force addressed expectations for Volt, they expressed a "*too little, too slowly*" concern. There was good reason to make sure GM didn't rest on its laurels following rollout. Unfortunately, gen-1 of Volt fell well short of expectations and hope was shifted to gen-2. The outcome of that was a heavy dependence on tax-credits and no interest other than from early-adopters. But rather than spreading the technology from Volt to a vehicle & configuration more appealing to GM customers, that got abandoned entirely in favor of its own antithesis. Bolt never made any sense either. It had no audience. Knowing GM heavily favored Trucks & SUVs, that compact wagon made no sense to shoppers at a GM dealership.

Think about it. GM introduced both Trax & Blazer. Creating new vehicles targeted directly at their own loyal customers that didn't include hybrid, plug-in hybrid, or electric-only technology was a terrible decision made many years ago. Going awry is not recent. Evidence of fundamental neglect has existed for quite some time. Nothing whatsoever to offer showroom shoppers shouldn't have to be promised anyway. The expectation has always been some type of advancement forward would take place. Instead, GM is still pushing only old-school guzzlers. Notice how the supposed "*laggard*" already has a strong selling SUV hybrid and in 2 weeks will be revealing a plug-in hybrid model? Another automaker is delivering instead. What is the plan for GM now?

11-10-2019 **Make It About Someone Else.** That's the typical response, rather than ever addressing the problem. This is what I got from the plan question: "*Actually Toyota holds the position of feet dragging on EVs.*" Do nothing to acknowledge GM troubles or even how they relate to the market as a whole. That bigger picture problem of dealer acceptance or consumer education means nothing to an antagonist. They only want to claim a win online. True change isn't a priority. It's all about appearance. Ugh. Oh well, their audience is getting smaller and smaller. I replied with: That narrative is for who? In 2 weeks, the reveal of a plug-in hybrid model of RAV4 will take place. The fact that it will be a PHEV will result in wide acceptance from mainstream consumers. You get EV commutes without any concern related to range. The fact that Toyota is working to get the hybrid built in Kentucky sweetens appeal. Customers will get a locally built vehicle with a plug. Spinning that to represent "*feet dragging*" is beyond laughable.

11-10-2019 **Journalist Truth.** Enthusiasts don't when they write statements like this: "*Unlike Europe and China, demand for EV's in the US has been methodically strangled. Except for the narrow demographic of affluent and progressive EV buyers, the general public knows little about EV's, except that they are too expensive.*" Efforts like that point out facts to support the truth of the situation. Fear of GM strangling the market was brought up way back when Volt was first unveiled. If done poorly, the entire market would be negatively impacted... just like what GM did with the diesel market. Their offering was so unappealing to the ordinary consumers, the entire market lost interest. They soured appeal for all automakers. That's what happened for plug-ins too. The promotion of EREV was so confusing and so poorly targeted, it only served to confuse and to work against the next step of EV. Now, there's a "*why bother*" attitude here. This is exactly why Toyota steered clear of GM fallout. Waiting until phaseout of GM tax-credits are just about complete is an ideal time for pushing PHEV offerings forward. Watch what happens as the next few months progress. EV interest will fade as plug-in hybrid interest grows. The reason why is simple. Consumers won't have to spend much or even learn much. They'll simply see the choice and seriously consider it. Seeing a RAV4 hybrid with a plug will be a very compelling vehicle to make a decision about. Think about how little either salesperson or buyer will need to do. It's a vehicle with basically no compromise, something they would have purchase anyway... but in a much more clean & efficient model. That's going to be a very difficult truth for some to accept... and they won't have to listen to me saying it. Journalists are already pointing out the coming change.

11-11-2019 **Making a Difference.** Some people desperately hold onto the past, rather than adjust accordingly to move forward: *"The fact that the 2020 Prius Prime has half the EV range of a 1st gen 2011 Chevy Volt is pathetic, especially considering battery prices have dropped substantially since 2011."* Appealing to the enthusiast market, who was willing to spend more and had a generous tax-credit, was never a realistic path to follow... and they still don't get it: *"The Prius Prime would get me to work on battery power, and then back using gasoline power. A 2nd gen Chevy Volt (2016 onward) can do the round trip on battery power, and would eliminate all of my gasoline driving other than out of town trips. That's a huge difference."* It didn't actually make a huge difference. There's much more to a vehicle than just range. I posted what really makes a difference:

Cries of *"pathetic"* ring with irony. Better loaded. Real 5th seat. More headroom. And a starting with a base price \$5,770 lower, there's no contest. Prius Prime was far more appealing to the audience Volt had intended to target. That's why we are now witnessing Volt fade away into history and Prius Prime inventory ramp-up.

Taking a closer look, we see that Toyota's offering was more efficient with both EV and HV efficiencies. The rating of 25 kWh/100mi from Prime was far superior to 31 kWh/100mi from Volt. That's also the case with Prime's 54 MPG rating compared to Volt's 42 MPG. Additionally, the heat-pump in Prime is the industry's top offering.

Want more impressive advantage? Take a look at the carbon-fiber hatch Toyota delivered with Prime. All those claims of GM being the heralded leader and Toyota being hopelessly behind make no sense when you consider how well that weight-reducing, strength-adding technology was implemented. In other words, I've been waiting a long time to get the opportunity to point out how the *"vastly superior"* mindset wouldn't measure up to the cold, hard reality of automotive business. Sustainable sales in high-volume for a profit don't come about from range bragging rights. That's the real difference... and it is quite huge.

11-12-2019 **Electric Announcements.** Lexus announced that at the upcoming Guangzhou Auto Show (on November 22) it will unveil its first battery-electric vehicle. This was the teaser provided: *"Specifically crafted to suit the needs of audiences in China and in Europe, this further advances the brand's desire to offer a portfolio of electrified powertrain choices for diverse audiences worldwide."* Expectations are that the EV model of C-HR will be highlighted too, providing specifications & pricing. It's the type of detail that should finally bring an end to the rhetoric. Much propaganda for other automakers was built upon the premise that Toyota would never deliver EV offerings, that they were exclusively interested in fuel-cells. That was always a load of nonsense, efforts to undermine based on a one-solution-for-all belief. The concept of diversity wrecks meritless hype... what enthusiasts thrive on. That's why so much antagonism emerged from Volt enthusiasts. Portrayal of a narrative depended upon single-dimension characterizations. Toyota offering a wide variety of choices didn't fit into their agenda... and now that reality is crashing down... coinciding perfectly with the phaseout of their tax-credits. This is why we are now witnessing a rather profound change from online posting. Evidence of having lost is obvious. Those old blogs and what I documented here will forever preserve their decision to turn a blind-eye to certain facts; instead, they chose to misrepresent & mislead. Ugh. I sure am glad to see that coming to an end.

- 11-12-2019 Dehumidify.** Ugh. It's troublesome to read comments like this: *"BTW - once you turn on the windshield defroster, it kicks on the ICE anyway, so it's almost not worth trying to do much in EV mode if you want to be safe."* It's very misleading. There's nothing you need to actually do. The ICE (gas engine) will cycle on & off as needed while in EV mode, automatically operating in HV while that extra heat is provided. You get the benefit of EV without compromising safety. Of course, there are a few who go to extremes while driving to squeeze out more electricity use. Some are unaware of the non-driving things you can do. That type of advice was perfect for this situation, to dodge the obvious growing of tension on this particular discussion. I posted: Dehumidify the vehicle before parking. Just open the doors or windows for a minute. The temperature difference will force moisture to escape. You don't need MAX defrost then (the button). Ordinary window blowing works fine then and it's all electric.
- 11-12-2019 Waste.** This was another Ugh today. It was based upon the precedent established, then heavily endorsed, to portray efficiency only in terms of MPG. I was annoyed by the Gallons exclusive, an obvious effort to conceal kWh consumption, to hide information about waste. That's because some EV designs are more efficient than others. Listing how much electricity was actually used reveals a different story from what was actually being portrayed. Anywho, that's what I was forced to accept. So, now being called out for doing exactly that, I can't help but to be amused. That hypocrisy is confirmation of what they did in the past to mislead. They would omit detail to undermine. Being called out on a double-standard is something they want to avoid. So, I felt free to draw attention to the situation: I remember the days of getting attacked for pointing out an EV could be considered a guzzler of electricity. Hopefully, those close-minded individuals have come to realize that extra electricity required to travel the same distance translates to extra time you have to wait for a charger to become available. Even if it is from a green source, waste is waste. Time & Electricity should be an important measure of EV worth. 58 kWh/100mi is in an entirely new league of waste. Whoa! Compared to the newest Model 3 rating at 24 kWh/100mi or Prius Prime at 25 kWh/100mi, that's an amazingly inefficient EV drive.
- 11-13-2019 Mainstream.** Fragments of past rhetoric still linger, a the definition of *"mainstream"* demonstrates. My guess of antagonists, now lost of purpose, feel the need to have some type of voice still. Having been proven incorrect, that's a difficult position to be in. They fought hard with twisted facts and lots of spin to support a failing effort. And now that has been exposed, what can they do? Most vanish. You never hear from them again. That was the beauty of hiding behind an avatar with a made up name. There was no sense of accountability. That's why most venues abandoned that type of commenting approach. If you were unwilling to associate your posts with your identity, you were probably trying to hide something. It simply makes no sense to conceal like that. Sadly, those days of being unable to trace source persisted for many, many years. It's over now; however, some still try to hold onto that past... which necessitates pointing that out: The widely accepted definition of mainstream here started over 15 years ago with hybrids was anything capable of sustaining non-subsidized profitable sales at a minimum rate of 60,000 annual. People like to move goal-posts though, especially with the entire EV market still leveraging tax-credits. Basically, it comes down to a breaking of the status quo. If you can get showroom shoppers to purchase the vehicle, you have effectively achieved change. If you are catering almost entirely to nothing but the early-adopter audience, it still isn't mainstream yet.

11-15-2019 **Video: Prius Prime - Cold Commute thru Minneapolis.** I enjoyed putting together this particular video. It provided an opportunity to show a type of commute I usually don't have to endure. But in this case, we had have to drive to that location fairly often. We are helping to get that home ready for selling. So, going there to do some clean-up after work meant jumping into the busy Twin Cities corridor while commuting traffic is at peak. That's something I normally wouldn't need to do. Capturing it on video was a nice benefit. Anywho, here's what I published: Electric heat and heavy traffic during rush-hour through Minneapolis represents a significant demonstration of the EV capabilities Prius Prime offers. Combined with some high-speed highway travel to follow with new tires not broken-in yet completes the commute from downtown St. Paul to a suburb home on the other end of the Twin Cities. Watch this video, paying close attention to the data provided on the right from an aftermarket interface. Compare that detail to what you see on the left, the dashboard of Prius Prime... [Prius Prime - Cold Commute thru Minneapolis](#)

11-15-2019 **Knee-Jerk Reactions.** It is interesting to watch comments like this gain traction: *"Meanwhile, a boycott against Toyota's support for Trump is coming on strong."* With so little merit to support them, you wonder how the intended audience will actually react. This is thought-provoking when it comes to automotive purchases. Are such financially large decisions really made with so little information? And does the shopper really care about politics? It's the type of rhetoric you have to wonder about. Does it make any difference? That's why I watch so carefully and document my observations. The market isn't all about engineering. In fact, there is little logic to it sometimes. But there is a strong element of practicality. Even the obsessively large & wasteful SUVs do provide some physical benefit. I hope at least a few of those who typically react without thought will try to consider the bigger picture this time and how seemingly good choices don't actually much, of anything. We'll see: Knee-Jerk reactions from those with limited focus (in this case EV enthusiasts) will give that impression. Many have demonstrated a genuine disinterest toward the needs of ordinary consumers, obsessing with range & power instead of actually addressing their purchases priorities. Appealing to the mainstream market means attention to the showroom experience is vital. Dealers must be on board, which means sales without any type of subsidy. A boycott will not achieve that.

11-15-2019 **Irresponsible & Behind.** That didn't go well. I got this in return: "*The fact is Toyota wants to squeeze every last dollar of investments out of ICE engines no matter how environmentally irresponsible and behind the times that notion really is. They're as greedy and stupid as VW thinking they could get away with faking compliance with emissions requirements... Seems like you and Toyota and Trump are circling the same drain.*" I was quite disappointed. My hope of some thought taking place before another reaction was crushed. Oh well. It gave me the opportunity to say more on the topic: Who? I was one of those fighting the fight to draw attention to what VW was up to. Things just didn't add up. I helped collect & present evidence to reveal why claims being made were not true. At the same time, I was also battling GM with its facade from supposed efforts to reach mainstream consumers with their plug-in efforts. Choosing to follow the narrative to support a boycott won't change the wisdom of the bottom-up approach. Toyota is pushing for change across a wide array of choices. That's something enthusiasts object to, since they believe only a top-down approach will succeed... despite the reality that it was a momentous failure GM has had attempting that. In other words, I have 20 years of history helping to confirm the perception unfolding now isn't really what's taking place. Toyota has carefully planned out a means of deploying green options their dealers will embrace and consumers will seek out. It's good business, something enthusiasts show no interest in... and I have hundreds of pages of blogs to prove it... very, very in depth market research. Take a look around. What have the other automakers actually delivered in terms of change not dependent upon tax-credits? Toyota is setting the stage by deploying PHEV models of Prius, Corolla, and RAV4, along with an EV model of C-HR. Each is targeted at ordinary consumers and is expected to be appealing to dealers. Remember, stocking them as regular inventory is vital. In other words, what merit is there for stating "*environmentally irresponsible*" and "*behind the times*" when we can see obvious work at play to disrupt the status quo?

11-16-2019 Other Automakers. Ugh, this narrative is well beyond annoying at this point: "*...the other auto makers shifted gears and started heavily investing in catching up, whereas Toyota pulled an Ostrich and buried it's head in the ground...*" It comes from the effort to convince people that electric-only vehicles are the only solution. If it's not EV, the automaker is supposedly now becoming desperate, falling so far behind they will have to scramble to catch up. Again, ugh. People are gullible though, especially when it comes to topics they know basically nothing about. You feed them some misleading information to let assumptions originate from. Don't allow owners to actually convey anything useful. That's why my videos have become such a powerful tool to counter that nonsense. This is how I replied:

You actually believe that narrative? It's the same old greenwash we've been hearing for years. Some have worked hard to convince us that Toyota is ignoring the market, despite the fact that evidence to the contrary is hidden in plain view. All you have to do is look around. The components for a great EV are being refined right before our eyes.

Start with what should be the most obvious. A vehicle's battery-pack is nothing but a series of cells assembled into a stack. The more stacks you include, the more capacity (range) the vehicle offers. It's not rocket-science. It's just packaging. The chemistry is being tested heavily in real-world conditions by Prius Prime. That data will go a long way toward making the next-generation something to truly contend with. No EV is necessary for that.

But if you want an EV already, look no further than Mirai. It utilizes a 151 horsepower (113 kW) electric motor. Again, Toyota is already real-world testing it. To give the technology intended for mainstream use such a heavy shake out in public with most people never noticing is genius. They are taking their refined design for electric motors and pushing it to continuous and heavy use. It's proof of worth without ever having to deal with audience challenges.

Then there's the heat-pump in Prius Prime, an industry leading approach... most definitely not catch up. Their vapor-injected approach sets it above the rest in terms of electricity consumption. It's the top for efficiency, something essential for being competitive. That is why we also see the use of carbon-fiber in Prius Prime. For added strength and weight-reduction, that's a nice advantage to have too.

In addition to all that, Toyota is working hard to change the culture at dealership. Their push for change with RAV4 is proving extremely effective. The hybrid version is selling exceptionally well... and that's before next week's reveal of the upcoming PHV model. Combine that with the build up of Prius Prime (mid-cycle update along with production ramp-up) and the introduction what should become paradigm-shift from the Corolla hybrid delivering 52 MPG and starting at just \$23,100. Put another way, what does "*catch up*" actually require? Think about everything that much change to achieve sustainable high-volume sales. Don't listen to those only paying attention to low-hanging fruit. They're in for quite a reality shock when the early-adopter market becomes saturated and subsidies expire.

11-16-2019 Witnessing History. It is quite fascinating to witness this history play out. It is like when I had collected a wealth of information to confirm gen-2 of Volt was doomed to fail. The evidence was obvious; yet, enthusiasts worked extremely hard to deny it. In that case, GM was studying feedback from gen-1 owners. That set them up for innovator's dilemma. And sure enough, the next generation made what started as a niche even more of a niche. I could see all along they were asking the wrong audience for suggestions. You want mainstream acceptance, you must carefully consider every bit of info that fickle audience is willing to share... not what early-adopters state praise for... then push for what they are unlikely to even be aware of. It's all quite important... and clues to success are very easily overlooked. Put another way, this reminds me of that scene in the movie "*Raiders of the Lost Ark*" when they came to realize the Nazis were digging in the wrong place. It was just a matter of time, waiting for them to figure it out their mistake. Then, things would get ugly. That's exactly what I witnessed too. I watched history as a participant... which is quite a different perspective from those telling tales now. Looking back, you get a very different impression than while it is playing out.

11-16-2019 This Latest Kerfuffle. I had much to say about it: Toyota knows their audience well. Being able to offer a variety of PHV models provides a strong endorsement for moving their dealerships forward. The choice of a few plug-in options complimented by a wide selection of hybrids sets the stage for EV sales later, while also taking advantage of limited battery supply now. It's simple math. There's far greater of an emission reduction by spreading 60 kWh of battery cells across 5 plug-in hybrids (assuming the next capacity increase is to 12 kWh) than to just 1 electric-only vehicle... since the other 4 would still be traditional guzzlers. Think about the likelihood of the next purchase from a PHV owner being an EV. This is why conquest isn't a concern. After all, you want the entire industry to move forward. Having some Prius owners help Tesla become established isn't a bad thing, as many attempt to lead you to believe. In the meantime, battery production is being refined and its chemistry improved. While in the same period, people are upgrading infrastructure in their garages, driveways, and parking lots. Put another way, the spin about Toyota not caring or being hopelessly behind don't match up with the reality of what's actually happening behind the scenes. That's why the term "*narrative*" has become the modern identifier for trolling. Antagonists hoping to undermine hope you only pay attention to what they claim is important, preventing the bigger picture from being seen. Having fought the green war for 20 years now (I still vividly remember my discovery of Prius & Insight way back in 1999), I see this latest kerfuffle as just a new chapter in that on-going history.

- 11-16-2019** **Getting Caught.** I didn't expect my response to this to get a forgot-to-mention so quickly: *"a lot of people who like toyota quality say they want a toyota bev. but if toyota actually made one, i doubt it would sell much better than bolt or leaf"* Knowing my audience, I was well aware what actually happened is he got caught attempting to downplay. Simple realities, like cost, are often dismissed by this particular individual. That's why the spin of his claimed intent of that comment, after I posted mine, took place. He said he meant *"today"*, but the absence of *"had"* and *"have"* in the post don't support that. Both the tense & context being wrong confirms I was right for having posted what I did. Also, he's been warned about being so incredibly vague, hence: There's no sound basis for drawing that conclusion. Leaf's audience has moved on due to the constraints of not having any type of active cooling system. Bolt's audience was nothing but conquest sales, never appealing to GM shoppers and heavily dependent upon tax-credits. In other words, both were rush-to-market approaches... the complete opposite of Toyota. Toyota will have the benefit of extensive real-world experience prior to rollout here. The variety of PHEV offerings and 2 likely EV models (CH-R and a Lexus) will provide a means of accurately targeting the masses... a goal well worth taking time to achieve. We have infrastructure upgrades happening in the meantime. Heck, just being able to accept a 100 kW charge-rate would be enough completely negate any type of comparison. This is what the big picture consideration is all about. Claims of *"catch up"* simply make no sense when others are not there either. For that matter, boycotts are often pointless for the same reason. Think about all the broken promises of the past and how many rollouts fell well short of their goals.
- 11-17-2019** **Irony.** Sadly, EV advocates don't advocate as much as they could. Time & Resources are wasted on anti-hydrogen efforts. This particular group-think pile-on really brought that point home: *"The irony is 4 Teslas in ~20 minutes would be a similar throughput of 4 hydrogen cars fueled over ~20 minutes."* It was nice seeing something sensible posted. I jumped into the crazy with: Adding to that is the irony of megawatt EV charging stations may very well end up with hydrogen sourced fuel-cells to supplement electricity during times of high demand. Of course, it doesn't matter. The shipping industry is looking into hydrogen to replace diesel. So whether or not passenger vehicles use it is a moot point. Realistically, it doesn't matter anyway. Starting with cars is far less expensive than commercial vehicles, which is really the primary target. EV enthusiasts simply feel threatened by the multi-fuel solutions. Ugh. It's somewhat amusing to foresee hydrogen being used for green storage later too, since the grid can't hold all of it.
- 11-17-2019** **New Tech.** A new technology isn't new forever. Some forget that reality: *"Those people who buy based on trust aren't going to 'risk' buying some new-fangled technology. They will buy a gas-powered Corolla or Camry."* Think about how little the typical showroom shopper knows about how any of those vehicles they are looking at actually operate anyway. For that matter, the better informed usually don't either. At best, they have a general understanding. That's easy to deduce too. Just consider what those seeking information ask about. I encounter that on a regular basis. It's a good reminder of how much work still needs to be done to educate. Much wisdom needs to be shared from those experiencing a plug-in everyday. Put short, I responded with: RAV4 hybrid is proving that claim outdated. A few years from now, it will be reasonable for the model with a plug too. That's the point of bringing the entire fleet forward... the tech won't be thought of as "new" forever.

- 11-17-2019** **Constructive Questions.** It's really nice to see them from time to time. I suspect they will increase fairly soon with this new audience about to come in as a result of the PHEV model of RAV4 reveal. That will definitely stir inquisitive minds. Until then, we get stuff like: *"I still don't understand why auto journalists keep quoting the electric-only range. In real world driving, isn't it very unlikely you would ever be driving in electric-only mode, since you'd have about half the total combined engine power available to you? What am I missing here?"* Knowing audience, I suspect the RAV4 will provide quite a bit more power. After all, 3 years have passed since rollout of Prius Prime became a reality. A lot has been invested in the technology since then. Anywho, this is what I posted as a constructive answer: That's because the reality of the situation is you don't need that much power. Sure, a writer catering to enthusiasts will try to convince you otherwise, but not a true journalist. My PHEV provides 68 kW of electric draw from its battery-pack. That's 91 hp, which gives the impression on paper of being inadequate. But when actually in real-world driving, that's enough. In fact, it's plenty for driving around in the suburbs. Even highway merging doesn't require more power. It's there if I need it, but I find that I don't. Driving without starting the engine isn't a big deal.
- 11-17-2019** **Preheat What?** That question absolutely had to be asked after reading this: *"I remember reading that you can't plug in a Prime for charging and then use that power to preheat the gas engine once the battery is full."* I following through with: Since EV driving can far outlast engine coolant, that would be a pointless feature. Engine block heating comes from a separate plug anyway. In other words, check your source. Something clearly isn't right with that claim. You can preheat the cabin (aka: *"pre-conditioning"*) any time you want, regardless of battery level. Without being plugged in, it will draw directly from the battery. And yes, it will dip into HV capacity if called upon. While plugged into 240-volt, it will do a combination of rapid pull from the wall, a little bit of battery, then pull from the wall again. That basically warms up everything using the heat-pump. There is also the battery-warmer. I'm not actually sure if that operates without being plugged in. But it certainly does work when you are. With temperatures below 0°F parked outside without any protection, mine was kept at a comfortable 39°F last year. That's what the lithium chemistry needs to operate more efficiently. Below freezing, electrical resistance increases quite a bit.

11-17-2019 **UDDS.** That stands for "*Urban Dynamometer Driving Schedule*". No one is even noticing that qualifier, which is a pretty solid confirmation of not understanding the significance. In plain english, that's the "city" test. In other words, panic about Prius Prime not qualifying for the new California rebate program starting next month is inevitable. People see the "35 mile" criteria and just assume that means the overall EPA estimate. The purpose of such a requirement is to help mitigate emissions related to stop & slow traffic... city driving, not anything to do with the results you get while cruising at high speeds. Ugh. This means, we must explicitly point out that Prius Prime does indeed achieve that expected EV distance in driving conditions related to those the rebate is designed to specifically address. It's yet another one of those poorly-informed-consumer situations there really isn't a good way to teach about ahead of time. Many haven't ever even noticed there are several measurement categories for efficiency... as hybrids clearly provided evidence for. Heck, there are many who really don't know much about the impact of seasonal changes. So, the influence of speed not being observed is no surprise. Needless to say, it's reasonable to expect a surge of last-minute purchases as month-end approaches. That will certainly add to the confusion of sales results, especially with this next reporting to come at year-end.

11-17-2019 SUV Obsession. The upcoming reveal from Toyota has brought about an extremely uncomfortable situation for antagonists. There quite literally have nothing left. Every single argument has been exhausted. Toyota is now about to do what I complained for years about that GM should do. Anticipation for very high demand confirms I was correct. Even before getting any detail, they know GM failed to follow through. Two-Mode, to gen-1 Volt, to gen-2 Volt never resulted in a plug-in SUV, exactly what the obsessed audience here craves. It's such a monumental mistake on GM's part, there's not a word to say about it. This is much like VW's diesel failure. The outcome was inevitable. They were pursuing a course that simply made no sense. Anywho, this is what I posted, with the expectation of now backlash:

Who is the market for Volt? That question asked hundreds of times to Volt enthusiasts in the past was for the very reason brought up here... rising demand for SUVs. It simply made no sense watching GM waste tax-credits on conquest sales, leaving nothing for their own loyal customers. Showroom shoppers were getting hosed and no one seemed to care. Equinox got diesel instead of Volt technology. It was absurd. Then came the new Trax SUV. It didn't get technology from Volt either. Following that was the new Blazer. Same disinterest toward diversification. So when Volt died, all that effort to blend motor & engine did too. GM just abandoned what they had supposedly strived to deliver. It's really unfortunate GM didn't throw their support behind electrification of their primary product, finally. After all, Two-Mode (the predecessor to Volt technology) had a prototype plug-in an entire decade ago. Saturn Vue was supposed to be the premiere vehicle. It was a SUV.

The real problem isn't the technology, it's the money. New technology delivers razor-thin profit, if any. And once GM opens that can of worms, it's going to be a self-inflicted disaster. By avoiding change so much, basically supporting their own dealers' resistance, the automaker has set itself up for the Osborne Effect. Making it worse, GM no longer has cars to help leverage sales or efficiency quotas. All bets have been placed on the SUV as the offering for ordinary showroom shoppers... none of which are green.

In just 3 days, we will see how that could have been avoided. Toyota's RAV4 AWD hybrid starts at a MSRP of \$28,100 and delivers 40 MPG. That in itself directly addresses the topic of this article. 40 MPG is a rather substantial efficiency gain over GM's Equinox AWD (1.5 L, 4 cyl) delivering just 27 MPG. Heck, even the smaller GM Trax FWD delivers only 28 MPG. So when the reveal comes this Wednesday, providing detail about the upcoming plug-in hybrid model of RAV4, it's not like Toyota will fall into the same trap as GM.

To think, all those posts about how desperately behind Toyota supposedly is. Then as if overnight, there will be excitement among ordinary consumers upon discovering they won't have to give up driving an SUV. They'll just have to upgrade to a hybrid or plug-in hybrid.

11-17-2019 **Outright Lies.** I saw this attack unfolding: "A 25 mile range (*in real life 15-20 at best*) is a joke. Just who are they trying to fool? It's a hybrid 99% of the time. That's why the Volt was a great PHEV (60 mile EV range)." There were so many things wrong with that claim, I had to think about what to comment. Posting any sort of detail with someone how just plain does not care really isn't helpful. They'll just spin facts and make anything that follows about you. That evade & distract is so annoying... and still quite common. Keeping replies brief and with a callout to raise awareness is my suggestion. For example: Blatant efforts to greenwash like that are fascinating. They are so easy to disprove; yet, attempts are made anyway. Why? Look no further than Prius Prime. With its 25-mile rating, seeing low 30's in the summer is quite common. And that's all-electric until battery depletion, even if you drop the pedal to the floor.

11-18-2019 **UDDS Detail.** The characteristics of the UDDS rating are:

- Distance traveled: 11.04 miles
- Duration: 31.233 minutes
- Average speed: 21.2 mph

It's the "city" driving cycle, which we know Prius handles exceptionally well. That's what is important when addressing emissions from heavily congested traffic... which is a priority for California... hence the focus.

11-19-2019 **Gaming the System.** Toyota's perspective is regulations have unintended consequences. We have witnessed automakers gaming the system rather than actually changing. They exploit opportunity for short-term gain. It's that simple. Legacy automakers have much to lose. It takes a monumental amount of effort to bring about anything that could cut into profit. Fear is a major deterrent. So, they look for a means of delivering something seemingly worthy instead. That's why Volt was problematic right from the start. In fact, that's how the "vaporware" claims came about. Even if all of those overly ambitious criteria could be achieved in that short amount of time, there was no next step. Things would simply fall apart following that without any clear plan of succession. Think of it from a "diet" analogy. Sure, you could meet your weight goal, but could that be maintained afterward? And was whatever you did to achieve it healthy? Affordable? Repeatable? When stuff like that is not considered upon setting the goal, you know you're doomed. GM was destined to fail. The plan wasn't comprehensive. They were given the chance to game the system... again. Toyota doesn't want to allow such history to repeat, even if it means some bad public-relations spin as a result. Overall, it simply isn't worth it.

- 11-20-2019 RAV4 Prime.** What more needs to be said? The name speaks for itself. That long-awaited reveal didn't disappoint. There will indeed be a plug-in hybrid model of RAV4. It will be rolled out this coming Summer, just 7 or 8 months from now most likely. It's the fastest and most powerful configuration anyone could realistically imagine. Toyota clearly did its homework. The configuration looks impressive. Loaded with safety features and AWD standard, the expectation of high demand is an easy prediction. The detail specification shared that really stand out is 302-horsepower and 0-60 in 5.8 seconds. along with 39 miles of battery range. From an efficiency perspective, the listed 90 MPGe is one to ponder. People still have no clue what that equivalency-rating really means. But then again, this audience won't really care anyway. The fact that it will deliver daily commutes that are all-electric for most people is all the more that needs to be conveyed about the technology. Detail isn't a priority for this audience. If it was, all those cost-per-mile and cost-of-ownership reports would have prevented them from purchasing any type of SUV. This is a hybrid with a plug from an automaker with strong reputation for quality. Enough said.
- 11-20-2019 First Impressions.** Quite curious what others had to say, I kept the post about my first impressions short: Both cost & efficiency are often dismissed as unimportant. We learned all too well that the focus on power & range blinded most online participants into a group-think that was ultimately tragic for Volt and its associated technology. Toyota's strategy is proving a wise approach for fleet deployment (product diversity, not commercial sales) and dealer acceptance... both of vital importance for reaching beyond the early-adopter market. It's how profitable, mainstream volume is achieved.
- 11-20-2019 Phaseout.** Discussion of tax-credits immediately dominated the posts: *"That's the thing with the tax credit advantage, pretty much as soon as an automaker who has been participating at all starts selling big numbers, it'll be going away quickly."* It was interesting to see what is supposedly a well-informed group reveal they really don't have a clue. Several made comments that were just plain wrong. None even attempted to touch GM either. That topic has obviously become taboo. The mess with Volt has become such a monumental failure example, everyone is pretending it didn't happen. They don't want any association with it, in any manner. So, I didn't even bother with a reference. Those who had once whole-heartedly endorsed GM's approach will remain silent from now on anyway. So, this is how I replied: That isn't how it works. Once the automaker hits the 200,000 mark, phaseout begins. That phaseout stage switches from a fixed quantity to unlimited. Tesla took advantage of that with Model 3, which has worked out remarkably well. Notice the timing of the volume increase. Toyota will do the same.
- 11-21-2019 Asking People.** This was great: *"Go ask 10 random people."* That's not who. Ugh. Know your audience! Think about it. If the person isn't even in the market for a vehicle, how much shopping would they have done recently? Odds are, they don't have a clue what the market has to offer. Why bother researching if there's no chance of purchase? Financial situations change over time anyway. Driving situations do too. So even if you have heart set on something, it simply may not work out. I was annoyed by how carelessly that comment was made. This is how I expressed my feeling about it: That's not the audience. Focus is on showroom shoppers, not random on-the-street people. Ask 10 of them in the summer of 2020 whether they would like the regular, hybrid, or "Prime" model. How many do you think will recognize (at least on a high level) the difference and be curious to find out more?

- 11-21-2019 Choose Wisely.** That same resident troll is continuing his ways on the big Prius forum... not quoting the post he's replying to, overwhelming conversations by posting so frequently, and never bothering to use uppercase letters. Recently, he has added to his lack of constructive material... not reading carefully. I've seen posts that simply don't make any sense. All that is annoying, but not as unfortunate as his latest: "*you have to flex your muscles when you can. i'd like to see them ban toyota*" It really becomes a problem when there's encouragement to resist or fight without actually providing any reason why. His posts are always so vague, it's hard to even spin them as ambiguous. There's just nothing to support claims. How do you counter someone who's just using the venue for entertainment & attention? He clearly doesn't care about doing anything meaningful. Dealing with troublemakers of the past, there was always some type of vendetta. They were trying to achieve something. He just passes time, convincing himself that limiting posts to a quantity per day similar to others is unnecessary. Being the top by a very wide margin isn't a concern. Ugh. That example from today was a substanceless protest against Toyota's take on varying requirements throughout the United States. Naturally, that's been spun as siding with the current administration in favor of freezing regulations. It's not. But really can't argue with people who thrive on group-think. There are many enthusiasts who need to make themselves feel better by exclusively focusing on others, rather than including some self-evaluation for balance. Anywho, the best response is to be brief when replying to individuals like that: Choose wisely. There are unintended consequences. In this case, we have witnessed automakers gaming the system rather than actually changing.
- 11-22-2019 Owner Encounters.** An unspoken benefit of having a public charger near the entrance to the grocery stores is the opportunity to get to chat with new owners. I have done that a number of times now. They're easy to spot. You see them struggling to either get in the spot itself or struggling to figure out how to use the charger. Each has been quite relieved when seeing my gesture to help. I take the time to talk them through the process, demonstrating how the system works with some detail about setup. Those have been great experiences. The one this evening was too, but it wasn't with a new owner. I just stopped to chat with a gen-2 Leaf owner at a ChargePoint station. He was having trouble with his card, so I used mine to unlock the charger. It was a great opportunity to collect real-world data. With the Leaf this evening, it was steady 6.1 kW. The result was 11.24 kWh of electricity delivered in 1 hour 50 minutes. His timing was interesting. That is precisely how long it takes to recharge my Prime. I get a steady 3.5 kW rate to deliver 5.8 kWh. He got all charged up and I got some interesting data.
- 11-22-2019 Lexus EV.** It was revealed today, for China, Japan, and Europe. The name will be UX300e, like its traditional counterpart but with an "e" suffix. Range estimate on the NEDC cycle was 400 km (249 miles). Motor output will be 150 kW (201 horsepower). Battery-Pack capacity will be 54.3 kWh. Fast-Charging (DC type) will be 50 kW, which works out to roughly 50 minutes for a full charge. Using 6.6 kW at home (AC type) takes about 7 hours for a full charge. Vehicle weight is 1,900 kilograms (4,188 pounds). This will be the first EV offering from Toyota, but more are on the way. Lexus will also be getting its first PHEV offering too. Availability of UX300e is expected by 2020 year-end for China and sometime in 2021 for the UK.

11-22-2019 Pack Cooling. The topic is a "hot" one (pun intended) among EV enthusiasts. Support for what type is far from universal. Some absolutely insist liquid is required, but material to support the claim remains elusive. Reasoning for keeping the pack as cool as possible is for the sake of longevity. This is especially important when it comes to super-charging. Transfer of electricity involves some loss of energy, which comes about in the form of heat... resulting in the acceleration of chemical aging. What none will tell you though is that heat is required for super-charging. The catch is not overheating... but no one ever provides those numbers. Lack of detail is a red-flag. I have read comments that Tesla warms their pack to 121°F for enabling high-speed DC charge-rates. That's hotter than I have ever seen the battery-pack get in my Prius Prime. In other words, there's much we don't know about various systems & chemistries. That's good reason to not insist upon something without supporting evidence, especially as the technology advances. Outdated information can be a problem too... which brings us to the upcoming Lexus EV. This observation was posted: *"Examining the battery pictures reveals an air cooled battery using a blower motor up front by the HVAC system. Probably uses cooled air from the ac system you can see the air passage ducts."* I posted the following as a reply to that: Forced active-cooling works just fine with Prius Prime, which has a smaller pack... resulting in it getting pushed to full draw for EV acceleration. Longer operation from a heavier vehicle, but with a much larger pack and cooling supplemented by direct HVAC, seems an effective means of temperature control... especially with on-going chemistry advancements.

11-23-2019 **Tipping Point.** That term is being brought up a lot recently, but it doesn't actually tell us anything. I used a new topic featuring the expression to once again point out how it means different things to different audiences. After stating exactly that, I wrote:

For example, we hit "*Peak Oil*" an entire decade ago based on the simple fact that the audience changed. The instability initially caused by \$4 per gallon gas was dealt with by introducing a flood of new investment. Now looking back, we see that those big players never actually recovered. The stability was restored by a number of smaller players filling in the gaps... but with newer technology... which permanently altered the dynamics of the playing field. So as someone directly involved in that market, you have new players.

That parallel works its way into the automotive industry as well, but with climate change and emission concern adding to the problems related to that change in the oil industry. Like gas stations, the true buyers of the product aren't the consumers. They require their big tanks to be filled so they will have something to sell. Sound familiar? People still need transport. People will still go to a seller for their purchase... their local dealership. Newer technology comes into play here too. The new players are suppliers.

Most drivers looking to purchase a new vehicle couldn't care less. That audience doesn't matter. They do though, to dealers attempting to make sense of where their business is heading. That's what makes this topic so complex, no brief online discussion thread can address it properly. In fact, some won't even really notice what's playing out until years later. Just look at the failure of GM to do anything with their once highly praised technology for Volt. All that effort only to abandon the effort.

Notice how GM's CEO just made this statement: "*We've announced we'll have 20 EVs globally by 2023.*" Think about who that was directed at. It was a group of investors, not future GM customers. That diversity of a product-line addresses exactly what Volt failed to achieve. It doesn't address volume though. Having a wide-variety of choices doesn't mean there will actually be enough produced to meet demand. Supply isn't being talked about yet. That audience will have to wait until this audience is first satisfied. In short, focus on actions, not words.

11-24-2019 **Pack Warming.** We are getting more questions about that now. Unfortunately, I'm not having much luck collection data for that. Detail remains elusive when there's a delay of Winter. Here's what I had to contribute today: Sorry, it hasn't been cold enough lately to give you a firm answer yet, with respect to the battery. It will though in a few weeks. Two years ago, my Prime spent Christmas week outside in -9°F high temperatures (Wyoming) without any trouble whatsoever, despite not having a place to plug in. Here (Minnesota) at work when I plug in, I have checked the battery temperature. It's kept at 39°F in those same conditions. When the outside temperature is near freezing, I have seen the battery temperature at 59°F. The question now is if there is warming activity when not plugged in. Stay tuned. The warm spell will soon be gone here. With respect to the engine, it will just stay ice cold until called upon. Then when that moment happens, the battery-pack will supplement power to keep the engine from getting stressed. Basically, it just idles for the first 1/2 mile or so to get everything going before taking on any load.

11-24-2019 Troll Types. Most anyone who has participated online for any amount of time has encountered the troublemaker type. They are just there to serve as an antagonists from an outside interest, stirring upset for the ultimate purpose of undermining whatever the goals are of that venue. This is why the enthusiasts on the daily blog for Volt hated me so much. I was polite & constructive, quite the opposite of a troll. I would carefully analyze all the information they'd share to counter me, then respond with something to debunk their assertion. Point after point, I would show them how they were incorrect with real-world data to support my claim. It was an effort in madness. They would desperately try to shut me up, but could not... and the moderator saw I was bringing in more participation and wasn't ever doing anything to hurt or offend. My work to prove technology worth (or lack of, in that case) was vindicated in the end too. You can read my old posts as shockingly accurate predictions now... because I based them on quite a bit of study, which I opened shared. My findings were never a secret. My position was always clear. They just didn't like it... which brings us to the other type of troll. That type is very friendly and is often looked upon as an ally. They are always there to respond, but rarely provide anything of substance. That's the rub. They basically just serve as a means of emotional support. There's no real harm... unless you actually need help. When post after post after post isn't constructive, you have a difficult time finding content of value. Their posts end up cluttering up what would otherwise be useful information. Anywho, after saying that, I have something new. This is the first time I have ever witnessed the 2 types of trolls take over a discussion topic. Watching them battle it out for attention was intriguing. Both lost their audience. It became nothing but a 1-on-1 posting exchange. Both ended up without an audience. That's what we call a lose-lose situation. I was quite amused.

11-24-2019 **Approach.** I'm really enjoying this abrupt shift in discussion: "*Is the Prius Prime being de-emphasized by Toyota?*" It's the result of antagonist rhetoric having vanished. There's nothing left for them to work with. Every single exploit they tried has finally been debunked. Phew! That was a painfully long endeavor. Now, we can answer questions like that. I was happy to, too:

First, keep in mind that Prius rarely gets advertised anyway. In fact, Toyota has even stated the power has been passed to us, where owner endorsements are far more effective. So, we end up promoting it via word-of-mouth instead.

Second, Toyota has a long history of being a quiet player. They simply don't promote until they are ready. That means regardless of how intense the rhetoric gets, it really doesn't matter to them. Their cards aren't played until it's time to call.

Third, the strategy of diversification is absolutely vital at this stage. To be able to both reach deep into their own customer base and to take advantage of the tax-credit phaseout opportunity, they will wait until supply is built up before jumping.

Watching the inventory rise in the established states, it's rather obvious Toyota focusing on them prior to the RAV4 Prime reveal. Quietly wait for old inventory to be cleared out while delivering the mid-cycle update (2020 model introduces a middle-rear seat) in the meantime. That sets the stage for an onslaught of purchases from those wishing to take advantage next month to file a credit claim on their 2019 taxes rather than having to wait an entire year for 2020 taxes. Then in mid-January when the Detroit auto show stirs attention for RAV4 Prime, Toyota can then respond accordingly. If deliveries to the established states keep up with demand, rollout to the rest of the United States can begin. If not, supply will continue to focus there. At some point, national rollout will begin. It's not like you can't order a Prius Prime elsewhere. You just have to wait.

The point is Toyota offers a variety of choices and they are working hard to discontinue traditional vehicle offerings. The increase of warranty across the board to 10yr/150k is solid evidence of that. Drawing attention to new choices is key. So, we are likely to see emphasis on the AWD Prius in the meantime. The new look and that obvious new feature is very well timed to coincide with the dramatic changes unfolding in the industry, related to both dropping demand for cars and the desperation of others to distract from the success Toyota is having with hybrid upgrades. In other words, 2020 is going to be a year to remember. Think about where the market will be by Earth Day. Neither GM nor Tesla will have tax-credits available anymore, while Toyota will be very well positioned to take advantage of them.

11-24-2019 **Unable.** That recent statement from GM marked the end. It was a clear abandonment of the past. This is what declared their war over: "*We've announced we'll have 20 EVs globally by 2023.*" We witnessed Two-Mode, then Volt (which was really the next-gen design), then gen-2 Volt fight major battles and each lose in spectacular fashion. To put things in perspective, that was 15 years of claiming to be vastly superior, but failing to actually deliver. The propaganda effort was amazing. Their minions were ruthless. I was attacked on a regular basis for pointing out how a hybrid could be properly done. They simply didn't believe in incremental upgrade. It's amazing how continuous improvement is disregarded as an effective means of change, despite overwhelming evidence to the contrary. Much of the resistance to that approach is a cultural issue. Management of some corporations don't operate that way. Focus on the biggest financial return, rather than long-term viability, is a self-destructive problem. Yet, we watch it play out several times from several sources. GM is by far the best example of that. They screwed up, repeating the same mistakes over and over again. It's amazing how enthusiasts absolutely refused to acknowledge the pattern. Just like with the political efforts now, they did everything possible to avoid addressing the issue itself. It was an endless stream of excuses, blame, and distraction. The outcome is a reveal of being unable. GM never found a way to deliver an affordable & profitable solution which could actually compete with itself. Their hybrids weren't good enough to compel their own loyal customers to switch. Toyota's reveal on Wednesday is why GM's statement on Friday happened. RAV4 Prime offers such an enticing draw to showroom shoppers considering a RAV4 purchase, there isn't anything to argue. The reasoning for that choice is sound.

11-24-2019 **Organic Process.** It has been fascinating to watch the political disaster turn into a mess with so much confusion, people lose track of priorities & purpose. They end up fighting just for the sake of not losing. They learn to live with the truth, working hard to convince themselves the outcome justified their actions. The final "*win*" is whatever they can figure out how to accept. It's an organic process. Changes of position over time are claimed to be the expected result they were working toward. That is a load of crap, of course. This is why I document history as it is unfolding. When I follow the daily posts and comment about them that very day, including quotes of what was said, there's nothing to argue. It can't even be claimed that statements were taken out of context when such comprehensive documentation takes place. There's lots of detail and follow up. I refer back to the past with great accuracy as a result. Pointing out what they believed then, versus what they are saying now, is how I confirm wins & losses. It is proof of intention & change. This is why I always push so hard for goals. I can see the discomfort of being proven incorrect. They struggle to adapt and ultimately find a way to accept that undesired outcome. Assumptions about how to achieve reduced emissions & consumption can lead to a lot of conflict... as anyone who took the time to read that history related to automakers is well aware. When it comes to the parallels in politics, the same applies. If you are poorly informed or just don't make an effort to understand, you'll have to come to terms the same way. Too bad that cannot be avoided. It's inevitable. Our society needs to rebalance from time to time.

- 11-25-2019 Repeating History.** We heard from the same executive today, the president of GM, that we did a decade ago. He said the same thing too. It was quite remarkable to be reading the same reasoning for EV not going mainstream, again. He set the "*not ready yet*" narrative by highlighting Range, Charging Infrastructure, and Cost... which all sound legitimate, until you notice the information is cherry-picked. The situation was portrayed as if there were no other choices available. All of those reason had been the justification for Volt. It was to deliver an affordable solution to directly address range-anxiety. Now, he's pretending none of that technology ever existed and there's no other choice available. It's a clear effort to move away from the EREV disaster. I was astonished, since it left enthusiasts with nothing whatsoever to work with. Not only was that tech allowed to die, we now see damage-control working hard to bury it all as deep as possible. Make it go away by focusing on the future a few years away instead. It was the same evade & delay. GM over promised and under delivered to such an extreme, they don't want anyone to ever remember it happened. This is literally just like Two-Mode. All those years of propaganda followed by massive market failure. The sales speak for themselves. What a mess... and that history is repeating, yet again.
- 11-26-2019 GM Trailblazer.** OMG! The morning today started with the reading of a press-release that left me in awe. GM is introducing yet another SUV. It's another old nameplate revived, but now smaller. For size, this one will fit in between Trax and Equinox. No where in any of the hype was mention of electrification. The reveal did mention "*technology*" though, but there was no clue what that actually referred to. If you follow the link, there was online info about Automatic Braking, Collision Alert, Pedestrian Braking, Lane Keep with Departure Warning, Distance Indicator, Teen Driver, and Seat Reminder. The topic of efficiency was completely absent. I quite literally could not find any reference in any article. There's a choice of FWD 1.2 (137 hp) or AWD 1.3 turbo liter (155 hp) system. Nothing else of a technical nature was available. I suspect the MPG rating is so bad, that information will continue to be difficult to find. You certainly won't see it advertised. Comparing to a 40 MPG hybrid, there's no contest. So, the fact that GM is offering nothing whatsoever to compete with is no surprise. I can't image what happens when the RAV4 Prime hits the market this summer. Talking about not even trying. All the crapola that was thrown my way, only to have nothing to show for afterward is truly remarkable. I feel so vindicated for having documented all that in such extreme detail, seeing this outcome if the situation wasn't ever taking seriously. Ugh.

- 11-27-2019 Cybertruck Backlash.** It has been interesting to watch the backlash. Tesla's reveal of an electric pickup that can best be described as "*overkill*" has many EV supporters left wondering. How is such an extreme going to transform our fleet of guzzlers to being clean & efficient users of electricity? Rather than just deliver a truck to be a true workhorse for those genuinely using a pickup as a pickup, this is already looked upon as being an expensive gimmick. It's similar to the problem Tesla has had with "*autonomous*" driving. That has nothing whatsoever to do with being an EV. Yet, it is associated with what is at the core of Tesla vehicles. It makes you wonder about purpose. Who will these appeal to? The post-credit audience is uncertain. With Model S and Model X falling out of favor to Model 3 and the upcoming Model Y, what is the expectation for sales & market? Seeing backlash with this reminds me of when Volt changed from concept to production. That caused quite a stir, resulting in the first of several exodus events. This is why I was constantly asking the "*Who?*" question. Audience was uncertain and each supposed move forward caused it to shrink. If this will diversify choice, great. But such a design doesn't give the impression of being what a pickup should be. Remember how the SUV became a commuter vehicle?
- 11-28-2019 Some Things Never Change.** Renewed attacks with the same old claims were inevitable: "*I NEED the Real Deal, Liquid based heating AND cooling.*" Despite the reasoning becoming weaker and evidence building up to the contrary, they try what seemed to work in the past. Trouble is, the new audience isn't an gullible. Rather than blindly accept the statement, some will ask questions. The thing that has changed is they now have enough anecdotal observations to wonder why. That little bit of curiosity makes quite a difference. The troublemaker thinks they have an opportunity to undermine some more, so they push their luck... until they finally trip over a contradictory fact. Though in this case, it didn't even take that much. We've been through this too many times already. So, my reply was: Rather than better technology that doesn't need the added cost & complexity, you insist upon a work-around. That's interesting.

11-29-2019 Measuring Success. I insist upon goals, long before the product gets too involved in development. What is it attempting to accomplish? What is the scope? What is the timeline? Those are sensible criteria to measure progress. Some like to muddy the waters by injecting: "...*not exactly a fair benchmark.*" That was a conclusion drawn by an antagonist, one obviously annoyed by things not going his way. I was amused. He didn't like the bigger-picture account of why such actions have been taking place by Toyota. That comes from refusing to recognize dealers as the true customer of an automaker. It's the fatal mistake Volt enthusiasts made with GM, assuming that broker in the middle would somehow just magically embrace such a profound product change. That never made any sense. Why would a seller SUV & Pickup choices suddenly begin catering to the compact car audience? Remember a bulk of their sedan business was to fleet buyers, not showroom shoppers. Anywho, this is why I knew from the start diversification of the technology was essential prior to tax-credit phaseout... which is why seeing Corolla & RAV4 hybrids become plug-in hybrids like Prius is right on schedule. This is why "*fair*" doesn't even come into play. It is a necessity. It must happen. Antagonists don't like that, and I knew this one would be especially frustrated by this: There's no benchmark. It's a cold, hard reality of business. Profit is required, period. This is why the early-adopter stage stirred little interest from dealers. They wanted nothing to do with subsidized sales. This is also why raising doubt with arbitrary measures and injecting uncertainty by pretending prior discussions never took place remains an exercise in distraction. Watch what happens. Toyota's slow & wide approach doesn't appeal to some, so those upset spin stories to make it seem there's only a single path to success, one contrary to Toyota's success model... hence a meaningless benchmark.

12-01-2019 Getting It Wrong. Coming across articles with facts or purpose or expectations mixed up is... sadly... quite common. Today, it was: "*The legacy automakers are trapped in the famous Innovator's Dilemma. They want to embrace electrification, but they're afraid of driving customers away from their profitable existing products...*" I don't know if the writer heard that term and didn't bother to confirm it was defined the way he thought or he simply needed something to submit for publish. Needless to say, the content didn't make much sense if you were well informed prior to reading that mess. This is the garbage we have to deal with the damage from for years to come. Some such mistakes get passed along so often, they become a perceived truth eventually. It's an unintentional narrative. That happens a lot when some aspect of the vehicle's operation is taken out of context. To see the entire "*electrification*" topic be portrayed in such a misleading manner, it's difficult to know what will come about as a result. There are hints of a paradigm-shift. That's the potential of getting caught unprepared... a really bad outcome of getting it wrong. Think about what could happen when at some point plugging in gets a nod of acceptance from some unusually influential source. What will consumers demand then? What will dealers be able to supply? The key is being prepared, having a variety of responses prepped and at the ready. This is how I jumped into the discussion with all the comments being posted for the article: That is actually avoidance of the Osborne Effect. The trap of innovation is what we witnessed with GM from Volt. Instead of the next generation becoming more mainstream, it appealed even more to a niche... hence dilemma. Drawing a wider audience is difficult, but absolutely essential and best prior to subsidies expiring. Tesla did a fantastic job with that for Model 3, taking advantage of the unlimited quantity during phaseout. Toyota is now setting up to do the same with the Prime models.

- 12-01-2019** **Blizzard, No Plug.** The long & late Thanksgiving holiday weekend provided a great opportunity to observe behavior when being parked outside for 3 days without being plugged in. We had a blizzard pass through, at my in-laws in Wyoming. When I booted the system, it fired up without running the engine, all electric. Outside temperature was 18°F. Battery-Pack temperature was 17°F. Battery warming clearly doesn't go that long (I believe the longest duration is 48 hours) and only does a high setting when you are plugged in. Nonetheless, it was still using only electricity. Sweet! With so much Winter to come still, I'll have plenty of opportunities to observe, noting more detail. I started the engine by pressing the HV/EV button. After 5 minutes, snow was already melting off the windshield. I turned on MAX defrost. The rest was gone quickly. At the 10-minute mark, I switched to Charge-Mode. It worked fine, despite the battery-pack still being cold. After charging up a few percent, with the cabin toasty warmed and all the windows cleared, I shut everything off. That worked great!
- 12-02-2019** **No Demand.** That article sure stirred up a lot of rhetoric. That was expected though. Enthusiasts were forcing the "*EV Market*" perspective, which was clearly defined by early-adopters taking advantage of the tax-credits. So naturally, their point-of-view was one of high-demand with great potential. The very idea of addressing possible setbacks as a result of that generous subsidy disappearing was "*anti*" talk and nothing more an effort to show favor for inferior designs. Ugh. They clearly didn't understand how low-hanging fruit works. That initial surge of interest rarely persists. Some type of resistance always comes about. If upgrades are planned accordingly, the reach out to a new & wider audience can be just fine. However, it could also result in no demand. The catch is understanding & recognizing the entire market as a whole. There's always some form of barrier. You just need to properly identify it. What will the other automakers be doing? A saturation of supply could really mess up pricing. Heck, even the messaging can become confused with too many choices. As much as I try to point that out, it usually gets dismissed: Know your audience. Dealers are who Toyota interacts directly with. How many of them are requesting EV inventory? The answer is very few, hence taking another means to reach the same end. Several choices of Prime (Prius, RAV4, Corolla) will bring about their interest. That's the reality of the sales market... much to the chagrin of early-adopters.
- 12-03-2019** **Taking Bait.** There's that subtle hit the reset, while at the same time attempt to discredit the messenger: "*Perhaps you should share that wisdom instead of playing cryptic sensei, and less people would brush off what you are trying to say.*" We've come full circle. The spin has caught up to itself. That repetition is how you know there's nothing more to extract. I do take the troll bait from time to time as a confirmation, just in case: I have already, several times. People have a way of conveniently forgetting when each new thread is started. The nature of these exchanges is for the RESET button to be pressed, preventing conclusions from being drawn. That's how they keep their favorite discussion topics alive. Ironically, some of the same individuals complain when I repeat myself. In other words, I don't take the bait. My suggestion to you is to ask a specific question instead.

- 12-05-2019 Retrofit.** Lots of questions are now being asked about the possibility of existing newer models being able to get Android Auto. Software upgrades of that nature are new territory. It's opportunity for automakers to explore. Toyota is very much part of that now. That's why exploration of a \$199 retrofit program is taking place. Will it cover expenses? Is the process easy enough? And how many takers could there be? So many questions. Very few answers. It has been done before. That's how I got cruise-control in my 2001. It was a feature intentionally withheld, a means of filtering out all but the most dedicated. Toyota wanted die-hard supporters to purchase that very first offering. After getting it, they ended up providing a kit to add the feature afterward for a reasonable cost. That could happen again with this.
- 12-06-2019 Demand Spin.** Finally, something more than just hearsay: "*Toyota's Biggest Problem Is Keeping Hybrid Car Models in Stock*". That article pointed out the overall growth at dealers, despite the change-overs with Prius. There really is a transformation taking place with mainstream appeal. When the country's top-selling SUV is available as a hybrid and history's top-selling car of all time is also available as a hybrid, that shift in interest is a simple one to understand. It's pretty much impossible to counter too. This isn't an argument against hatchback. It's an obvious new appeal for ordinary strong sellers, RAV4 and Corolla... both long-standing profit-providers with names so common, they truly represent mainstream purchases. We knew someday this would come. It's that balance of cost/payback. The equation is sensitive and varies. But the line kept drew near, since the technology continued to evolve.
- 12-06-2019 Marketing.** There are some who participate online that still don't understand: "*make a product that people want, instead of what you think they need.*" I don't expect my response to make any difference in that regard: That logic is exactly what contributes to the problem of Innovator's Dilemma... which is the very problem Volt died from. The spin online about that not being the case is good reading too... so much damage-control effort for such an obvious mistake. GM chose to focus on enthusiasts, asking them what they wanted... rather than finding out what mainstream consumers actually needed. That created a highly specialized gen-1 Volt. They repeated the same mistake for gen-2 Volt. It became such a much praised niche, but actual sales were terrible. Thinking a want is what they "*need*" is a very real issue. There was so much justification in the past for Volt, based on marketing, not the actual recognition of necessity. True requirements are a solid measure. People turn a blind-eye to that data.

12-06-2019 **Strategy.** Sometimes, it just goes on and on: "*Toyota vs. electric cars: Smart strategy, or Innovator's Dilemma?*" That article has been republished and referred to several times. It's how the rewrite of history takes place. You just keep pushing an idea, leaving out detail. The narrative eventually takes hold, but never really gets a strong following due to the lack of substance. Oddly, it can still be advantageous. I jumped on that opportunity to raise awareness: That's smart strategy. It's easy to recognize the difference. Just look at tax-credit dependency and the diversity of product. GM exploited conquest sales, wasting the subsidy opportunity for that rather than establishing a profitable & sustainable base. In other words, they innovated for enthusiasts instead of focusing on their own base. That is exactly what Innovator's Dilemma refers to. Toyota did the opposite, directly targeting showroom shoppers. We see Corolla & RAV4 hybrids being sold so fast, keeping them in supply has become a challenge. This is why Toyota is switching over their Camry production in Kentucky to RAV4, which has capacity to deliver 500,000 annually. That will become a vital part of meeting RAV4 Prime demand. It will be high-volume sales Toyota's core buyers. No part of that is a trap of innovation. Notice how GM never spread their technology?

12-06-2019 **Damage Control.** I'm seeing a rise in antagonist posts: "*...but the damage-control phrase is too vague understand what it may apply to. Sorry.*" When that comes from someone you know you have already had this discussion with many times, it's pretty clear their motive isn't sincere. They tend to be polite trolls, those who are respectful of others but absolutely refuse to be constructive. This just spin & evade to keep the posts coming. When it comes to Volt specifically, that is literally all they have left. There simply isn't anything else remaining. All other excuses have been exhausted. Production ended and GM has no intent to do anything more with their investment. They are writing off the effort to blend engine & motor & battery as a massive loss. They'll take what they learned with regard to the motor & battery part and abandon engine entirely. That's an incredible gamble. Expecting existing customers to make the jump directly from traditional guzzler to EV is a massive risk. How will they get dealers to even just start with a modest inventory? Who among their salespeople will want to try to sell such a dramatic platform change? That's far more than the usual paradigm-shift more enormous industry players can handle. With so much profit at stake and so many customers (their dealership network), reaching their consumers with a clear & concise message seems nearly impossible. GM has done a horrible job with that in the past. People still don't really know what Volt was intended to address... hence the damage-control. Spin like that wouldn't come about if the goal had been obvious. Duh! How many times in the past did I try to point that out. Ugh. Oh well. They are dealing with it from the point of failure now: Detail has been posted countless times. Volt needed to achieve sustainable sales prior to tax-credit phaseout; otherwise, production would be cancelled. Since that's exactly what happened, any excuses now are damage control. Even worse is the technology itself became too much of a niche... hence Innovator's Dilemma. That most definitely isn't the case for Toyota. We're seeing the Prime tech in Prius being deployed in both Corolla and RAV4.

12-07-2019 This Next Stage. Following a very argumentative discussion, a topic that drew it the usual trolls, I tried to wrap up days of efforts to prevent closure using this: *"The big take away from that chart is that the Tesla Model 3 is crushing everyone. AND sales are increasing even as incentives are decreasing. Talking about everything else is like discussing the deck chair positioning on the Titanic. No?"* His post was intended to bring a constructive nature back to the forum, so we could actually draw some type of conclusion. I took full advantage of the invite:

Ironically, using an analogy to Titanic is quite fitting, but not the message you were trying to convey. Tesla could be compared to Titanic surviving the iceberg hit, not sinking and actually making it to port. It's just a single ship arriving to the destination at great expense. That's why my push to get acknowledgement of the bigger picture continues to get the positioning of chairs response.

KNOW YOUR AUDIENCE requires looking at the entire fleet and all of the use that will actually occur, not just a single trip. In this case, that's what GM failure with Volt was all about. They gambled everything on a single vehicle. It was pretty obvious how desperate enthusiasts were to force narratives to the contrary too. When the potential for Camry hybrid with a plug was brought up, they'd attack the messenger. Then when RAV4 hybrid came along and the second generation of Volt fail to grow sales, the hostility was raised more distractions raised.

Tesla was the easiest distraction to focus on. It relied upon lots of venture capital, money from green credits, and heavy utilization of subsidies... none of which could be sustainable. Fortunately, excitement about the potential remained strong. But now with less than 4 week left of federal monetary encouragement (the sales boom resulting from the unlimited phaseout stage), the question of sustainability becomes all too real. Innovator's Dilemma already played out with dire consequences for GM. The outlook for Tesla depends upon breaking out beyond the single-product reliance, especially since that AUDIENCE could just be low-hanging fruit... the EV market... not mainstream consumers.

That brings us to the main topic, addressing that bigger picture. How will GM building a battery factory change the situation with potential for market saturation? In other words, who is being targeted for selling those resulting battery-packs?

We keep hearing the narrative of Toyota focusing intensely on hybrids but ignoring the reality of dropping sales for Prius. That's a cherry-picked perspective. It hopes you won't notice both the regular Prius and the Prime model were undergoing mid-cycle updates, consequently there being little inventory made available. Waiting until 2020 for that new production to ramp-up, timing it to coincide with the availability of the introduction of Corolla hybrid, rollout of the next-gen RAV4 & Highlander hybrids, and the reveal of RAV4 Prime.

That is what's called a well thought out coordination of fleet change... because it so nicely matches up with both the ending of tax-credits for both Tesla & GM. Think about the position Toyota will be in for Earth Day 2020.

With all that change carefully orchestrated to directly target their own showroom

shoppers, it sets the stage nicely for a turn to dedicated EV designs. The technology itself will already be deployed in the 3 plug-in hybrid models (Prius, RAV4, Corolla) while the EV models of CH-R and UX300 make their debut. It represents a moving forward of a wide variety of choices. You won't be forced to decide upon that single offering designed specifically to appeal to enthusiasts of the past.

Read through all that history of spin and now damage-control if you want good background. It isn't necessary to understand what this next stage involves though. All you have to do for a clear look forward is to consider what the sellers will actually sell.

12-07-2019 **Downplay.** This came from an antagonist: *"Every manufacturer has been cutting models, even if just because there are fewer buyers now."* He's basically a troll who has been accepted as a regular forum member, despite very frequent posts of an argumentative nature. I suspect he thinks of himself as a devil's advocate. His endless upset doesn't fit the profile though. He continues to be vague too, which is a sign of not being objective. I was intrigued if a vague reply in return would stir anything constructive: Add "downplay" to the types of responses. You continue to treat GM's failure to use the tax-credits as intended as if it was no big deal. They were squandered on conquest, rather than establishing a new technology for their fleet. It was a big waste. Not only isn't Toyota doing the same thing, they haven't used up their tax-credits yet. In fact, they are positioning to take advantage of the phaseout stage just like Tesla did. That's a very, very big deal. Again, it's about each manufacturer targeting their own loyal customers to advance their entire fleet to greener choices, not to earn trophies and gain praise.

12-07-2019 Stage Confirmation. That article got so much attention buried within an somewhat related discussion thread, it was freshly posted in the news section of the forum. That should attract new participants, hopefully more than just the trolls who were exploiting it. This is what I posted as the first comment in that new topic venue:

Misconceptions tend to emerge when a new market stage begins. That's easy to identify. A new audience is drawn to the technology, which is exactly what we are witnessing now.

In the past, we saw that with "*hybrid*" technology. There were countless incorrect assumptions, some fed by intentional efforts to mislead. People didn't understand and would often fall victim to simple answers to there questions, accepting the information at face value rather than questioning it. Lack of detail makes the situation worse. You end up fighting for years to debunk preventable problems.

We are seeing the same thing happen with "*Innovator's Dilemma*" claims. Most don't actually know the full definition. They just hear about the challenges related to adopting new technologies and don't dig any deeper. Assumptions abound from there. You end up with scores of misunderstanding to address. Ugh.

In this case, the dilemma is more involved than just what the technology itself seems to present. Success from innovation comes about from catering to a desire. You ask enthusiasts what they want, then build to satisfy that criteria. When the next generation design opportunity comes about, the manufacturer is supposed to reach out to other audiences.

The reason for this is simple. The manufacturer must switch from proving the technology to making it appeal to a much wider market. This is where GM failed with Volt. The gen-2 design became even more specialized, targeting only niche buyers. GM's own loyal customers were not interested. The technology became a dilemma.

That most definitely isn't the case with Toyota. We already see the hybrids taking the next natural step, to offer full EV driving. The addition of a plug and much increased battery-capacity (with resulting power increase) is already taking place with Prius, Corolla, and RAV4. That's a clear demonstration of the technology not being limited to a particular audience.

That "*Prime*" technology can also be used in the next step to follow, going from plug-in hybrid to electric-only, since many of the components are shared. The motors, controllers, battery-cells, and even the heater & cooling are all on their way to becoming high-volume & profitably produced... which is the goal, not a dead-end as the "*dilemma*" is believed & portrayed to be.

It's really unfortunate we have to deal with such misconceptions, but not at all a surprise. They are what comes about when a technology advances forward. In fact, that's how you know a new stage has begun.

12-08-2019 Winter Questions. It's nice having a collection of video to share that provides detailed answers for those wanting to learn more about cold-season operation. This is what I provided in that regard to today's questions: That battery-heater alone is reason to stay plugged in during "extreme" cold. For those who experience intense winters (for me, that's Minnesota), it means the plugged-supplied electricity can be used far more than you'd expect. Notice on the following video how, despite the outside temperature of -1°F (-18°C), the battery-pack is kept at 55°F (12°C). That means it can be taken advantage of still. Watch the % for the charge-level in the detail provided by the following video: [Prius Prime - Extreme Cold \(commute home\)](#) The coldest extended duration I have experienced without plugging in was Christmas 2017. We were out in Wyoming celebrating with family. Sitting there for over 8 hours in -9°F (-22°C) unassisted meant only minimal electricity from the battery-pack would be available. (Lithium chemistry experience a increase in resistance when its temperature drops below freezing, hence heating it for better draw & charge efficiency). The system started just fine. I obviously let it warm about for a few minutes before driving, but there was nothing else special needed... only some patience. For those who experience ordinary winter, the battery-heater means you'll be able to squeeze out as much electricity efficiency as possible. You still driving in full EV mode until the entire EV capacity is depleted, as this video shows in detail: [Prius Prime - Cold Commute thru Minneapolis](#)

12-08-2019 Posting Battles. Scope is changing. That really throws those who haven't moved on. They argue a perspective without anything to gain. The just like to win online. I suspect some simply aren't aware of that pointlessness. For example: *"That argument about subsidies is old. Maybe you could have claimed that in 2018. But as the subsidies have dropped in half twice Tesla is still production constrained..."* Evidence of outdated audiences & objectives is abundant. So, these posts are to just summarize the history:

Age of an argument doesn't make it any less relevant. In fact, that constraint doesn't even address the bigger problem. Being able to more easily supply 150,000 to 200,000 vehicles per year still very much means Tesla is trapped in the *"EV Market"* rather than moving to the next stage of sales... which is what this discussion is supposed to be about.

That next stage is being able to supply several vehicles annually at that capacity. In other words, the goal moving forward is to achieve greater penetration into the mainstream. That's why the tax-credit was such a feared barrier, no one wanted to discuss it. In fact, that's why so many *"EV Market"* arguments took place. People put on the blinders and didn't want to admit 200,000 per automaker over the course of 10 years was so tiny of a volume, it only served the purpose of proving the technology.

Tesla has very, very successfully proven the technology. Kudos to them for that. It's exactly what Toyota needed for them to take the next step. Because the business reality was, Toyota needed an endorsement from another major player for the entire industry to move forward. But now, it gets difficult for everyone. Each automaker must figure out how to reach out to a much wider audience, maintaining reasonable supply while also delivering a reasonable profit.

In other words, stating *"old"* means acknowledgement of what *"new"* represents. The big automakers sell several 150,000 to 200,000 vehicles per year. For perspective, there were 2,129,385 Toyota brand vehicles (which doesn't include Lexus brand) purchased in the United States last year. Think about how difficult selling plug-in models on any type of meaningful scale (representing noticeable change at dealerships) will actually be. Put another way, upping the game is going to be far more challenging than just winning some online posting battle.

- 12-08-2019 Better Chargers.** I see quite a bit of effort being expended to justify sticking with the standard 120-volt charger that comes with Prius Prime, rather than considering an upgrade at some point. There are things that make a 240-volt charger better. That rarely gets attention though... mainly because those leading the discussions don't have one. Lacking that experience, it is somewhat of a bias claim. And of course, there's the shortcoming of not being able to support a second vehicle. One standard outlet is fine, but you'd have to be lucky enough for it to be one with an higher capacity (20-amp wiring) and be willing to tolerate slower recharges for both vehicles. In other words, upgrading at some point is inevitable. That's why I keep pointing out that any type of future subsidy should focus on infrastructure, not the vehicles. Anywho, this is what I posted to at least keep the discussion somewhat flowing: People overlook the basics. Sure, the standard charger can handle the load, but only under controlled circumstances. That's why there is no recommendation for extension cords. Even if you use a gauge large enough to support maximum draw, it doesn't mean the outlet it is plugged into is actually properly wired for that. It also doesn't mean the charger will be safe from whatever it will get exposed to while being used and not used. That's why the point of some of this is moot. Who will accept liability if something goes wrong? 240-Volt certified chargers provide heavier & longer cords with weather-resistant cases and mounting brackets.
- 12-08-2019 Keep Digging.** A handle of antagonists have hung around, preying on those unaware of their efforts to undermine. But when it comes to me, it's an effort to misrepresent: "*Oh Myyyy, how does one put a positive spin on the above toyota fact?*" It's the same old nonsense we've seen for decades with green transportation and now gets daily attention in the political scene. They sight debunked claims as being uncertain, confuse the topic by introducing red-herrings, and attack the messenger. I find it all quite amusing at this point. For a Volt enthusiast to still be fighting, it's rather senseless. There are no more battles to stage. That war has been lost. So, I watch posts like this with curiosity of how much deeper he will continue to dig himself. It is already hopeless. Production has ended. GM has no intent to spread the technology. Lack of a successor means it's over. EREV is dead. Of course, that was a meaningless term anyway. The definition changed every time the rest of the industry moved forward. This is how I dealt with his obvious provoke: Efforts to avoid addressing specific issues directly related to this topic are very, very telling. LIQUID COOLING is one such issue. You absolutely insist it is a necessity. I point out that is really just a work-around until more robust & affordable battery-chemistry becomes available. It makes no sense to endorse added cost & complexity long-term. You also shoot yourself in the foot by making that assertion of need. With such a requirement, it forces a large & inflexible pack design. Being able to distribute stacks of cells for better weight distribution, better physical fit, and better accessibility isn't possible. You become stuck by limitations of your unsubstantiated claim. Keep digging. Each negative spin response for more rebuttal material to help reveal shortcomings & motive.

12-08-2019 **More Digging.** Continued attacks tend to result in some type of revelation or summary. He just kept trying to spin any way he could to somehow bring down my credibility. That's a common response. Basically, they just try to confuse the matter to the point of you struggling to convey any type of concise message. Quite the opposite happened with my. It solidified my argument points. It's an involuntary debate, where their engagement strengthens my stance while weakening their own. That pretty much happens every time, since most arguments lack substance. They end up with nothing to fight with and reinforcing my stance. In this case, I got a nice list to use later for just such encounters... since they will inevitably repeat:

Nope, that's your spin to evade addressing what I actually stated. My comments were about long-term approach...

- reduced cost
- reduced complexity
- better weight distribution
- better physical fit
- better accessibility

Keep digging.

12-10-2019 **Purpose?** Posts like this are interesting: *"If I'm really only getting 25 miles of EV for my electricity \$\$, I'm better off just running the car in HV mode all the time."* It's the same old generic math we've seen for 20 years, with no awareness of what actually happens as you drive. From a pure financial perspective, you're never better off purchasing a new vehicle anyway. There are tradeoffs, of course. But those don't get addressed. I try to point out the basics. Many people posting comments like that have already made up their mind, so there isn't much sway opportunity. You can enlighten others in the process though. That's why I try to formulate a short & sweet response with the hope to provide some type of thought-provoking info: Didn't you purchase your Prime to also make other people better off? There's a very real benefit from using less gas and emitting fewer emissions, even if you can't equate it to a monetary value. You'd be amazed how much your small contribution to a larger cause really adds up.

12-10-2019 Green Halo. I always got a kick of that term. What it meant was an automaker achieved the image of being green and that helped them sell their fleet of non-green vehicles. The fact that Toyota actually sold hybrids negated the claim. There were indeed green. Change on the dealer's lot was genuinely happening. Camry hybrid and Highlander hybrid purchases were happening regardless of what happened with Prius. It was real, not a halo. Some try to interject Tesla into the legacy automaker equation as if that somehow also applied. That makes no sense. Tesla was 100% green right from the start. It helped pave the way, not create barriers as this twist claims: *"They allowed a newcomer to the industry to steal that away from them. This stumble will cost them. They could have sold a Prius EV in half or less than the quantity Tesla has sold Model 3s in the last year and maintained their green halo."* Confused? It's a jumble of messages requiring a forced perspective. You must believe there are only winners & losers, nothing in between... that all EV buyers are the same and have the same wants & needs. Ugh. I fired back with:

The situation isn't zero-sum. The market doesn't work on a micro level either. This is a macro-economic change, requiring multiple players. None of the big ones wanted to play along though. GM, Ford, Chrysler, and VW all chose to resist in some manner and did so for 2 decades. Tesla filling in that void provides exactly the type of ally that has been needed. This is why *"know your audience"* is such a vital part of the equation.

Many will argue until the cows come home that top-down & bottom-up approaches cannot co-exist. Reality is, they are complimentary. That's why so many online battles are pointless. That's why claims of *"behind"* are words of rhetoric without substance. What cost is there to taking the time to ensure they are delivering change their dealers will embrace? Rushing to market without a robust, profitable, adaptive set of technology advances is not how attract mainstream buyers. In other words, following a belief that not capturing the early-adopter market represents a huge loss in the realm of appealing to ordinary consumers is futile. The *"halo"* remark confirms a mismatch. Who does RAV4 Prime target?

12-10-2019 Media Misrepresentation. Pushing a narrative to draw interest to your website is common. Using online articles to stir activity is nothing new. Ages ago, we'd see articles about Prius from enthusiasts magazines having no interest whatsoever in that type of vehicle. They knew it was a new audience with potential for a lot of growth, so they tried to capitalize on it. Nowadays, it's no where near as obvious of a membership mismatch. For example: "*As the article on Innovators Dilemma says, Toyota is marketing the RAV4 hybrid as a upgrade and not stressing the MPG. So if it is perceived that way, their strategy is a success.*" I was drawn to a green website posting that without any reference to what green represents now. They should be well past MPG at this point, focusing on kW, kWh/mi, and emissions. Oh well. Supposed "*journalists*" are usually just writers getting paid by the word. True in-depth investigation requires comprehensive reporting, not just a fluff piece with buzz words. This was my reply:

The catch is, there is not an innovator's dilemma. It's a perception being portrayed by not looking at the bigger picture. The example of "*not stressing the MPG*" provides evidence supporting that. People already know what HYBRID FROM TOYOTA means. There isn't anything to stress. There isn't even anything to advertise. The technology has become so ubiquitous, nothing needs to be said.

It's as elementary as knowing "*there's an app for that*". Nothing else needs to be said. The technology involved and the anticipated benefit has become knowledge so common, you're just wasting time putting any focus on it. Remember, advertising a complex product means focusing on what the potential customer doesn't already know, not sighting the obvious.

As for success, you must know what the goal is. Toyota currently has their desired take-rate set in the 20% to 25% range for RAV4 hybrid.

12-10-2019 **Seems.** My response to that interjection of Tesla from that effort to force a look at the here & now, rather than consider the bigger picture and impact to the market along the way, wasn't taken well. He just blew it off with: "*And yet, it seems that none of them have taken advantage of it.*" I liked his lack of commitment. Unwillingness to take a stance based on a concise goal or a wide perspective is nothing new. That's how I end up butting heads with even some supporters sometimes. They end up feeding a narrative by not taking the time to really consider what's being portrayed by their stance. What message are you trying to convey versus what people are actually hearing? I provided some perspective to that with:

Like I said several times, not recognizing the bigger picture... Your use of "*seems*" is encouraging.

Toyota is very much taking advantage of the situation, it just isn't obvious to those still viewing sales from the "*EV Market*" perspective. That's a tough habit to break. Dealing with mainstream consumers is far more difficult than early-adopters, so the tendency to not realize you've walked into that trap is understandable. It's why so many have misidentified the stage as Innovator's Dilemma. Toyota is simply waiting for the cycle to end. After all, it was very predictable.

Tesla did a wonderful job of using the opportunity to their advantage. Once passing the 200,000 threshold and triggering phaseout, they worked hard to deliver as much supply as possible during the unlimited period. It clearly worked to their benefit too. But that is just about over and what comes next won't be easy.

GM simply just gave up. Almost all of their tax-credits were squandered on conquest. It was a terrible waste of opportunity. Rather than using the subsidy to actually change what happens at their dealerships, Volt was just used for attracting one-time buyers who have demonstrated no loyalty. Sales fell apart. There was no audience to focus on when their phaseout was triggered.

Toyota still has quite a few tax-credits available. They are setting the stage for dealer's wanting lots of Prime models to sell. RAV4 will lead the way with a very nice Prius following. It will be a chance for leadership which other automakers will feel sucker-punched for not preparing to join in for... except Ford, who sees strong potential plug-in hybrid SUV offerings.

The market is being primed (yes, I know) for a paradigm-shift and infrastructure just plain is not there yet for EV support. We see it everyday with shortcomings from existing charge-stations. Fortunately, that will change. It is quite realistic to get what's needed in place. The catch is, that will take a lot more time & money than the "*EV Market*" wants to recognize.

Practical. There are always a few who try to be the voice of reason, keeping topics constructive & civil: *"If you can't say something nice, don't say nothing at all. GM fails are legendary."* But to actually move on, achieving closure and sharing a message of what was learned, you have to sometimes tell it like it is. Ironically, not doing that can bring about a next stage anyway. That's how the mistakes of Two-Mode were passed along to Volt. Rather than understanding that history, working to prevent it from repeating, a group of enthusiasts unwilling to open their minds set the stage for failure again. Ugh. Telling them doesn't do any good either. Some are just don't want prior experience to tarnish unrealistic hope. Again, ugh. This is what I said to that:

That's how rhetoric with Volt began. I pointed out the pattern emerging, how its approach resembled that of Two-Mode failure. Supporters became upset, turning a blind-eye to such information... becoming enthusiasts, enablers for history to repeat.

This is exactly why Toyota's schedule is the way it is. They went out of their way to avoid GM fallout. Every time the topic of adding a plug to Prius came up, there would be a hype reference to Volt. Despite lacking substance, it simply wasn't worth competing with propaganda.

Toyota simply refined the technology while waiting for that to play out and for the market to finally recognize that to keep their large & powerful vehicles, they must also embrace a practical means of making them far cleaner and much more efficient.

12-11-2019 Restart. This sound familiar...? GM just stated they will be putting heavily emphasis on SUV sales to create enough profit to fund their EV program. That's exactly the story we got over a decade ago for Volt. Literally, nothing has changed. It's the same old excuses, again! The stupidity of not evolving the technology in Volt for use in Equinox goes so far beyond sensible logic, it's crazy. The next-generation of Two-Mode was actually supposed to be that. But instead of rolling out that prototype Saturn Vue with a plug as some type of production configuration to enter the EV market, the path of pursuing Volt was chosen instead. That provided a buffer of time. Using that time to build that Equinox with a plug would have justified the delay & expense; instead, the entire program was abandoned entirely. We are now seeing what essentially appears to be a restart. Rather than take the next step, move backward to make the next few years appear to be productive. Remember all the rhetoric about GM being the industry leader and Toyota being an entire decade behind? That's all nonsense. Toyota will be delivering a RAV4 with a plug this Summer, roughly 6 months from now. GM is still many years away from offering even just an Equinox hybrid. They had Tahoe hybrid over a decade ago, then killed it. They had Volt, then killed it. Now they have Bolt, but do nothing to promote it. Using the excuse of generating profit for EV development by pushing traditional SUV guzzlers is pathetic. Look at how well the RAV4 hybrid is selling.

- 12-12-2019** **Outright Lies.** We are seeing false facts being pushed around in the political world so much, it is becoming normalized. We have embraced corruption. Rather than actually consider the detail, we choose rhetoric. For example: "*The Prius used to be the best most efficient car on the market, now it's no where close.*" The hope from that is the reader will be too lazy to consider what "*efficient*" really means. Rather than being a measure of energy consumption, it is portrayed as just raw MPG numbers. That's the same type of deception we got from diesel antagonists. They'd misrepresent overall efficiency for only the value that came from only highway driving and only with a manual transmission. So even without taking into account emissions, the narrative came out to be the diesel was a better long-term strategy to pursue. That gas overwhelmingly been proven false. The latest hybrid tech achieves much higher MPG than diesel. Anywho, the measure of EV efficiency uses "*kWh/mi*" measures instead. The same type of deception can be used to mislead to. Omitting certain routes & temperatures will portray a false narrative. You have to start somewhere though. And in this case, it's as simple as calling out outright lies. That one number provides a basis of stirring constructive discussion. In this case, the person posting the comment abandoned the thread. He got caught attempting to mislead. This is all it took to point that out: 25kWh/100mi is among the highest efficiency ratings for EV propulsion. Your "*no where close*" claim is just plain not true, as that value clearly confirms.
- 12-13-2019** **2020 Highlander Hybrid.** Toyota's push for hybrid technology unmatched by others is obvious with this newest reveal. It will be built in Texas, making it more American than so many other supposed domestic products, it's rather remarkable. Anywho, the efficiency rating jumps from 28 MPG with the previous generation to an amazing 34 MPG. This upcoming new generation uses the TNGA platform Toyota has been working hard to deploy across a wide variety of vehicles. In fact, the upcoming goal of 80% will soon be reached, right on schedule. Anywho, this rather large SUV hybrid with a 3,500-pound towing capacity will have a starting price of \$34,600. How will the other automakers compete with that? GM certainly won't come even close. Ford may have some worthy technology, but will it be a true contender in a market Toyota dominates? Being able to simply trade in your old Highlander for a new hybrid model is an easy approach Toyota dealers will likely embrace with little hesitation... especially with the success RAV4 hybrid has already solidified. We're beyond the establishment stage. Hybrids are the new norm with plug-in variants leading the next stage. That's exactly what has been needed to reach the audience desiring a large family-mover. It's a bit of a surreal moment to consider in automotive history. This hybrid will deliver quite a bit higher efficiency than family-movers of the past. Remember last year's model of minivan?

12-14-2019 **No Consistent Message.** The damage-control continues: "*GM Was Right to Stop Making the Chevrolet Volt*" Turns out, there are quite a few more hidden enthusiasts than expected. They keep feeding editorial opportunities with articles of that nature. Following that title, was this opening statement: "*As a Chevy Volt owner for over seven years, I completely understand why many Volt owners are upset at the news that GM was cancelling the Volt and not pursuing any other Voltec-based vehicle platforms.*" It's a never-ending effort to spin the past, in this case, portraying a stance they didn't actually take until the end was obvious. I got attacked relentlessly for saying the very same thing. They felt it was really a clever scheme to dilute Volt. Putting the same system in a vehicle like Equinox was a terrible idea as far as they were concerned and that sentiment went on for years and years. Needless to say, I want to know more about what brought about their change and how far they will go to conceal how they were once against that very idea. This is what I posted on a discussion thread about the article:

That got me really curious. With so many excuses exhausted and those doing damage-control in such deep denial about how poorly their defense strategy is working, what could he possibly say in a positive manner?

It started out fairly well, sighting "*Chevy Volt Cost Too Much To Build*" as a primary reason. But that was an internal perspective, nothing with regard to the rest of the industry. Then, I got to this: "*Undaunted, Voltec proponents also point to Toyota's plug-in hybrids as evidence that GM could apply the Voltec platform to larger vehicles.*" Then it went on to claim: "*The problem is, Toyota's HSD is fundamentally different than the Voltec system.*" That got me yearning for detail, which didn't follow. Instead, it was: "*Toyota's plug-in hybrid system is designed to run off the gas engine under all circumstances but off the electrical propulsion system only under limited circumstances. That's the exact opposite of the way the Voltec system works in the Chevy Volt.*"

In short, the turn to misleading and outright lies has taken the spotlight. That's the same desperation I saw years ago. GM couldn't compete legitimately, so their minions was spread false information instead. Ugh. The conclusion got even better: "*In other words, in order to achieve what Toyota is doing with their HSD, GM would need to fundamentally change the Voltec architecture. It would lose its essence as an electric vehicle powertrain with a gas generator backup, and it would become just another hybrid.*"

That was great. It showed that even a long-term owner really didn't understand how his own vehicle's system was actually designed. Volt's engine was never just a "*gas generator backup*" as BMW's i3 overwhelmingly confirms. Of course, Prius Prime does too. It delivers up to 84 mph using just electricity. How can that not be "*essence as an electric*" operation? The engine doesn't start until battery depletion. Reading the comments, I saw perspectives all over the place... which revealed what was really at the heart of GM's decision to stop. There was no consistent message. Even after an entire decade, people still had no idea what GM was hoping to achieve.

12-16-2019 Business Perspectives. These two statements made today were fascinating. GM CEO Mary Barra: *"GM believes in the science of global warming. We believe in an all-electric future. It's not a question of if, but when."* Toyota EVP Bob Carter: *"Somebody's got to buy these things. I've been saying we're going to see electrified armageddon. Because of the cost premium, supply is going to get ahead of true customer demand."* Notice the difference? GM's perspective continues to be a vague statement of green intent without any substance. It's the same ambiguous garbage we have been getting since way back when Two-Mode was still in development. There's an apparent commitment, but no sense of being in touch with the actual market. It's a belief of the *"if we built it, they will buy it"* mentality being realistic. Remember how well that worked with Two-Mode, Volt gen-1, Volt gen-2, and Bolt? Each has been an incredible example of what not to do. Business mistakes have been plentiful. So to earn trust of this next effort being different, we actually need to be told something. That complete absence of substance is reason for concern. Toyota sees this... and has been getting a lot of flack for adapting accordingly. 17.8 kWh is the expected capacity for the battery-pack in the upcoming RAV4 Prime. Why is not being an EV portrayed as a shortcoming? It is far enough to cover my entire commute, both directions in Winter driving. So what if that all-electric driving experience is limited to 39 miles for the sake of being competitively affordable? Ugh. Think about what sales will become if VW really does saturate the worldwide market with 1 million EVs per year starting in 2023. Combined with whatever GM will supposedly produce along with Tesla, it becomes a real paradigm-shift without any means of stimulating change. What will be the incentive? Reading online sentiment with regard to cheap gas and climate-change conspiracy, where will demand come from? Remember, each of these EVs will require a dedicated 240-volt charger (a 40-amp line will deliver 200 miles in 8 hours) for realistic overnight charging. That alone is a major barrier for mass acceptance to overcome. RAV4 Prime won't necessitate that. With an ordinary household 120-volt outlet, you'd be pushing limits of available time with a 12-hour recharge, but it would work for initial ownership. The upgrade to 240-volt charging could come later. It would not be a sales impediment. In other words, pressure won't be on Toyota dealers the way it would be for GM dealers. It is recognition of the fragile balance of supply & demand. That's vital for good business.

12-17-2019 Upgrades At Home. Every time the victim-card is played, claiming Tesla & GM are victims, I feel it necessary to point out a great purpose. Money to fund change should be focused on the more meaningful efforts. Doesn't it make sense to help a homeowner upgrade their home to support every plug-in vehicle they will own over the next few decades rather than just use that money for a single vehicle purchase? I don't understand why more people don't see the value of having a 240-volt connection available for charging. Benefit from investing in infrastructure should be obvious. What you setup now will be used for many, many, many, many years to come. So when I see articles with a title like this, you know what it makes me rather crazy: "*In blow to Tesla and GM, federal electric car tax-credit not extended.*" That's so short-sighted of a view, it's almost self-defeating. Think about the audience that is intended to reach. What message does it send? There's no invest-in-a-better-future-for-everyone sentiment. It comes off as an automaker complaint or whining, rather than a conveying support for being green. Think about how important it is to make people feel the effort is to benefit everyone. Focus on homeowners (as well as landlords, whatever "home" is for you) to promote plugging in regardless of brand is the type of message to send. Ugh. This is what I posted as a comment in reply to the flurry of victim posts: Tesla used the credit well, as intended... building a base of customers for a new automaker. GM squandered their credits, using them for conquest sales rather than intended... changing established customers for a legacy automaker. Credits shouldn't be extended anyway. A better use would be helping build infrastructure instead... upgrades at home.

12-18-2019 Surprise Victory! Turns out, my suggestion is exactly what happened. The federal bill to include funding for renewed tax-credits toward plug-in vehicle purchases got changed at the last minute. That money was dropped; however, the section for infrastructure upgrades survived. Sweet! Just like I said, new money as an incentive to choose a plug-in vehicle should now be used toward upgrades at home. Where you park overnight should get those funds. That is a permanent investment which will deliver benefit for decades to come, well beyond just the purchase of single vehicle. Not only will that be available for all of 2020, it will also be retroactively available for 2018 and 2019. That's fantastic for both existing and future owners. 30% rebate (up to \$1,000) on costs associated with the installation of an EV charging station can be applied to your taxes as a credit. Amending a prior filing for that is fairly simple too. This should reach quite a number of people, regardless of what they purchase to plug in. Having that faster recharging readily available is nice, especially if you combine it with discounted rates associated with overnight programs provided by many local power providers. If all goes well with the upcoming presidential election, perhaps would could see an extension of this more meaningful means of promoting the use of electricity for travel. Celebrate one victory at a time. This is a great win. Hooray!

12-19-2019 MPG Lies. Seeing it happen again is rather surprising: "*The other part of Toyota's DNA was born into the RAV4 Hybrid, which, at 39 mpg combined, was the most fuel-efficient crossover without a plug behind the 40-mpg 2020 Ford Escape Hybrid in AWD.*" You'd think with the incorrect reporting in the past and the resulting fines anyone looking at numbers would do so with care. This was clearly a spin article favoring Ford's AWD hybrid dishonestly. Grrr! Both hybrids deliver combined ratings of 40 MPG. For the RAV4, it specifically gets 41 MPG city and 38 MPG highway. No where is there a 39 MPG value. Sadly, no one called out the issue in the comments either. It makes you wonder what will happen when both plug-in models become available.

- 12-20-2019 State Purchase Incentives.** Minnesota Department of Transportation is now testing a 3-year pilot program that gives a MnPASS credit of \$250 to eligible electric-vehicle drivers and \$125 to eligible plug-in hybrid drivers. This is used to pay tolls associated with the use of HOV lanes. Purchases or leases between November 1, 2019 and October 31, 2022 will qualify. In the press release, the purpose was stated as: "*The MnPASS incentive is geared toward people who do not already own an electric vehicle, or who are perhaps on the fence about purchasing.*" An unexpected perk is the MnPass program will be expanding in 2021 to become interoperable with E-ZPass toll systems. That means a large section of the Midwest and upper East-Coast will be able to accept that credit money. Cool. Additionally, the credit can be used now to pay fees in the Minneapolis Airport parking ramps with combined with a ZipPass account. It seems a well thought out means of promoting a better future here. Sweet.
- 12-21-2019 Escape PHEV.** Some new detail was provided today, including price. \$34,235 for the base offering will be looked upon with interest, for some. That's \$3,200 less than Outlander and will have roughly 10 miles more EV range (14.4 kWh capacity). Actual range delivered in real-world will be subject of great debate. I can't imagine how that will play out, especially when RAV4 will deliver further range and quite a bit more horsepower. The Ford is thought to only be FWD, which will give it a clear disadvantage comparing to Toyota's AWD. This is another one of those situations where audience is key. Who will Escape be marketed to? Will they care? For that matter, will dealers even show support for stocking it? The becomes especially odd when you consider tax-credit price brings it down below the regular hybrid. That's not quite what Toyota saw with Prius, since the Prime model looked very different and had less interior space. Toyota likely won't face that situation with RAV4 either, since the plug-in model will be the fastest and most powerful. I suspect it to be closer to a wash... especially considering how high the demand is for the hybrid model. Availability is what really matters. Will Ford push supply and encourage dealers to stir demand? There are many unknowns still.
- 12-23-2019 Dropping Sales.** Reports of struggle in China with EV demand are becoming common. The reason why is simple, subsidies have changed. No incentive money is offered for any New Energy Vehicle with a NEDC range rating below 250 km (155 miles) anymore. For those meeting that criteria, subsidies have been cut in half to 24,750 yuan (about \$3,500). This could be a foreshadow of what is to come here. There are only so many potential buyers for expensive-but-discounted vehicles... hence the low-hanging-fruit situation. Those in that group with disposable income available and a strong desire to drive something green will take the plunge; the rest will sit on the fence. We certainly saw that with Prius over the years. There were many who believed in the technology and the cause, but just couldn't pull the trigger on a purchase. Hesitation really hurts. The market is quite fragile, even with a government pushing for clean. Here, it's a disaster. We have heavy oil subsidies still and that industry working hard to undermine electrification efforts. They provide an abundance of excuses not to bother... which you can read in comments of those article. Whoa! The denial is amazing. There are far too many who seek validation to stick with a traditional vehicle. It's really sad. So, hearing about the struggle in China should not be any surprise. There is much stacked against progress... even in the face of obvious air-quality issues and climate-change problems. Ugh.

- 12-24-2019** **Rising Sales.** The situation in Europe is quite different than China. Sales are rising. The catch is EV rise has slowed. Faster growth is coming from PHEV sales. Reasoning for why is unclear. An interesting twist is the best-seller is by far Model 3. Tesla is leading by a very wide margin. That could simply be an initial surge of buyers and year-end incentives. We'll find out as the months proceed and VW rollout nears. The closer that gets, the more hype will likely drown out the voice of reason though. That being a domestic market, there may be nothing to learn from. Too many factors are at play. It is nice to see the push, regardless of why. That could help pull our market here out of its complacency. It's sad to have been regarded as the leader, then disregarded as important after making some idiotic political choices... which were just plain stupid... so short-sighted. Anywho, the technology progresses, even when there are slow downs and new barriers encountered along the way.
- 12-26-2019** **New Narratives.** When the audience changes, as we are seeing play out right now, you get entirely new perspectives... which consequently feed new narratives. Many of which come from those providing no data to support their claim, based on limited anecdotal observations. Today, it was this: *"American auto buyers are rather belatedly waking up to the fact that hatchbacks are a lot more useful and convenient than sedans... American auto makers have responded with lifted hatchbacks which are marketed as "CUVs" or even "SUVs"... So I submit the recent sudden decline of the American sedan is mostly due to a shift to hatchbacks."* Absence of any substance to explain why is always troubling. Far too often, we see people drawing conclusions emanating from basically just hearsay. This was yet another example. A solid fact is there has been an ever-growing shift to larger and larger vehicles. One reason is as our population ages, easier in & out becomes a greater priority. Like it or not, that compels drivers to abandon aerodynamic benefit of a car in favor of a less efficient SUV, since it offers higher seating. It really is that simple. No other reasons are necessary to mention. That would take us away from the basis of the faulty assertion and newbies often fall into that trap. They lose focus of their own argument, posting for the sake of winning an argument rather than exchanging info to learn. I explained the situation: Omission of vital detail would give that impression. Reality is, the explosive response to the second-generation Prius back in 2003 was in part due to it being the only midsize hatchback available in the American market. Impacting change in another regard long ago was the much higher profit from SUV models. The impression of *"belated"* or *"sudden"* comes from no longer trying to hide the disinterest in sedans. They are a difficult sell in several regards... with the look forward being the most pressing. It's a heck of a lot easier squeezing battery into any platform other than a sedan.

- 12-28-2019** **Former Foes.** I check up on the old GM forum from time to time. Remember their meritless praise for Two-Mode and blind hope for Volt? It was a terrible venue for any type of progress... which made it a great source of rhetoric research. They provided a wealth of undermining insight. I was always fascinated by how they would unknowingly volunteer very helpful information. Anywho, there were a few there who hated Toyota so much, they would relentlessly attack anyone who showed favor. I did, so I was always having to deal with surprisingly hostile posts. It was quite remarkable. I look back in dismay just how bad it actually got. Having documented their actions sure is nice. It's hard to believe just how bad things really got at times. Needless to say, times have changed. GM failed miserably, several times. Many there have simply given up. One particular individual who never showed me any mercy posted this today in response to the recent details revealed about the upcoming Highlander hybrid: *"This is going to cement Toyota as the go to for a 7 passenger. The MPG without any real penalty is huge."* That 36 MPG rating is so much better than anything GM every delivered in that category, it's no surprise to finally see a change of heart. This quote that followed cemented the sentiment: *"You have to be an idiot to not applaud Toyota on this."* To finally see even the much staunch express positive attitude toward a former competitor is a very good sign. Of course, he still may be a little combatant toward me, but who cares. Highlander hybrid will deliver incredible efficiency and will be built in Texas. That's something he could never say about a large SUV from GM, even on a big GM forum.
- 12-30-2019** **Provoke.** This attempt was quite telling. Comments about an article highlighting expectations in the coming year from Kia was: *"All electric range for the plugin? <=25 miles, color me unimpressed. I'm not looking for much over 25; Toyota has become the inadequate standard."* There was nothing mentioned of EV range or Toyota. It was just a former Volt troublemaker absolutely desperate for some type of interaction. The death of all hope from GM has left him without any type of daily fix. That old blog provided an on-going source of rhetoric to stir excitement. With that now long dead and nothing at all to anticipate anymore, not to mention Toyota becoming an even greater threat to whatever he wanted in the past. I was absurd. Several people took a bit at his trolling trap, but none stuck with the theme. He's basically getting the cold-shoulder from everyone. That's what happens when your goals become insincere. What had been once anticipation of great change turned into an effort of spite. Seeing the provoke fall flat was a nice reminder of why it is so important to stay focused on the big picture. He dug himself so deep into a false promise, he lost touch with what really mattered. What would winning a discussion really accomplish?
- 12-31-2019** **Until 2020.** This caught my attention: *"Good thing Tesla that Toyota is on a limited run of Prime..."* It was a great opportunity to provide some exposition for all those now paying attention: Toyota knew 2020 would bring a mid-cycle upgrade for Prius Prime. Toyota knew 2020 would bring about the rollout of RAV4 Prime. Toyota knew 2020 would bring an end to tax-credits for Tesla. Let's not forget the perceived competition for Prius Prime either. Every time it got a mention, someone would always squeeze in something about Volt, despite its obvious mismatch to customers. Toyota knew 2020 would bring an end to tax-credits for GM. In other words, it simply made no sense to go beyond a limited run until 2020.

- 12-31-2019** **Tax Liability.** I wonder how common this is: *"I've been trying to search online but couldn't find an answer. Is there an income limit to claim the federal tax-credit?"* It's an interesting question, especially if you really given it any thought. Without any experience, it would be difficult to even know what to look for. I suspect most people probably haven't ever been in such a situation. So, I'm hoping my short & sweet answer does the trick: No limit, you just need enough tax liability to cover it... which most households commonly do. Remember, it reduces what you pay to the government, rather than being a monetary gift.
- 12-31-2019** **More Confusion.** Sometimes, you have to wonder if some people are so poorly informed, they just make wild guesses. I didn't get the impression this writer had any idea what he was really dealing with: *"In today's market, several automakers like Volkswagen and GM have completely abandoned plug-in hybrids, while only a handful of PHEV models are actually able to handle the average American round-trip commute of about 32 miles without tailpipe emissions."* Since when is that the average? VW just upgraded Passat from 9.9 to 13 kWh. And Ford is about to introduce its new Escape plug-in hybrid. More importantly though, what does he believe the purpose of PHEV is supposed to be? We are about to start a new year where many of the apparent industry experts really don't have a clue. That's going to cause quite a bit of confusion. Ugh.
- 1-01-2020** **Happy New Year.** It started with: *"Without access to the full \$7,500 federal tax-credit (or even part of it), Tesla is now at a competitive disadvantage to other manufacturers that offer an EV model in Tesla's market segment."* Coming from a blog website for all plug-in vehicles whose posted content at times is almost entirely Tesla topics lately, that was no surprise. There's a lot of Tesla content available, but the imbalance makes it appear to have a bias.. which is a formula for attracting enablers. They lose credibility as a result. It's a difficult problem to overcome when you want to attract participation daily. Anywho, I obviously had something to say on the topic: Those key words... IN TESLA'S MARKET SEGMENT ...reveal the narrow scope we cannot afford to be trapped within for 2020. For Model 3, there was an audience with very limited choices and tight deadlines. Over 16 million is the expected outcome from new vehicle sales for the United States for 2019 means it achieved the amazing feat of capturing 1% for the year. Kudos! That is a temporary low-hanging-fruit situation though. The challenge will be to maintain it. With a variety of new choices becoming available and the reality of just how small of a quantity that actually is for a mainstream automaker to sustain their business, their *"market segment"* far from certain. For perspective, there were 2,129,385 Toyota brand vehicles (which doesn't include Lexus brand) purchased in the United States in 2018. The outcome for 2019 is expected to be similar. Any regard to *"competitive disadvantage"* is short-sighted and narrow-scoped. Sales must grow significantly, without any dependency on subsidies.

1-01-2020 **Renewed Rhetoric, reason.** That troublemaker from the past failed to attract any enablers; instead, there was a fairly objective post which I decided to respond to. This was the quote I specifically highlighted: "*There's no reason why smaller PHEV's can't be very quick, handle very well, and go at least 50 miles on electric power alone.*" Hopefully, this ends up stirring more construction discussion:

There's no reason? That belief comes from years of rhetoric, which the death of Voltec has overwhelmingly confirmed a terrible idea. GM started with an understanding of the market, stating a primary goal of "*nicely under \$30,000*" to set a clear expectation of affordability & profitability. That was to be their small PHEV offering. They abandoned their own goal in favor of range & power.

Toyota's delivery of RAV4 Prime shows what the PHEV market could have become for GM, an automaker whose audience is would have wholeheartedly embraced a SUV with a plug just like that. Keeping Prius Prime on the balance for range & power makes sense for this generation of battery chemistry & packaging, since it meant an affordable price without dependency on tax-credits. It still got the suspension upgrade for handling well, in addition to the industry's most efficient electric heating system.

Focus on what priorities will draw in the largest audience. This is vital for sustainable high-volume sales. It way the article of Kia's future offerings address a variety of electrification approaches. Heavy emphasis on range & power proved a fatal choice for GM.

1-03-2020 **Past Sales.** There was silence yesterday, nothing to report until today. All the reporting would take an odd twist too. Rather than the usual rhetoric stirred from monthly statistics, everyone is shifting to quarterly outcomes. That should help to reduce the usual entertainment posts, those with no constructive value. Hoping for such discussion is a bit of a stretch though. And of course, it is way too easy to slip into the trap of looking backward... which is exactly what happened. That perspective long after-the-fact results in a tainted view, since most of the time some vital aspect of that situation is forgotten or overlooked... as was today: "*BEV sales today are similar to HEV sales in 2005. If you look at 2000-2005, you see exponential growth.*" That seemed innocent. I pointed out why it didn't portray sales of the time accurately: The overlooked reality is there were no tax-credits back then, only a tiny deduction... between \$300 to \$400 for most people. It wasn't until 2006 when the first tax-credit became available and its purpose wasn't to establish technology, as is with EV purchases. Purpose was to push hybrids into the mainstream. Now, PHEV is what ordinary consumers will embrace to fulfill plug-in interest. It's a best-of-both-worlds approach at a time when cost makes it directly competitive with the well-established choices. As much as people hope for strong growth among EV choices, its just not realistic for the masses. They have bigger fish to fry. Upgrading their home for recharging and trying get the most from electricity simply isn't a priority for them. They aren't the customers anyway. Automakers make money from dealers... who have other priorities too. We'll see a shift in 2020. Change is slow though and there are many forces working against electrification of any type.

- 1-04-2020** **New Year Spin.** I found this quite annoying: "*It sure seems like Toyota's other hybrids are eating the Prius' lunch.*" That article title wreaked of click-bait. Reading a little into it, I found: "*It might be the subject for more prognostication later, but as we discussed Prius sales in the office, many of us wondered if it is the beginning of the end for the hybrid and PHEV Prius.*" Why would Toyota discontinue offering a hatchback, especially with the introduction of rear-view camera mirrors? It's the ideal replacement for the loss of market with sedans. Looking at comments posted, I didn't see anything related to plugging in. The existence of Prius Prime was totally overlooked. It's how narratives are established... they just portray a view as if it represents a comprehensive look. That reality of pushing a perspective is nothing new, but this is still good reason to call out the publication attempting to get away with it.
- 1-04-2020** **Reviving The Past.** I wasn't expecting new life to emerge on the forum part of the dead Volt blog. It happened though. Ugh. A familiar troublemaker was attempting to stir some of the same old rhetoric, but as new lies focusing on RAV4 instead of Prius. I really don't even want to post those quotes, since they used blatantly incorrect information to show favor for the claimed superior design from GM. Their propaganda for EREV is attempting re-ignition. What possible benefit could come from trying to undermine Toyota's progress? None of their arguments were compelling enough to kept the technology from ending production. Rather than the Two-Mode evolution to Volt ever coming back to an SUV form, it died. Why would anyone attempt to push the same narrative again? You'd think any type of effort to get GM's attention would try a different approach. Making the same meritless claims again doesn't make an sense. Renewing failed arguments is bizarre. That's a degree beyond desperate. This isn't even a repeat a history at this point. It has turned into some type of anti-green movement, where they are so upset about having lost they can only achieve fulfillment by trying to bring back what happened years ago. Trying to revive the past is a new twist.
- 1-05-2020** **Calling Out Publications.** I finally had it. Tired of bumping into references to that misleading article, I commented on Facebook post linking to it. That would stir feedback. And it did right away, before I could even finish my blog entry. Turns out, some reading it hadn't actually realized there was such a blaring omission. This was my comment: Notice how the article makes no mention of Prius Prime, only pointing out the most vague "*PHEV Prius*" reference possible near its conclusion? Focus was placed exclusively on the hybrid model, creating a narrative is used to draw interest to a publication. Real journalism doesn't leave out vital information like that. To be objective, the article should have pointed out the sales of Prius Prime have been showing signs of increase due to the mid-cycle upgrade halfway through 2019 but that would have confused the "*If Toyota could re-envision the Prius...*" message at the end of the article BECAUSE THAT IS EXACTLY WHEN TOYOTA JUST DID WITH PRIUS PRIME. Omissions like that are troublesome. Ugh.

1-06-2020 Over Promise, Under Deliver. It is rather bizarre to witness mistakes being repeated. You'd think the online forums as a whole would become better educated over time, learning from the past to prevent tripping up over the same problems & oversights again. Nope. Newbies keep joining, poorly informed and easily influenced makes them quite vulnerable to falling into the same trap. They do too, taking most of the group with. Watching that can be somewhat surreal, like knowing an accident is about to take place, then watching it play out. Even when you try to prevent the repetition, they go out of their way to stop you from interfering. True, some actually want & encourage the mess. Others just don't understand. Anywho, it continues to happen:

Think about how wanting some have become, blinded by logic. They gobble up every word, as if it was guarantee. Those who question for detail get drown out by a sea of enablers. GM worked that angle for years, providing ambiguous statements that would feed hype. Enthusiasts thrived on meritless claims. Substance wasn't important. All that mattered was a commitment without any accountability. Now, we are seeing VW follow in those same footsteps.

Meanwhile, those automakers actually trying to make a difference, but in a much more subtle way get the "*laggard*" label. We see Toyota about to deliver a 39-mile PHEV system, offering 302 horsepower, 0-60 acceleration in 5.8 seconds, and AWD. That will come as an option in a very, very popular choice of vehicle. So what if it includes a gas-engine for driving after depletion? Most people's commutes will be entirely with electricity, providing exactly the same experience as driving an EV.

This is why the advice of "*Know your audience*" has become so vital. Automakers sell their product to dealers, not directly to consumers. Those impressive specifications are what will appeal to dealers purchasing inventory, not some grand plan to electrify. Those promises are meaningless to them. They want something that can be easily sold with little effort for a decent profit.

1-07-2020 Video: Battery Temperature. We have had an ongoing discussion on the topic of battery temperature. The exchanges have been rather well thought out too, quite productive. I enjoy those rare opportunity to share like that. Today's addition to the stream of observations & conjecture was: "*If the garage is 39 and the battery is at 59, it's pretty unlikely that the battery heater ran. It only runs enough to get the battery to a few degrees over 32 (maybe up to 37 at most).*" That was an excellent point, which got me thinking. So, I took the time to collect some real-world data: I was able to confirm behavior. The battery temp was 69°F at midnight when charging completed. I unplugged, then checked 3.5 hours later; the temp had dropped to 62°F. Another 3.5 hours later, I plugged back in; at that point it had dropped to 57°F. An hour later, the temp was now at 55°F and the charger did not report and electricity draw during that time. btw, I have witnessed 41°F from that battery-heater with the garage at 14°F and charging not having taken place for 3 days. Here's video showing exactly that... [Prius Prime - Extreme Cold \(commute to work\)](#)

1-10-2020 Hummer Returns. We haven't heard anything for GM for quite awhile. Today, there was suddenly a buzz about Hummer coming back as an electric variant. There's no detail of any sort. It's the same old ambiguous nonsense... only this time, there's a blatant effort to completely ignore middle-market. In the past, we had Volt promoted as a vehicle for the common person, but it was obvious by the price that wasn't the slightest bit realistic. Yet, that was the way it was presented for many years. In fact, it wasn't until the end that their was admission of it really just being a niche. That expensive and for a limited audience is what stirred so much trouble. GM clearly had not delivered what they promised; yet, enthusiasts continued claiming they did. I never expected such outright dishonesty. Fortunately, the end of tax-credits for GM brought an end to Volt, which heavily depended upon that subsidy for survival. So, the idea of Hummer returning is a head-scratcher. Who exactly is that intended for?

1-11-2020 Refusal. Some just don't want to accept what's happening:

It has been interesting to watch the same failed lines of reasoning used again. Much of this we've seen in the past with GM from Volt enthusiasts. They didn't understand the larger market either. It's easy to appeal to early-adopters, especially with subsidies. They refused to acknowledge that limited audience though. They refused to recognize the dependency on tax-credits too. But most importantly, they absolutely refused address the need for growth.

To achieve growth, the technology must diversify. Tesla managed to avoid the innovator trap by sacrificing Model S for Model 3. That better targeted their premiere product to the wider audience, bringing price down in the process. They still don't have a true second offering yet, something quite different from the first.

That's where Toyota shines. So what if Prius Prime is supposedly small and under-powered. In contrast to it is the upcoming RAV4 Prime. That's large, fast, powerful, and offers more range. True, the next-gen Prius Prime will deliver similar improvements, but one is a hatchback and the other a AWD SUV. That's true diversity. They appeal to entirely different audiences.

RAV4 Prime, along with the upcoming EV models of C-HR and UX300e, all demonstrate taking a step forward to reach out to entirely new consumers. Each will offer its own appeal. Each set the stage for higher volume to come. Many here refuse to acknowledge that.

1-11-2020 Worst? When someone insinuates doom, why not call them out on it? Far too often, we get an antagonist attempting to stir emotion. It always depends upon being vague. If you actually confront them asking for detail, there's the potential for their argument too fall apart. Most of the time, they'll just change the topic as an escape to avoiding admitting to the deception. Sometimes though, you get lucky. In this case, it was a rather simple catch. What do they actually mean by "worst" with regard to plug-in ownership? I asked: Worst case scenario is what? Replacement of the battery-pack after 150,000 miles (or 10 years, whichever comes first) would result in an entirely renewed EV capacity connected to a hybrid system without many miles on it. Isn't that an ideal for an old vehicle? Think of how much potential age problems a traditional vehicle faces at that point.

1-11-2020 **Expensive.** This was the answer I got to the "Worst?" question: *"Worst case scenario it reduces every year and 7/10 years later the battery tech or design is outdated and too expensive to replace as that design is no longer in production."* Turns out, he had nothing of value to argue with. Merit is usually lacking. But without any substance at all, it was just a move along situation: 7 years after production ends, the automaker must stock replacement parts. That's a federal regulation, part of what allows them to continue selling new vehicles. As for *"too expensive"*, that's an evade. There's no contest that it will cost far less to breath EV life into the car with a small-capacity battery replacement. Keep in mind, a PHEV will retain far more resell value than an early-generation EV, due to having a gas engine. Even with reduced range, the PHEV continues daily-drives and long-time just fine.

1-12-2020 **Trolling.** There are a few who work hard to stir discussion. They bring up the same topic over and over, as if it had never been addressed. They ignore evidence already presented in previous posts. They use ambiguous references to cause incorrect assumptions. The list goes on and on. Their purpose is to keep posts active. So, drawing a conclusion, is unwelcome. They work hard to undermine any advancement in that regard. The goal to prevent a change of mindset is all too familiar. Ugh. The only good thing I can say about this type of *"troll"* is that they are polite. Others are rude & hostile, so I do at least appreciate that aspect of their posting. Today, it was: *"Not sure what exactly you were counting as an "early-generation EV", but the fast depreciation on many of them was due to incentives on new."* It was about resale value. I was annoyed. That topic simply doesn't make any sense in such an early stage still. He pretended to have no idea what I was talking about, despite beating this issue to death with him already. I humored him anyway, this time, since it was a nice opportunity to provide some exposition:

You know. It's the entire "EV Market" up until December 31, 2019. Not a single vehicle with a plug competed directly with traditional choices yet, because the qualification had not been met. Its price must not be subsidized. To deliver sustainable profit, it must be able to stand on its own. Looking at how that is achieved, we see 2 obvious examples:

Tesla is striving to achieve high-volume sales without the generous \$7,500 tax-credit and an early-adopter audience now faced with many choices. The gigafactory efforts combined with migration to Model 3 are big steps toward the goal, but it has only been 11 days since phaseout of the federal subsidy. Delivery of enough profit to everything necessary to sustain the business remains a challenge, without any clear path or timeline. Mainstream buyers are far more difficult to appeal to than early-adopters.

Toyota is demonstrating they are already well on their way to high-volume profitable sales with a plug, looking well past their phaseout of tax-credits. Evidence of that is undeniable. Their largest production plant in the world (over 9 million square-feet, with 8,000 full-time employees) has added RAV4 hybrid to what they produce. It's in Georgetown, Kentucky, making it an ideal location to capitalize on PHEV opportunity. Adding a plug to the hybrid is an option showroom-shoppers will naturally be drawn to.

Both examples look beyond the *"early"* activity in the market still playing out, one that doesn't even adhere to a standard approach for charging yet.

1-12-2020 **Up North.** A new thread started on the big Prius forum came from a new member identifying himself from: "*in the deep north of Winnipeg, Manitoba, Canada*". He shared interesting data. It matched mine remarkably well. So, I took the time to shared some detail in addition to providing some data points:

Here in Minnesota, we have been experiencing Winter warmer than usual. The outcome is just like what you have observed.

Lows have only been below -10°C (14°F) a few times so far. That means much of EV range has been shared with heat-pump operation. Resulting EV range has been around 35 km (21 miles) for my usual mix of driving. With mostly highway, I have seen it drop another 5 km (3 miles). None of that is a surprise. It's routine for me driving a PHEV since 2012.

When the warm weather returns, so does the EV range improvement. My results in Summer are very close to yours too. My longest EV range also ends up being 55 km (34 miles). Seeing even higher, like those who live much further south, is something I can only imagine.

As for calculating operation costs, I don't bother. My recharging at home is done off-peak (late night hours), to get a discount from my electricity provider. When taking trips to visit my sister-in-law's family in Wyoming, the consumption at 80 mph (129 km/h) is an indulgence I can afford... and MPG is still more efficient than everything else I encounter along the way. Those kids are growing up fast and there aren't really that many opportunities to visit.

1-12-2020 **Claiming Denial.** There are some who have become so entrenched in the effort to portray Toyota as a "*laggard*" they are now posting claims of denial that are blatantly incorrect and very easy to disprove. It's bizarre when you witness such desperation. For example: "*If they were just biding their time then it would be wise to show that the know that and prepare factories, make battery deals, make sure they have a steady future supply of necessary materials, start educating their engineers and factory workers. So far every sign points to that they are in denial and will have an extremely rough time to keep up in the transition when it accelerates.*" That absolute is just plain wrong; yet, it was posted with great confidence. Dismay for such bold moves to undermine is something that never cease to amaze me. Some simply don't care. Ugh. This was my response to that nonsense:

Narratives to claim "denial" are abundant, because Toyota doesn't hype. That's not part of their culture and they have no interest to engage in rhetoric. So, they remain quiet. If you actually take the time to research, you'll see the very claims you presented are false.

Toyota is preparing factories, making battery/supply deals, and educating their workers. In fact, they have a \$7,000,000,000 (yes, Billion) investment underway in that regard for just a single location. Their largest production plant (the one in Georgetown, Kentucky) has just begun production of RAV4 hybrid. That's a major step forward in their effort to deliver a PHEV model of RAV4 later this year.

Note that RAV4 Prime will be Toyota's third PHEV model, joining the Prius & Corolla hybrids with a plug. In addition, there is the upcoming EV models of C-HR and UX300e being rolled out.

How you can state "*every sign*" with any type of sincerity is a mystery. Toyota is clearly preparing for the transition.

1-12-2020 **Continued Attacks.** They never end; however, some with knowledgeable information to share do stand up from time to time to deal with it. Today, this came from someone who worked for Toyota for 32 years: *"Toyota does not care about rushing something to the market in 2020. They advanced the 2030 plan to 2025. The BEV push will come in 2022. They have 157 billion in cash and financial reserves and no significant debt, they own all 40 assembly plants."* His long comment ending with that statement was great. I jumped in (after liking the post, of course) with:

Well said.

I have been closely watching Toyota's technology advancement for the past 20 years. Each next-gen Prius has delivered an obvious effort to improve the entire platform along the way. The extremely successful rollout of TNGA very much sets the stage for eTNGA, confirmation of a massive invest in the future.

It's unfortunate that most daily contributors post comments with no regard to that type of fundamental investment. They focus on elementary aspects of design, mostly range & power, completely neglecting the importance of what it takes to rollout a diverse & profitable technology.

To be able to deliver on a massive scale, avoiding as many challenges along the way, takes a lot of work that will never get proper acknowledgement. Evidence of that is the obvious overlook of what it takes to get a PHEV to flawlessly deliver a full EV driving experience. All of the hardware & software necessary for a BEV must be included. Toyota has already achieved that. They are now in the process of refining the technology.

Warnings of doom for supposedly ignoring the market are meritless. It's just spin from those who don't bother to consider the bigger picture.

1-12-2020 **Denial.** It's becoming even more difficult to push that *"laggard"* narrative. In fact, that label has fallen out of favor as a result. Antagonists keep trying though. They provide a convenient means of measuring progress. The harder they struggle to send a message of supposed failure, the easier it gets to see that isn't true. At times, that can be very informative. It's like a gauge for change. Anywho, today I dealt with yet another attempt: Getting real is to ignore the continuous dismissal. No matter what is presented, you'll refuse to accept it and cherry-pick to feed the narrative. Reality is, the moving forward of their largest production facility is a clear sign of preparing for large-scale change. It's not a token effort when you take your top-seller and begin offering it with a plug. The PHEV model of RAV4 will offer a 39-mile EV range, along with an impressive 302 horsepower, 5.8 second 0-60 acceleration, AWD, and towing. Rollout will begin this summer. There's simply no reason to listen to rhetoric claiming *"a company in full denial of the transition"* when evidence to the contrary is becoming obvious.

- 1-12-2020** **So What?** I pushed back, on a very familiar topic but with a 2020 view: That narrative is beginning to fall apart. Top-Down has been presented as the only viable means of achieving EV growth. It's proving incorrect, an absolute pushed by purist. Reality is, bottom-up approach can be a powerful way to reach ordinary consumers. It's not as exciting, but it works. The company pursuing that is Toyota. So what if Prius Prime "only" delivers a 25-mile EV range? With only overnight charging, that's still a potential of over 9,000 miles annually using nothing but electricity. With a \$27,750 base price, it's clearly aimed directly at middle-market. More expensive, but still on target with pricing for the masses will be RAV4 Prime coming this summer. Knowledge & Experience gained from the motors, batteries, controllers, and software to provide EV driving from those plug-in hybrids will provide a major contribution toward long-range EV offerings later. Cost & Production on that scale simply isn't realistic yet, but what can be learned from the production of those plug-in hybrids right now is priceless. Later is only a few years away. Profit from repairs & maintenance is still a concern, but if something with a plug can be a compelling choice for a dealer, there's still hope. It takes very little effort to get a customer already interested in the popular RAV4 hybrid to consider a RAV4 hybrid with a plug. That's a major step in the right direction. Too bad GM didn't do the same. Imagine how popular an Equinox or Trax using tech from Volt could have been.
- 1-13-2020** **Choice.** This sentiment is becoming more common: "*Why GM didn't put a plug on the current design of Equinox is still a mystery to me.*" It's a feeling of dismay that will likely grow in a rather profound way as this year plays out. I piled on by adding some historical perspective: The predecessor to Volt was Two-Mode, which already had a plug-in upgrade in the works on a SUV platform. Rollout was expected back in 2009 as a Saturn Vue. All lot of effort has been expended to conceal that past, to pretend none of the effort to electrify larger vehicles ever took place. Instead, GM decided to rollout a diesel model of Equinox post dieselgate. Two problems brought this about. One was Innovator's Dilemma. Success of gen-1 Volt praised by enthusiasts enabled GM to make gen-2 Volt even more of a niche, rather than making it into something for mainstream consumers. Two was the Osborne Effect. Any type of reveal like Toyota just did with RAV4 Prime could cause a great deal of harm to their profit from their traditional Equinox. Since Toyota has a hybrid model of RAV4, which is both selling very well and produced domestically, they don't face the same problem. In short, GM got itself into this mess by choice. Seeing the next step will be a reboot of Hummer is just digging even deeper into the same hole. Ugh.

- 1-13-2020** **Attack!** There are a few who just plain cannot stand their idea being challenged. Their word is what dominates the venue. So, when something is posted contrary to the narrative, watch out... especially if you do it repeatedly. I have, which meant getting personally attacked today. The most lame way to do that is claiming the person must be getting paid, with the hope that will draw attention away from the content itself. I take that as an invitation to make sure the message being conveyed about the topic gets focused on even more. In this case, that came with a terse insult. Sometimes, you just shouldn't let the local enabler get away with stuff like that: It has been interesting to watch you go after Toyota because you don't like their approach to BEV delivery. Having to co-exist with fuel-cell technology and building from the bottom-up is too much to accept. Now, you are attempting to spin a lie about me to cover up how poorly that has been going. Well, too bad. It's not about you anyway. Toyota has two EV models in the works for this year and a new PHEV that's looking to be a very strong seller, all nicely targeted at their respective market. That will set the stage nicely for the eTNGA platform to expand to offer more variety and very high-volume. Again, too bad if you don't like their approach to plug-ins. It's all about getting their customers (dealers purchasing inventory to sell) wanting to carry those choices.
- 1-14-2020** **Wanting To Sell.** This sentiment about PHEV sales is understandable, but lacks context: *"The Toyota salesman talked him [my father] into a hybrid one, without a plug. I don't think they want to sell these things."* Not wanting to sell hybrids was the problem in the past. I pointed how the shift away from traditional vehicles has taken hold:
- That's called progress... which unfortunately, is painfully slow. Some of us remember that very same sentiment for hybrids. Salespeople didn't want to have to answer a flurry of questions, wasting their time trying to convince a customer to purchase a vehicle that they would get less commission for. Now, 25% of RAV4 sales here are hybrids.
- The same will happen with plug-in hybrids as the Prime offerings expand. It started with Prius, extended to Corolla in China & Japan, and next will be available for RAV4. The catch is waiting the many, many years it takes for that information about how they work becoming common knowledge and the intentional spread of misinformation finally squashed.
- There's also misconceptions... which sadly, are spread by salespeople. Think about the wide variety of configurations in the market. Unless a person really makes an effort to learn about the technology, it's quite easy to misunderstand how it operates.

1-14-2020 **Much Sooner.** When stuff like this gets posted, it's like poking a sleeping bear: *"500,000 hybrids saving at least 20% fuel over equivalent ICE is currently displacing as much oil consumption at 100,000 full EVs."* There's anger that quickly emerges from the reality of such a statement. Dealing with the reality of impact across the masses is a far more difficult equation than the usual *"mine is better than yours"* argument. They are pretty much doomed to lose every time. The numbers don't lie. It's an inconvenient truth... which I also like to point out:

Oil displacement is what stirs ugly behavior from some who once proclaimed *"no plug, no sale"*. Some have become EV purists, speaking out against PHEV offerings despite the significant usage of electricity. Some Prius Prime owners, like myself, experience a 100% all-electric commute. So what if its a vehicle with a gas engine? That daily drive results in an outcome no different than an EV.

As the market advances forward, new choices like RAV4 Prime will become a very easy purchase for the masses. 39-miles of EV per charge from nothing but an ordinary 120-volt household outlet is simple, something basic enough that a showroom shopper will consider without much trepidation.

PHEV will pave the way forward too. After awhile, the owner may become interested in upgrading their garage. You don't have to at the time of purchase as with any long-range EV. That delayed install of a 240-volt charger may result in a better outcome too, adding capacity to support multiple vehicles... an important an often overlooked aspect of oil displacement.

If a household can only support charging of a single vehicle, that's a very real problem. Those who praise early-adopter sales don't want to acknowledge that low-hanging fruit. Having a second 240-volt charger for the second vehicle in the household can be an expensive next step for consumers.

There's the very real problem of battery production/supply too. A pack with a 17.8 kWh capacity (the rumored size of RAV4 Prime) requires far fewer cells than that of a long-range (300-ish miles) pack. In fact, that's enough for 4 plug-in hybrids. That makes the PHEV a much more effective means of phasing out traditional vehicles than EV quickly, representing a major reduction in oil much sooner.

1-15-2020 **Expectations.** Enthusiasts tend to lose touch with ordinary consumers, without being aware of it. So, from time to time, you have to remind them: Know your audience. It's not a matter of being a *"who will buy"* issue. The problem is finding a way to appeal to the *"who will sell"*. Lexus dealers are in an entirely different category too, having shoppers looking for something not Tesla like. True, that will change with the next-gen battery, but it most definitely isn't the case now. So, they are appealing to their base by establishing plug-in offerings with familiar design in low volume. It's no different than what happened 20 years ago with Prius. Remember the sedan model? We know the dedicated platform EV designs from Toyota are coming in a few years. By then, Lexus dealers will be more familiar with the technology and have a better understanding how to compete in the newly emerging market. Don't forget, the audience here is made up of supporters who are well informed and have much higher expectations than showroom shoppers.

- 1-16-2020 Neglect.** How many times did I foretell this outcome: "*Voltec died of neglect. If they'd put it in other platforms they'd have cleaned up.*" Even with the less efficient and more expensive system than Toyota, they still had an audience. It was missed opportunity. It's amazing how many years of blogs entries I have pushing for the spread of that technology. The enthusiasts kept fighting against that though. GM wasn't taking the next step. That situation was so ironic too. They'd complain that Toyota was resting on it laurels, calling them laggards, while that was exactly the situation playing out with GM. Even more ironic is the fact that Toyota really wasn't. RAV4 Prime is overwhelming proof of that. Makes you wonder what will happen now. GM has been painfully quiet. I just said this about the situation: That is exactly what enthusiasts were warned about. GM kept missing opportunity after opportunity. They became enablers, showering GM with engineering praise rather than pushing for spread of the technology.
- 1-16-2020 Adopting ZEV Standards.** It has been interesting to watch my state go through the process. They are on an accelerated calendar too, hoping to adopt the standards within just 15 months. Minnesota will commitment to CARB-established rules, just like the 12 or so other states that already have. There will be a phase-in period, of course. It gives the automakers & dealers an opportunity to adjust to meet the expectations. For consumers, it means a easier time actually getting a green vehicle. Just like with what originated from California, the credit formula will apply. So, there should be a variety of choices. For many automakers, there's not much to choose from yet. But you have to start somewhere.
- 1-16-2020 ZEV Credit Formula.** The formula for adopting ZEV standards is a simple one. My multiple EV range by a reduction factor, then add a standard value. For Bolt, the ZEV credit is 2.88. The formula is $[(0.01 \times 238) + 0.50]$. That 238 is the EV range in miles. The 0.50 is a value added since it is a BEV. With PHEV, that value is 0.30. So for Prius Prime, the ZEV credit is 0.55. The formula is $[(0.01 \times 25) + 0.30]$. For Volt, you get 0.83 using $[(0.01 \times 53) + 0.30]$. In other words, there's flexibility with what is being sold. Dealers could favor a vehicle with a shorter range; yet, they would still achieve the required ZEV credits. That's why when an antagonist claims "*compliance*" vehicle, they really don't know what that means. It's intended to be an insult. But if enough are sold, what difference does it make? Heck, there are some situations where you are actually better off with a lot of PHEV instead. Long EV range only matters if you actually use it. The upcoming RAV4 Prime will deliver 39 miles of EV range. $[(0.01 \times 39) + 0.30]$ Each one sold will earn 0.69 credits. Think about how much potential Toyota has with such a vehicle. It could be extremely popular.
- 1-17-2020 Video: Prius Prime - To An Evening Meeting.** Minnesota EV Owners' Group has meetings every 6 weeks or so. This one in January just happened to be one an evening cold enough to be below the heat-pump threshold, which meant the opportunity to show how the engine joins in to provide heat. Watch the overall efficiency climb as it cycles on & off. You can see the coolant being heated for cabin warming, then circulated until it isn't able to provide any more warmth. That entire time the engine is off, you get to enjoy EV driving. When the engine starts back up, the hybrid system is run in the most efficient manner... which means if there is excess load (due to RPM remaining relatively constant for maximum MPG) some of power is directed to the generator to create electricity for charging the battery. It's a system that seeks out opportunity. Even if brief, it really adds up. This video helps to demonstrate that capability... [Prius Prime - To An Evening Meeting](#)

- 1-17-2020** **Video: Prius Prime - Snowy Commute Home.** Roads were getting bad. All that snow meant a slow drive home. That extra time reduces EV range, since electricity is also used for the heater. Watch as the battery-capacity is used up and the engine joins in to provide a mix of power & heat. Once the coolant is warmed, the engine shuts off and you resume EV driving. It turned out to be a really good example of what Winter can do to alter driving circumstances. I quite pleased to be able to share footage like this... [Prius Prime - Snowy Commute Home](#)
- 1-18-2020** **Short Distance?** This was the commute posted on the video from yesterday: "*15.8 miles in EV is a very short distance.*" This is how I responded to that: 38 minutes of cabin heating and window clearing using only electricity is actually pretty good. Keep in mind the outcome. MPG was still well over 200 and the entire supply of electricity was taken advantage of. That's the point. In the summer, EV distance is well over the 25-mile rating. In fact, seeing low 30's is quite common. Also, this drive didn't start with a full charge; it was short 3% since charging had not completed yet.
- 1-18-2020** **Sales Spin.** I especially enjoyed responding to this comment: "*BEVs are doing well and growing! What suffered was PHEV sales.*" The perspective comes from unknowingly cherry-picking. They are looking at just a slice of the market in just a slice of time. When you step back to look at the what is to come, that conclusion doesn't make sense. I pointed out:

Drawing conclusions about the entire market based on limited data is very misleading. Neither BEV nor PHEV have enough variety available yet, the choices are far too limited for even a generalization. In fact, it's basically just cherry-picking still.

Tesla was scrambling to deliver their long-awaited price-target prior to tax-credit phaseout coming to an end. They did an excellent job too. Kudos! But that provides us nothing to set expectations upon. Reaching out beyond early-adopters is far more difficult than the low-hanging-fruit stage; mainstream customers are far less accommodating. So, even for that single choice, there is uncertainty... which anti-plug propaganda will exploit. Be careful.

GM was DOA right from the beginning of 2019. Volt was already declared dead and Bolt didn't appeal to GM's own customers. So, comparisons to 2018 sales don't tell us anything meaningful.

Toyota was limiting Prius Prime to just initial rollout states, making any conclusions about nationwide potential a guess at best. There was simply no reason to risk entanglement with GM's mess, especially with RAV4 Prime on the way and a mid-cycle update for Prius Prime.

All that provides perspective for the stage which has just come to a end. This new stage just starting requires significant growth at prices directly competitive (no subsidies) with traditional vehicles. So, even lessons learned from the past only apply in limited fashion. Appealing to showroom shoppers is a major challenge to overcome still. Having proven technically viable isn't the only step toward mass acceptance.

1-18-2020 **Amazing?** Comments like this are especially interesting: "*It is amazing to me that GM and Nissan in particular have nothing worth raving about.*" It wasn't just the comment itself, it was who posted it. He was a well-known troublemaker in the days of daily Volt blogs. I bumped heads with him quite a bit; ironically, it was on this very topic. Think about how many times I pointed out GM not doing anything with their technology, the need to spread it. Ugh. So, I posted:

Amazed, really? We knew even before Volt gen-1 rolled out that GM had the engineering know-how but not the executive desire. The disastrous Two-Mode history overwhelmingly confirmed enthusiast praise would enable the same behavior to continue.

I was amazed how many Volt enthusiasts attacked me for pointing out the technical achievement was giving a false impression of what to expect upon market saturation. And sure enough, when that happened with the steep price-cuts midway through gen-1 sales of Volt, the pattern played out. Sales didn't grow. Overall flat was a very bad sign, a warning gen-2 needed to be dramatically different to appeal to the necessary wider audience. Same problem repeating.

No matter how many times the obsession (engineering blinders) of power & range was brought up as a barrier to growth, I got shot down. The idea of spreading the technology was looked upon as a means of diluting intention, sending a message of defeat rather than being a natural next step. In fact, you can see that very sentiment playing out now with Toyota. We see many spinning the successful migration of their technology to RAV4 as a message of Prius struggling to survive. Evading the topic of what the next-gen Prius Prime will bring is evidence supporting a narrative of struggle. Think about what Toyota's next step will be.

GM has no next step. Evidence of that comes from the Hummer focus. Why aren't we hearing anything about a plug-in aimed at Equinox buyers? Nothing at all for middle-market buyers is a dead giveaway of problems to come. Remember the "*Who is the market for Volt?*" question getting asked repeatedly over the years? It's more neglect, missed opportunity to deliver something appealing to their own showroom shoppers. This is history repeating, yet again. Perhaps that's the amazing part. Could any automaker really be that stupid?

1-18-2020 **More Spin.** They keep at it: "*PHEV sales are not keeping up...*" Must of that rhetoric comes from BEV purists, those who don't believe PHEV have a place in our market. It's sad, especially when PHEV make such a great first plug-in vehicle. You immediately gain the benefit of all-electric driving (some, their entire commute) without having to do anything special or any extra expense. They don't see it that way though. In fact, they often quarrel amongst themselves about range. I jumped into that discussion today with:

Range isn't the only factor at play, as the countless sales articles continue to portray. Price plays a major role in what happens with the reach out to mainstream consumers. That's where PHEV will thrive, especially as tax-credits expire. Settling at upper 30's for range seems a good balance. It covers most daily commutes and doesn't necessitate a level-2 charger.

Toyota's effort to diversify will work well in that regard. Prius Prime targets the affordable pricing (nicely under \$30,000) and RAV4 Prime will capitalize on those wanting to spend more on a loaded SUV but don't want any plug-related risk or expense. Being able to just use an ordinary household outlet for a full overnight charge is an easy sell for timid consumers.

As for timing, waiting until GM's fallout from tax-credit phaseout still makes sense. No one really knew what their next step would be and surprises can be costly. Remember, it's about how the dealers respond, since they are who purchase vehicles from automakers, not consumers. Keep in mind, that is also how regulations are factored (dealer inventory, not consumer purchases).

1-19-2020 **Stages.** It makes you wonder if some people online have any clue how new vehicles come about: "*I think that any company designing hybrids of any flavor now is making a mistake.*" We witnessed Toyota's design evolve as battery-technology improved. The long-term goal was to deliver EV driving, which is exactly what we are seeing now from the PHEV rollouts. I stated the situation this way: Fortunately, Toyota is long past the design stage. In fact, they are so far into the mature stage, the technology is returning a profit dealers desire. RAV4 hybrid is overwhelming proof of that. RAV4 plug-in hybrid will help bring about the phaseout of the non-hybrid model. (Again, remember PHEV use smaller & lighter engines, while also eliminating complex geared transmissions.) It's the S-curve you mention above, but misunderstand the timing. BEV will follow, but that's many years off still due to infrastructure and battery technology limitations. It will happen, but that stage will take quite a bit more than the single generation you claim. Transforming an entire fleet of choices takes a lot of effort. The diversity of vehicles means a variety of configurations, which complicates matters across the entire production/sales spectrum. A simple look at what ordinary consumers have for priorities makes that a bitter pill to swallow. It's far more than just a matter of delivering the necessary technology. There's a very delicate balance at play that's easy to overlook.

1-19-2020 **Change.** Some people just don't get it. He just threw a bunch of statistics at me, without any explanation how it applied going forward. What happens in a subsidy stage, one that targets early-adopters and fails to establish any type of standard, is nothing to build mass-market expectations upon. It does a great job of identifying what is capable technically, but by no means does it represent the mindset of ordinary consumers. Measuring change is complex. You must continuously strive to see the big picture, because it keeps changing. Knowing that the target itself is moving is something enthusiasts fail to understand... because they assume it is always in the same direction. That's why knowing stating goals is vital. You must reaffirm them on a regular basis. When something in the market changes, you must evaluate impact. Those darn enthusiasts put blinders on, assuming focus on the destination would allow them to someone avoid obstacles along the way. Eh? That makes no sense. Yet, they'd argue it doesn't matter. Volt died as a consequence, taking along its technology in the process. Hoping production cost will get reduced enough to justify an insufficient design isn't a solution. I fired back today with my own rant: There's more to the GM cost equation than just simply reaching a tipping point with BEV. The system GM delivered after 3 generations of trying was still too expensive and too inefficient compared to what Toyota had delivered. There was simply no way to compete in that market, especially with Honda and Hyundai/Kia also showing potential. Imagine if Two-Mode, then Volt-1, then Volt-2, had finally delivered something competitive. An Equinox with the same characteristics of the upcoming RAV4 Prime should have been GM's ultimate achievement. Watching Toyota patiently wait for that fallout to pass while setting the stage for their next step sure has been interesting. There are still many naysayers are not paying attention to what is actually happening in the market and not aware of what it actually takes for mainstream change.

1-20-2020 **New Narratives.** I was stunned to come across a published article with an entirely new twist. My guess is this came about from anecdotal observations, since nothing about it relates to statements about the past. In fact, much of it doesn't make any sense. Read it for yourself, then consider the actual history: *"Toyota believes batteries and the precious earth metals used to make them will always be bad for the environment. The charging infrastructure will be costly and electric cars will always have severe limits on their range. So, it restricts battery use to self-charging units in a hybrid combined with efficient petrol engines. This is a stop-gap before making hydrogen cell cars, possibly by 2030."* What does that "bad" even mean? Toyota's effort to make as much of the vehicle recyclable as possible, including battery-pack components, has always been a priority. How does striving to reuse become an "always" problem? The second statement is just blatant rhetoric. Using words like "costly" and "severe" are dead giveaways of that. They are so vague, the intent to make you assume exaggerated scale. Following that was great. It's just an outright lie. The writer clearly hoped you wouldn't discover the PHEV already available (Prius & Corolla), the PHEV coming this summer (RAV4), and the BEV models in the works for late this year (UX300e & CH-R). That last statement is the clincher though. It appears to reveal this is really some type of anti-hydrogen propaganda at play. Typically, that comes from a source unwilling to accept a world of diverse choices. Watching Toyota gain success in their effort to reach fleet & commercial vehicle use of fuel-cells, as well for industry power, frustrates them to no end... since starting with ordinary passenger vehicles is the most effective & affordable means of achieving a wealth of real-world data. So, they invent new narratives with the hope of preventing people from noticing the goals Toyota is really striving to achieve. Ugh.

1-21-2020 **Video Quest.** I don't expect a lot of views. It's all about teaching the teachers. Each one strives to deliver higher quality. To achieve that, I have to carefully consider details of what I'm trying to show and how I'm going about presenting it. The content itself gets refined along the way in the process. I'm now to the point where I can look back and not have any upset or regret about basically starting over. The past 10 years of effort was practice, my own schooling. It's was learning about the technology available at the time and making the most of it. Those 10 years prior to that worked great for photos. I was on the bleeding edge of digital photography, watching it become an everyday tool along the way. The same is happening now with video, as impressive resolution & lighting in the 4K realm becomes common. That puts some perspective on the 89 videos I ended up publishing over the years. I wonder how many attempts it actually took to get that many worthy of keeping? And now, I'm looking to recapture the same drives with far more detail & quality, along with informative narrations. Again, I don't expect a lot of views. But for those who watch to learn, I was enjoyed putting together that content to share with you.

1-22-2020 **Should GM Have Kept Volt?** That was the question asked yesterday, originating from an article in a popular financial publication, on the big GM forum. This was the standout comment on the discussion thread made from it: *"The Volt was never a big seller, but while it's a shame that GM ended production, the Volt-Tech components really should have found a new home - perhaps in the Chevy Equinox."* I find it incredibly ironic how someone stating that now can get 27 likes right away and I got attacked in the past for saying the very same thing. I pushed and pushed and pushed for enthusiasts (those terrible enablers) to use their influence on GM for that very thing. Diversification is an absolutely essential part of growing a technology. A one-hit-wonder like Volt is not sustainable. That's how you get attention. Spreading to the rest of the fleet should have happened long before the obvious deadline of tax-credit expiration. In fact, that's what the federal subsidy was for... to help fund the establishment of a new technology. Automakers were free to use the money on whatever technology they deemed viable for sustained profit, to help then into the greener market. Instead, GM wasted the opportunity and everyone now sees it. That same wisdom shared years ago was treated with hostility. Ugh. Reading through several pages of posts, a pattern emerged. Those GM supporters never really understood what Prius represented. In fact, its purpose still remains a mystery. They so blindly followed the rhetoric, there was never really any critical thinking. They just blew off advice thinking it was just Toyota obsession coming from outside commenters, not actual suggestions for helping GM. We now have an archive in blogs & forums showing how wrong they were to blindly believe the hype. Lack of substance should have raised warnings for them. Merit is earned by actions, not posting *"vastly superior"* claims. My takeaway from reading through all the posts is how much detail has been forgotten; specifically, that sales of Volt were always a struggle. It never delivered upon its own original goals... 40 miles of EV range, 50 MPG following depletion, for a price nicely under \$30,000. That promise unfulfilled made it a contradiction to the promotion we got all throughout development. It wasn't efficient, which made affordability a major challenge. Now that Toyota is on the precipice of achieving those fundamentals, game over for GM. Keeping Volt was pointless, since those goals were abandoned. That made any next move, like offering the tech in Equinox, a daunting challenge... one far greater than they could handle.

- 1-23-2020 The Test Of Time.** That's the ultimate measure of success, especially when longevity is an essential aspect of developing a technology. That discussion thread went from being fairly constructive to an outright rant. GM enthusiasts don't take criticism well... hence being enthusiasts, rather than supporters. Anywho, it came to this: "*The Volt is gone, yet the Prius is still around; I think the answer is right in front of our noses, the Volt was a money-loser.*" A well-known antagonist felt the need to vindicate himself upon getting called out by one of the more sensible-headed contributors. That ultimate price was paid (yes, I say that ironically). Volt was never affordable. The design sacrificed too much for range & power. That wasn't a tradeoff to achieve balance. It was greed & obsession. They didn't want to admit it; yet, the only thing we're hearing about from GM now is that their upcoming EV offerings will be profitable right from the start. The reason Prius survived is it was designed to be profitable right from the start. It wasn't, since the early 2000's was a very different time... before "*climate change*" had even been coined. Heck, that was even years before "*global warming*" was given any attention outside of green discussions. Nowadays, that's a liability insurance companies and investors talk about all the time. The reason why is simple, money. So when Prius achieved profit with its first-generation design, it got noticed. That was just prior to the second-generation rollout. It's what sparks the fires of animosity, which we saw get quite ugly years later... still before Volt was even a concept. Now, Volt is dead and we have rants to deal with. Getting acknowledgement of the source of the problem is nice, but we'll never get an admission that he was among though feeding that fire. It's nice to know that time eventually reveals the true story, even if he doesn't want to. Having someone step up to help prevent aspects of history from re-igniting would be nice.
- 1-23-2020 Video: Prius Prime - Full Winter Commute, part 1.** With the outside temperature below the electric heat-pump minimum and such beautiful weather, this was the ideal opportunity to film my commute to work. Watching the resulting video, you get to see the engine cycle on & off while the system takes advantage of as much EV driving as possible. The lower-left shows the dashboard of my Prius Prime. The lower-right shows an aftermarket app reading data from the OBD-II port of the car. This provides a wealth of information about engine, motor, and battery use. Pay particular attention to the coolant temperature, which reveals a lot about how very cold conditions affect electricity use. When the drive concludes, I park in the ramp without plugging in. Part 2 of the video shows the commute home, without the benefit of using the electric battery heater while away at work... [Prius Prime - Full Winter Commute, part 1](#)
- 1-23-2020 Prius Prime - Full Winter Commute, part 2.** After having been parked all day in the ramp while I worked, the battery got cold. Notice the temperature indicated by the device shown in the lower-right. Despite those affects of winter, driving in EV is still available. Watch as I enter the highway and climb out of the river valley. Then later when the engine starts, witness what happens as the coolant is warmed to provide cabin heat. The engine shuts off and stays off for a surprisingly long time. Notice how low of a temperature it is able to utilize that warmth from coolant. It's quite an efficient commute, even without the benefit off plugging in while away at work... [Prius Prime - Full Winter Commute, part 2](#)

1-24-2020 **Bothered.** I kept my response to the point: "*What bothered me was the narrative to spin short-term marketing for the luxury market as representative of the long-term plan for the Toyota brand.*" It was about the on-going trouble we get from antagonists clearly not interested in anything beyond the current hot topic. Difficulty toward dealing with such narrow-minded views is quite a challenge. They simply don't care about taking the time to spread the technology across an entire product-line or the consequences change has on dealer support. It's like they expect profit to come effortlessly from anything carried in stock. The logistics of properly training staff are blown off as no big deal. They really don't have any clue how challenging it can be to ensure information is understood & conveyed well. Remember how many problems I had trying to get the message across to Volt enthusiasts? That type of resistance is far too much for any dealer to want to address. Not only is their many assumptions to overcome, there is also the very real problem of coming across as condescending. That's why the "*bother*" topic needed to be intercepted immediately. They've been spreading the same story for years. What did it accomplish? What do they hope to accomplish? Notice how it always comes down to stating goals? They feel it isn't necessary to bother. Ugh.

1-25-2020 **Time & Money.** When cornered, an antagonist will attempt to change the topic. When it comes to Toyota, they'll draw attention to fuel-cells, spinning a narrative of EV neglect. That almost always results in several bites. It's a classic troll move. They simply introduce something to undermine the discussion. Fortunately, the slow & steady success of fuel-cells is messing up that effort. Ignoring certain facts is a dead giveaway of struggle for them to come. Fuel-Cells have their place, a position of co-existence with plug-in vehicles. Antagonists hate the idea of multiple solutions for a diverse market. It's always of one-solution-for-all from them. That's why Volt died. Their inflexible approach prevented support of anything outside of their narrow focus. From their point of view, that was thought of as a sound choice. Their focus would result in a well-proven technology. Problem was, the world is constantly changing and there's a wide variety of needs. So, they ended up backing themselves into a corner as a result. Oh well. Their loss. All I can do is just continue pointing out how diverse our world really is and how many solutions will be necessary to satisfy everyone's requirements. Long story short, I hit back with a simple post: It's called advancement through real-world data. Personal transportation is only one application of hydrogen. There is also fleet & commercial use. They don't provide anywhere near as useful data as just letting enthusiasts randomly drive around though. The resulting fuel-cell technology can also be used for industrial power. Starting on the small scale with Mirai is an effective means of exploring a diverse opportunity.

1-25-2020

Audiences. Watching them change is fascinating. There is a growing sense already of an entirely new crowd coming on board due to RAV4. Those terrible enthusiasts of the past had no clue just how complicated the real-world actually was. Existing within their niche and fighting to prevent outside influence was a suicidal move. There's no way to win in the end when so much deception was used to appear victorious from battle to battle. Eventually, the truth is revealed. I expressed that sentiment with: It's a mixed blessing that people don't pay attention to long-term or big-picture issues. We do indeed have issues with dirty sources of electricity. We also have an issue with the perception of Prius. Fortunately, that's all changing. In fact, if you look at the situation, that's been the destiny all along. Thing is, the "*Tortoise and the Hare*" playing out in real life is easy to overlook. Starting now and looking back, you see Toyota's reputation with hybrid. Prius is king, but thought of as slow & gutless. Mid-2020, here comes RAV4 Prime. It's like the anti-Prius, fast & powerful. Attention will turn to it. Toyota knows their audience. Those who never paid attention or simply even cared will get a twinkle in their eye. That's an option those loyal customers never saw coming. They'll be thrilled by the idea of an AWD choice with a plug. A few years later, we'll get the next generation Prius Prime and it will be amazing. So, everyone wins. The point is there's a diverse audience out there, many from traditional markets have a lot to lose, and the technology isn't quite there yet for direct competition. We're getting close though. It will happen. But in the meantime, we still have to deal with that rabbit.

1-26-2020 Teaching Moments. With so many elements at play, it's really hard to figure out what is truly happening with the hybrid system. You end up scratching your head, not really certain if the outcome observed was truly the result of what you seemed to have identified. Even the best of us get hung up on the uncertainty: *"From actual miles driven on EV mode and miles/kWh data from the car, my full EV range SOC always comes out to be 5.4-5.7kWh. I have no explanation for this discrepancy."* What detail is being overlooked? Why a variance? It can be maddening. It can also be a teaching moment. You just share what you know, adding to the collective knowledge overall. I added:

What does the miles/kWh value actually represent? Is it overall efficiency or the measure of efficiency only while you are moving? In other words, sit somewhere parked for awhile. Does the value go down for the trip? We know that Hybrid Assistant provide the option of display either of those values.

That's why reporting a number is so screwy. If a person is picking up their child from school, sitting there with the system on but windows open would still consume some electricity but would be far easier to overlook than if they had the A/C or Heater running. That's an exaggerated example of a long commute with lots of stoplights, but still easier to measure than the randomness of red-lights and stop-signs. And of course, all that varies with temperatures.

In other words, those of us with extensive hybrid history have seen the same efficiency-measure problem play out over and over again. You never can nail down a solid answer to provide new owners or an expectation with prospective buyers. Making matters worse, we have the added problem of different generations having profoundly different software, hardware, and battery.

The song *"Let It Go"* comes to mind... hence, just teaching those interested how to retrieve that data for themselves. And yes, I will be doing exactly that with my videos. Teaching moments.

1-26-2020 Measuring Progress. An article was published yesterday about Toyota's plan to achieve 90% electrification in Europe by 2025, with the remaining 10% being sport, off-road, and commercial vehicles. This was a post that obviously stirred attention: *"Toyota's suicide note. Sadly I expect the obsessive Japanese need for consensus to pull all their car makers in this doomed direction."* I found that a great opportunity to ask for some perspective: What percentage are you expecting from other automakers by 2025? Toyota's plan to wean both consumer & dealer off of their obsession with non-electrified is going remarkably well. Any legacy automaker can cater to the low-hanging-fruit crowd, but reaching out beyond that audience becomes harder & harder. Achieving 90% in just a few years from now is remarkable. Once their audience has experienced the benefit of having an electric-motor & battery, the desire for more is a natural next step. Some will transition from HV to PHEV. Others will skip a step and go from HV to BEV. The point is, those steps are being achieved in a quick & profitable manner. While other traditional makers are still struggling to get consumer & dealer to move beyond vehicles with nothing but a gas engine.

- 1-26-2020** **Outdated Information.** When there are several generations and a wide variety of configurations, it is very easy to mix up specifications. Being vague makes the situation even worse. That's one of the reasons I continue to capture & improve videos. Increasing detail & quality helps document the history. Rebuttals to false claims afterward are really easy when you have that level of proof contradicting what they insist is true. Anywho, this is what I posted in response to such a situation today: That distance & speed stated is quite outdated. Prius Prime delivers far beyond "*city speed*". 135 km/h (84 mph) has been available since 2017. The upcoming RAV4 Prime (available in roughly 6 months) will deliver the same speed, but range will be more than that arbitrary ">50 km" expectation. The EV rating should be about 62 km (39 miles). Also, the "*should have*" doesn't take into account being profitable. Just because the technical achievement is there doesn't mean the technology can compete directly with well established choices. That part takes time, quite a few generations to reach a wide audience, since the technology much also diversify. Vehicle generations tend are typically 5-6 years each. Did you know that Corolla is also being produced as a PHEV now?
- 1-26-2020** **Sleeping Giant.** The response to my post about being outdated ended up with a claim of Toyota resisting change and not doing anything. Ugh. I fired back with: As for your claim of "*sleeping*", that's also quite outdated. Toyota has been aggressively converting their entire fleet of passenger vehicles over to the TNGA platform. It has been a quiet effort, basically impossible to actually notice, but fundamental in the move forward. It lowers costs and sets the stage for e-TNGA. That is Toyota's platform for dedicated all-electric vehicles. With TNGA rollout nearly complete, the "*nothing has happened*" belief will vanish. People will be stunned, most likely spinning the situation as if Toyota had to rush to catch up. But in reality, they have been working hard all along. Narratives to make you believe otherwise simply drown out the truth.
- 1-26-2020** **Stating Goals.** I especially like seeing this post on the discussion thread about Toyota's 2025 plans for Europe: "*We don't have yet all the specs to know where the trade-offs are on the RAV-4 Prime vs the HEV.*" I called out his edit after posting, but wanted to point out the importance of focusing on goals. People get too hung up on stages, forgetting what the overall purpose is. Hopefully, I get something constructive in response to this: It's nice to see you changed the word "*compromises*" to "*trade-offs*" (since the stigma of balance has been lost through years of rhetoric), but that still doesn't change the pattern of that reply fitting "moving goal posts" replies. To be objective, you must state what is hoped to be achieved. Anywho, we already know many specs. We have been told it will share the 135 km/h (84 mph) maximum EV speed as Prius Prime, has an anticipated range of 39 miles, and the battery-pack will not intrude the cargo area. We also saw a leak of a 17.8 kWh capacity for the battery-pack. In addition, we have been told it will feature AWD standard, provide 0-60 acceleration in 5.8 seconds, and delivers an overall power output of 302 hp. Heck, it even comes with predictive-drive and paddle-shifters. Want more, how about a 10yr/150k battery warranty? There's an advanced heat-pump too. What else do you need to know? What are the goals?

1-26-2020 **Never True.** It's always a pain getting told what you believe. Getting beyond that stereotype others see is challenging, but it can be done. Somehow just need to get them to take a little time to listen, rather than assume. That mean choosing words carefully so the chance to do that isn't spoiled. Unfortunately, the same doesn't work for automakers. That's why I was basically doomed when it came to the Volt enthusiasts. They had certain assumptions about Toyota and transposed them over to me, assuming I'd see GM the same way. I didn't, but their efforts to make excuses for everything rather than addressing the actual issue... which is exactly what we've have been witnessing with the impeachment trail... makes that impossible. There isn't any interest in determining intent or agreeing upon limits. That stupid trophy mentality has a proper term... it's called zero-sum. I win. You lose. Ugh. That's the long explanation and summary why dealing with this is pretty much futile: "*Once Toyota gets over their electrophobia...*" Refusing to even acknowledge that could have been a mischaracterization is all the more you can expect to get. Most of the time, they'll just pretend you didn't even post anything. I get annoyed, but use their claim as an invitation to reply, as I did in this case: That was never true. Toyota's stance has always been it was cost prohibitive, that dealers & consumers would not be receptive to the high prices. Even now, we are just barely reaching the advancement of battery technology enough to make them somewhat competitive. Look around. See how unrealistic direct sales against traditional vehicles will be this year without tax-credits available for Tesla or GM. Do you really think ordinary consumers are willing yet? Batteries have a little bit to go still. Fortunately, Toyota hasn't been just sitting around waiting. Don't listen to the antagonists. RAV4 Prime is an undeniable example of making a huge investment in the refinement of hardware & software necessary for EV drive.

1-30-2020 **Patterns.** It isn't surprising that most people don't see the pattern of repeated mistakes. Not being attentive long enough to notice the same thing happening again should be an obvious problem. People have other important things in their lives to tend to. That's totally understandable. But when a few fight back, absolutely insisting there is no pattern, you have to wonder. Why are they pushing back? There is something they fear related to change. Repetition confirms a strong possibility of the same outcome. Yet, they hope for a miracle to break the pattern. It would be nice to find out what is the true source compelling them to resist. Just like we are seeing play out with the political situation, their dishonesty will eventually have consequences. Despite that, they try to continue without accountability. It's bizarre to witness such destructive behavior. Go down fighting instead of accepting defeat. Watching others witness this payout is an added level of intrigue. Will they notice the pattern too? I expressed my inquisitiveness this way: GM's reputation for "*over promise, under deliver*" was well established by the time they had revealed the Volt concept, way back in early 2007. At that point, Two-Mode was already proving a disaster and they desperately needed a distraction. Fast forward a decade, we witnessed that with Bolt following the disastrous upgrade for Volt. And now that Bolt has fallen that same pit of the forgotten, they need yet another distraction to build up hype without substance... yet again. It's a repeating trap enthusiasts continue to fall into, despite the obvious pattern. Ugh.

- 1-28-2020** **Filming Drive Videos.** I have been asked how my progressively improving quality is achieved. When it finally gets warm out (Spring seems so far away still), I'll take the time to show what I actually do. Only recently having reached my own goals, it was a moving target not worth the effort yet. I want to share simple solutions. It's amazing how much work it takes to find the "easy" method. Fortunately, I enjoy the discovery process. Who knew so many videos making the cut, good enough to publish, would really just be practice until now. I certainly have plenty of opportunity. The new computer and new software has brought about new excitement. I can use that previous experience to create better quality content, complete with informative commentary. That's more than many hobbies provide in return for countless years of effort. I have something to share & inspire with. Sweet! For the moment, it's just a listing of hardware. In a few months, I'll follow up with the other detail... like photos. Right now, it's too cold for that. I have a hard enough time coordinating the videos. Lots must happen and I'm quite familiar with the situations when something goes wrong... hence the quest for simple. Stay tuned. In the meantime, here's that list: GoPro 7 for the dashboard, capturing video in HD. GoPro 8 for the window, capturing video in 4K. Android S5e for the OBD-II data, capturing video in QHD.
- 1-30-2020** **Tough Sale.** That says it all. It was the sentiment being passed around today. This next stage of sales... reaching out to ordinary consumers... is going to be far more difficult than the enthusiasts were ever willing to acknowledge. But now, they have to. Not only is that early niche market saturated now, the choices are becoming confusing. Whatever the heck an EREV supposedly was in the past, it is meaningless now. That obscure & uncertain difference carries no weight anymore. This audience simply doesn't care. Appealing to showroom shoppers means identifying with the most basic of priorities. Things like affordability are far more important than those antagonists of years ago ever imagined. They could never see beyond the tax-credits. So, having to finally acknowledge just how expensive their favored choice really is doesn't work. That's why so many of the rats abandoned ship. Those still hoping for the journey to be rewarding are left to wonder: "How?" It's the question beginning to draw attention... since the "Who?" is now undeniable. The market must expand, significantly. That means reaching out to an entirely new group of potential customers... which is why we see RAV4 Prime on the way. Although it still could be a challenge initially, the tough part should be easier to overcome simply because the hybrid model is already so popular and Prius Prime is proving to be an effective means of demonstrating how well thought out the technology is.

1-31-2020 **In Good Faith.** I watched an example of social change play out entirely, from its origin to its demise, with Volt. Enthusiasts made excuse after excuse to justify the unjustifiable. This can happen at any scale. You can witness communities change. In our case today, we all saw it playing recently on the national level. Rather than just stepping up with sincere & honest intent, there was always a competition to win the moment. It has become about declaring individual battle a victory, rather than focusing on goals. The very idea of simply doing something in good faith is gone. Witnessing such an attitude of short-term gain importance without concern for what happens next taught me so much about what to expect from other disciplines. Evidence of that hinting at how our political crisis would end up playing out was easy to see as a result. It was the same old cherry-picking, obvious efforts to spin a narrative, rather than seek out the truth. Some truly only care about surviving the moment. Showing some trust that losing this one battle would not mean the end of everything they know & love wasn't an option in their mind. It was fight, fight, fight, fight without any real meaning or purpose. As with our clearly dishonest & selfish president, direction is lost. The society becomes polarized and the mindset one of absolutes. Looking at wins & losses as an equation is unheard of. There's no effort to move forward, only immediate zero-sum outcome. It was inevitable we get to the point. The problem supersedes any particular leader. That's why removal of the president only reduces damage. It doesn't actually provide a cure. We'll see evidence confirming the current "win" in Congress really was an overall loss. They made a sacrifice for a momentary victory. Dismissing what was presented so far, rather taking the chance there was more still to find, is that blind-eye I complained about so often with Volt enthusiasts. They simply didn't care what came nice. Their choice was "*vastly superior*" and that's all that mattered. Look what that got them. Ugh.

2-01-2020 **Lowering The Bar.** Watching the absurdity of the presidential defense scramble to spin a narrative to defend acts clearly not of the high moral ground we expect is evidence of a decline. We've lowered the bar so much, the president is no longer someone to look up to. Statements like "*rising above that*" can be taken with their obvious parallel to height. Standards fell with the campaigning. He simply didn't care. Whatever it took to gain the upper-hand. It was sad to witness. Now as our supposed "*leader*", we are being led to a lower position in world standing. Respect is dropping. Credibility is falling. It's now easier to see the bottom than the top. Sound familiar? That same thing is what I watched play out with the EREV nonsense. That was supposedly a "*vastly superior*" technology. There was no substance to actually support the claims though. It was all shallow & limited observations used to portray that false narrative. Sales were never impressive. Change wasn't actually happening. It was just low-hanging fruit, short-term gain sacrificing long-term well being. That's exactly what we are seeing play out in the political scene. Like the automotive market, there are far more elements at play. The attorneys are just like the enthusiasts, formulating a perspective to support their win rather than actually addressing issues of integrity. Grrrr!

- 2-02-2020** **Free Charger.** Someone shared a link to a dealer providing a level-2 charger with a plug-in purchase. That's interesting. I'm quite curious what type of discussion that will stir. Here's how I commented about the article: It's a different twist toward the encouragement of charging at home. Getting dealer's involved is obviously an important step forward. But I would be concerned about the spread of misinformation from a source with basically no experience or accountability. How will they ensure proper detail is shared from salesperson to potential customer? My electricity provider (a local co-op) has it nailed. \$50 sub-meter added to a dedicated circuit for the charger, along with signing up for either their TIME-OF-USE or OFF-PEAK discounted rate program, gets you a \$500 rebate. Knowing that electricity will automatically be discounted using a charger of your choosing, without having to ever do anything beyond just plugging in at night, is simple & painless. Our local EV owners group has been working with local providers, doing all we can to provide feedback and help spread the word. Chargers are by far the question I get asked any detail about. It's quite encouraging to have witnessed (we routinely have public showings) consumers stepping beyond just the initial "*How does a plug-in work?*" inquiries to now wanting to know what it takes to own one.
- 2-05-2020** **Subtle Fallout.** News about plug-in vehicles as we knew it is gone. That's great with respect to rhetoric; those horrible antagonists hyping expensive & inefficient choices as solutions for the masses have vanished. They thrived on meritless attention. It was a nightmare for those of us trying to be constructive. Ultimately, that nonsense approach was how Volt died. Enablers basically killed it by spreading misinformation. They became victims of their own smear campaign. But trying so hard to mislead & confuse, they undermined their own progress. In other words, the audience found nothing compelling to draw them in. No incentive to take the next step spells doom for any initiative related to the spread of technology. To increase marketshare, you must appeal to a wider audience. Staying within the realm of enthusiasts meant being trapped in that venue. There simply was no way to expand. We're seeing fallout from that now. This next stage (the one beyond tax-credits) is showing signs of very real trouble already. Who is the audience now? The big EV blog isn't publishing anything to attract those doing basic plug-in research. There's just a flurry of articles highlighting concept & exotic vehicles. Nothing for ordinary consumers is a very real problem. Keep in mind how vital it is to have "*showroom shopper*" content at the ready, something to entice the curious searcher. Not having anything of that nature anymore is fallout those hoping to grow the market cannot afford to experience. Something must be done to prevent this loss of middle-market targeting has brought about.

2-06-2020 **How?** We are seeing attempts by GM to stir hype. With their tax-credit phaseout about to conclude, that's no surprise. Also not a surprise is how many enthusiasts there are online who really don't have a clue what GM is capable of with ambiguous announcements. For example, this came about today as a result of hearing some big reveals are on the way for early March: *"I'm excited to see what GM has planned!"* Ugh. Notice how there is no setting of any type of expectation, that it is left wide open despite this reader supposedly being somewhat informed (by the act of participating within an enthusiast venue). Even those Volt troublemakers set some type of target. Nothing whatsoever is a bad sign. Of course, that *"nicely under \$30,000"* goal still haunts many who backed GM. It's a sensible target to have set all those years ago for the market now, which GM was never able to deliver. Achieving cost low even to make a technology both affordable & profitable is far more difficult than those enthusiasts ever imagined... hence being enthusiastic, rather than realistic like a supporter must be. That difference is profound... which is why I ask the *"How?"* question now instead of *"Who?"*. Needless to say, I don't expect a constructive response to this reply I posted: It's all about actions, not words. Watch for vague & ambiguous statements. We've see the pattern of the *"over promise, under deliver"* game being played by GM repeatedly. This is yet another example of how they build hype without substance. Sure, GM could step up to the plate. They have the engineering expertise. The catch is their dealers simply aren't interested in supporting that. So, ask how these new plans change that paradigm. In other words, what will GM be doing to stir interest from their dealers. How will want they announce actually change the inventory stocked?

2-07-2020 **Not Charged.** Over the years, rhetoric involving the purchase of a PHEV just for the sake of HOV access has spread. Claims are that the owner never plugs in. Looking beyond whether or not that is actually true, we see the reality that the purchase resulted in another PHEV being put on the road. If the motive was indeed that HOV access, that means the vehicle is very likely to be sold 3 years later when it expires. That addition of a vehicle into the used market is great. Someone wanting to heavily discounted plug-in would get their wish. So, it is a win overall anyway. But the odds of an owner not plugging it ever is rather slim. Why wouldn't you take advantage of the cheaper fuel? Heck, there are places you can find electricity for free. For me, that's every time I visit the local grocery store. Anywho, the antagonist can never explain PHEV purchases in states where there is no incentive for HOV access. So, there argument falls apart one way or another. They keep trying though. The latest effort is: *"PHEVs consume 3 times more fuel if not charged"*. Seeing that as a title on an article was troubling. It was spin to get you to overlook the reality that the better PHEV operate as extremely efficient hybrids following depletion of the battery. Dancing around that fact is difficult. A plug-in Prius is still a Prius, so MPG is higher than other vehicles regardless of plugged-supplied electricity. Seeing results around 60 MPG even without plugging is an easily fulfilled expectation. How is that *"3 times more"* than the implied comparison to traditional vehicles? In the article, claims of the extra weight due to the large battery-pack certainly gives you that impression.

2-08-2020 **Video: Prius Prime - Electric Heat-Pump.** Electric-Only driving in the winter is made possible using an electric heat-pump. This is a device that compresses air to capture & transfer heat from its surroundings, an exchange of cold for warm. So even with temperatures in the teens, you can comfortably enjoy EV driving. This video shows me on an ordinary daily commute to work in February in Minnesota. It's quite uneventful, exactly what you'd want for a routine morning drive. The gas engine never starts, despite the cold. All the propulsion & warming came from electricity. Here's the latest in my quest to share technical info in a KISS format. The detail is there if you're interested. If not, it's just an entertaining time-lapse video showing what a non-eventful winter commute is like in Minnesota. With outside temperature in the teens, the entire drive is in EV. You can easily see the electricity trade-off of range for warmth. It serves well for those driving short commutes or (like me) have the opportunity to recharge while at work... [Prius Prime - Electric Heat-Pump](#)

2-08-2020 **Charge Time.** I posted this: *"It takes up to 6 hours to completely recharge a Prius Prime (25 miles) using a standard 120-volt outlet. That means it will take around 10 hours for RAV4 Prime (39 miles)."* You wouldn't think such a concise claim backed by real-world data would stir outrage. Someone was angered though, that I'd make post a statement so obviously incorrect. It was bizarre... until I discovered it was just another troublemaker on a newly created group. Ugh. It's sad to think a topic as simple as charge-time would draw those hoping to undermine. But then again, even among EV supporters there has been issues related to things as simple as charging. In fact, that's a big contributor to why PHEV will dominate for years to come. Sure, EV will hold the spotlight and capture the hearts of many, but stuff like this jerk today will be fighting against that progress. At least with a plug-in hybrid, you can start on your own. No special knowledge needed. Just plug in the charging-unit that came with the vehicle into the nearly ordinary outlet in your garage and don't even worry about the time it takes to charge.

2-08-2020 **Meaningful Adoption.** Sometimes, my blog entry will be created using a secondary computer. I forgot to send the following, from nearly 2 months ago... which was an important time, since it was prior to the tax-credit end becoming a reality. There was a claim of "*meaningful adoption*" without any context. I knew it was from a source who routinely evades constructive His posts focus on at-the-moment victories with a total disregard for the market as a whole. Forcing the perspective of only plug-in vehicles mattering isn't the slightest bit helpful. In fact, that stance often comes across as that "*vastly superior*" attitude we had so many problems with years ago. Allowing that to persist wasn't acceptable then and certainly isn't now, 5 weeks following Tesla's end of tax-credits and 7 weeks until the same happens to GM. Intent of that subsidy money was to achieve meaningful adoption. I pointed out:

Certain people have danced around what that really means. They are those who refer to sales as "*EV Market*" rather than acknowledge the consumers who legacy dealerships actually serve. Reality has since crashed down on them... as confirmed by their silence.

It was interesting to watch them turn a blind-eye to what the quantity of 200,000 really represented. That's less than 10% of Toyota's production for just a single year in just the United States. Spread over an entire decade (from 2009 to 2019), those truly in support of reaching mainstream buyers in any "*meaningful*" way, they knew volume & profit must be achieved prior to triggering phaseout.

The antagonists upset to see Toyota doing exactly that declare "*laggard*" to make their misunderstanding of market not sting as much. It's a vindication for those who pushed for genuine change, not just praise for technical achievement or short-term gain. This is why any next-step to subsidize adoption should be focused on infrastructure instead. Again, new money as an incentive to choose a plug-in vehicle should now be used toward upgrades at home. Where you park overnight should get those funds. That is a permanent investment which will deliver benefit for decades to come, well beyond just the purchase of single vehicle.

2-08-2020 **Intentional Misleading.** It is somewhat remarkable how certain people will just repeat the same lie over and over. This individual gets called out on it each time to, but simply doesn't care. He tried it yet again today: "*Glad my taxes helped to get you a refund.*" It makes you wonder. Is this a willful ignorance or a just plain doesn't care situation? Either way, there's always someone who steps it to point out the incorrect claim. Today, it was me: That isn't how tax-credits work. It isn't ever money from someone else. It is a reduction of what you would normally pay, a portion of your own liability. In other words, you get to keep more of your paycheck.

2-09-2020 **Returning Troublemakers.** There is a new group on Facebook created specifically for those interested in RAV4 Prime. Right away, I got quite suspicious by an individual posting what seemed to be gloating about GM. He made comment efficiency in relation to the size of the battery, following an unfounded claim of 12-amps from an 120-volt outlet being unrealistic for charging despite overwhelming evidence to the contrary. That was a big red-flag. Quite a shocking number of people equate capacity to efficiency, rather than the actual rate of consumption. It's a misconception that has propagated throughout the EV community, stemming from the belief that more is better. That's an easy trap to fall into. He obviously did. So, I posted this to test his integrity: *"Efficiency is measured in terms of kWh/100mi, not size of the battery-pack. In that regard, Prius Prime is rated at 25.9 and Bolt at 28.0, showing the Toyota is clearly more efficient. RAV4 Prime likely also has an edge."* Sure enough, he got angered and lashed back with a weight argument. Suspecting he was already unwilling to hear anymore, I figured it was pointless to address him. Instead, I just provided some background. This situation reminded me of the first battles, back when people compared Insight to Prius. It made no sense whatsoever comparing a 2-seat aluminum-body manual-transmission hatchback to a 5-seat automatic sedan. They had nothing in common beyond both just being hybrids. Yet, that comparison happened on a very regular basis. Ugh. Anywho, he was clearly trying to stir trouble when he brought up his Volt ownership in the reply, attempting to directly compare it to RAV4 Prime. Ugh, again. This was my response: That *"RAV4 Prime likely also has an edge."* means the Toyota design will likely be more efficient than that GM design. In other words, EV drive for a RAV4 will likely be more efficient than that from Equinox. That's comparing a similar size & class of vehicle. Knowing how much more experience Toyota has with motor, controller, and software design from so many generations of hybrids, it makes sense they have found a way to squeeze out greater electric efficiency.

2-10-2020 **More Fallout.** There was an article published a few days ago that started with: *"Put simply, GM was finished with hybrids. There will be no follow-ups to the Volt, no long-rumored plug-in hybrid crossover, and even no more hybrids on the way."* Comments posted about it were all over the place. Many said it was a shame that GM didn't do anything with the technology... exactly what I complained about shortly after gen-1 Volt sales confirmed it was a disaster already playing out. Even way back when, if you were familiar at all with how GM responded to Two-Mode sales struggle, the pattern was familiar. Taking the next step wasn't going to happen. Diversification wasn't being treated as a priority; instead, rhetoric to hold it back became the overwhelming theme. Evidence of that still is strong. Some were arguing in this very article that Volt was unlike the from Toyota, never directly powering the wheels. Despite confirmation that isn't true, that it did indeed operate in parallel for engine/motor propulsion, that false information continues to be spread. It's quite bizarre to see such blatant misrepresentation taking place. But then again, it isn't like the narrative is uncommon. Even GM's president pushes the belief of complexity: *"I just - from a physics and engineering standpoint - just can't get my head around making money doing that in the long haul, even as a stopgap."* That recent comment feeds the perspective of cost & complexity. There's good reason for taking that stance too. Toyota is about to prove it so wrong, GM will be set way back for even attempting to compete. They feel they are better off just pretending Volt served to demonstrate it was impossible and they moved on without any pressure to the contrary. Ugh.

2-11-2020 **Giving Up.** It is interesting to see articles posted about GM giving up on hybrids. They never had their heart in it, ever. The efforts were obviously not sincere. Audience was a dead giveaway of that. Sales & Praise came from conquest, not actual change. In fact, there is nothing at GM dealers to even indicate anything happened. We see traditional guzzlers on their lots. That's it. Had hybrids been of any interest, there would have been a push to spread the technology. RAV4 hybrid AWD delivers 40 MPG. Highlander hybrid AWD delivers 35 MPG (the FWD will deliver 36 MPG). If Toyota is the laggard, how come GM doesn't have anything comparable... or better? Volt technology was abandoned. Imagine what it could have become in an Equinox or Trax. Ugh. Here's what I posted as a comment on the article in the big EV blog's article about this topic:

Volt's claim to being "*vastly superior*" was a futile attempt to build up a false idol. It depended upon hope & assumptions. Even comments in this very discussion portray its design incorrectly to persist that narrative. In reality, Volt was an expensive approach to delivering a plug-in hybrid. GM clearly didn't want it to compete directly with traditional vehicles.

Toyota hit the problem from the opposite direction, doing everything right from the start with low-cost being a very high priority. That meant it would take several generations of design refinement, but in the end Prius now delivers to-the-floor EV acceleration and that same affordable technology will now be passed on to RAV4.

In other words, GM was the laggard. There was no push forward. It just died with an early-adopter audience and a heavy dependence on tax-credits. GM enjoyed the enthusiast praise, resting on its laurels rather than bothering to put that technology in a configuration their own customers would actually purchase.

Think about how Volt got its start. There was a plug-in version of Two-Mode already being demonstrated. It was a SUV, specifically a Saturn Vue. Taking a detour with the technology by modifying it for a hatchback should have only been a short-term effort. Abandoning the idea of putting it in an Equinox was the big mistake... one that RAV4 Prime will make quite obvious.

It's no surprise at this point GM has given up.

2-11-2020 **Disadvantaged.** Every time GM is brought up in a discussion, someone complains with a "*disadvantaged*" complaint. With complete disregard for what actually happened, they cry foul. It's really annoying how lack of critical thinking has become so common. I posted: 200,000 vehicles is not that many. It's just enough to help get momentum built up so sales can continue strong on their own. Tesla saw that intent with the tax-credits and did exactly that. GM turned its back on that same opportunity. Toyota will follow the Tesla approach, taking advantage of the tax-credits to build demand, then exploit the unlimited aspect of the phaseout period. That proved very effective for Tesla. It will propel the "Prime" offerings into the mainstream. GM now desperately needs something to move forward with. They literally have nothing for showroom shoppers to consider. When a loyal customer comes to the dealer looking for a SUV, they'll have nothing but a vast array of traditional guzzlers to choose from. That's a very real problem.

- 2-11-2020** **Priorities.** Spin of priorities is as simple as disregarding facts. You just portray a situation in a manner you want the activity to be perceived. That's the basis of a narrative. Hope is it will get passed along without question, just assumed to be true. The claim today was that Prius Prime couldn't deliver power without the engine running. That's false. But with such a statement repeating over and over and over again, it ends up a belief. That's why I try to capture so much detailed video. It's very difficult to deny content of that nature; though, antagonists certainly try. Anywho, I fired back on the power claim with: What difference? You drop the pedal to the floor in Prius Prime and it sucks up the battery-capacity. That full EV acceleration is what? No gas used for typical daily commute is a running cost of \$0 that some Prius Prime owners already enjoy. With RAV4 Prime bumping the EV range to 39 miles, focus will turn to time-of-use discounts to recharge. Understanding that will bring about a paradigm shift. In other words, Toyota priorities were to strike a balance to make their plug-in hybrid technology capable of directly competing with traditional vehicles. GM's priority with Volt was to exploit it as a halo.
- 2-13-2020** **Wow!** I was beside myself with this comment, unsure how to respond: "*When EV's are ready for the masses, every convenience-store will put in charging stations at no cost to the taxpayers.*" It makes no sense. A convenience-store is somewhere you only spend a few minutes stopped at. To make that viable, the owner would have to spend an obscene amount of money to deliver power that faster. Those super-high-speed DC chargers are extremely expensive; most plug-in vehicles cannot take advantage of those rates either. And why must the electricity be free? It's impractical attitudes like that we always have to deal with. Every step of the way, someone will draw an arbitrary line stating they would be supportive if. It's really just a rouse to get you to not push them to be more practical. Finding a balance is not for those who favor want though. And sadly, our society has become so negligent of need they simply don't care anymore. So, the sentiment expressed is to be expected. We have grown complacent. Ugh.
- 2-14-2020** **Master Plan.** A repeating theme is to now misrepresent Toyota's mission. I find it quite eye-opening how Toyota gets relentlessly attacked with those misrepresentations, yet other legacy automakers are allowed a free-pass with no plan at all. Not having anything at all is somehow more acceptable than having something you don't agree with. In what world is evading a problem the better choice? Ugh. I jumped into a new thread on the topic, knowing it will quickly become confrontational: Toyota has a master plan for transitioning their product-line away from traditional vehicle. They are already well underway with architecture change necessary to enabler. Few are paying attention to that though; instead, we're getting short-sighted rhetoric. That comes from an audience obsessed with top-down approaches. Toyota's business doesn't operate that way. They work bottom-up. In other words, we will also be getting plug-in hybrids and electric-only choices, but the industry spinners focus on the rest of the fleet for Toyota and disregard that as important for the other automakers. It's so hypocritical, I'm really surprised so many people get suckered into the propaganda. It's an effort playing out right before our eyes with enablers more than willing to feed the narrative. To that, my response is "*Ugh!*"

- 2-14-2020** **Good Business.** I had to fire back. Right away, the attacks began. It's the same player every time too. This is what I selected to respond to: "*Nothing wrong with good business, I just don't agree with the premise.*" Annoyed at such a vague response, a posted complaint without a suggestion just wastes everyone's time. What do suggest for a 2030 target with regard to a majority of each automaker's production? What premise? Notice how everyone, except Toyota, is only focusing on the low-hanging fruit? The absence of anything for the bulk of the business should be a red flag... in other words NOT good business.
- 2-14-2020** **Accountability.** He made it worse, replying with: "*government should be incentivizing plug ins of all types, with an emphasis on bevs, charging stations and renewable energy*" That's so horribly vague, it tells us nothing. This is what we call an enabler response. This are indigenous trolls. Every forum has them. They stir & provoke to keep discussions alive, doing whatever it takes to prevent conclusions from being drawn. Why is obvious. They thrive on those posts. Allowing them to come to an end is the last thing they'd want. So, you see the behavior of undermining for the sake of endless debate. I find that incredibly frustrating, but often choose to ignore it. Don't feed the trolls. Sometimes you have to, especially after he repeats attempts so often to provoke. I took that action with: That's not a target or even anything quantifiable. In fact, that was just another vague response. You're contributing to the lack of accountability problem.
- 2-14-2020** **The Point.** That same indigenous troll keeps at it. Post after post, all vague. He still doesn't quote or capitalize either. Comments are always of an ambiguous nature. He thrives on the chaos that creates. It's quite intentional, an undeniable pattern. That activity is for the sake of entertainment, attempting to retain rewarding elements of the past. In other words, his point is to fight change. I felt it was time to let him have it... not for the sake of expecting any type of change... but for those lurkers reading with curiosity wanting to learn why such an exchange was taking place. That's why this short & sweet response was so appropriate for the circumstances: The point is to rise above the rhetoric, not to contribute to it.

2-14-2020 **Choice.** I liked this, which came from another troll: "*Tell that to Toyota.*" He is another who thrives on the trouble he stirs. It's all about keeping the status quo, doing whatever it takes to prevent progress. I'm always amazed at how much effort is expended to defend nothing. He really doesn't have a position. There is only spin to prevent change, another pattern easy to notice if you watch posts. Anywho, I saw that as an invitation to climb up onto the soapbox. So, I did:

Tell what to Toyota? I'm calling you out for being vague too.

Toyota continues to refuse to play the game, forcing other legacy automakers to recognize they have no actual plan to convert their fleet.

GM is by far the biggest offender. Volt exploited the tax-credits, seeking praise from conquest sales rather than actually doing anything to change what happens with dealer inventory. It was a colossal waste of opportunity... one that Toyota has been working hard take advantage of, the very opposite of GM.

We see Toyota striving to phaseout their entire product-line of passenger vehicles in favor of hybrids. That establishes a culture of change at dealerships, where they learn to address showroom shoppers curious about the technology. It builds upon itself, once the shift away from traditional becomes obvious... which is exactly what we are witnessing now.

Toyota's next step in that master plan is to stir interest across the board with PHEV offerings, showing all audiences how adding a plug and more battery to their wide array of hybrids is a practical & affordable option. That pushes a paradigm-shift of choice. Rather than loyal customers simply replacing their old Toyota vehicle with a new Toyota vehicle, they see variety. That no-pressure approach is priceless. You need to support whatever your vague claim is with substance. How are the other legacy automakers going to move their offerings forward?

2-15-2020 **Video: Prius Prime - Sub-Zero Commute.** That -8°F speaks for itself. Watch how engine cycles on & off to use as much electricity as possible. Not much else needs to be said. In great detail, I captured my morning commute on one of the coldest this season. Although it came out fairly well, it wasn't without challenges. I tried the day before, on both the commute to work and the drive back. Both failed with technical issues. Camera setup is challenging. I ever forget to reset a configuration, causing a quality reduction on the dashboard feed. But it wasn't enough to prevent keeping the footage as with the previous attempts. That's video of this nature works though. You keep trying to get it all right. Sometimes it works. Other times, you write it off as a good effort... maybe next time. It's part of the refinement process. You learn from both success & error. Today, it was success. Phew! Watch how well Prius Prime copes with the dead of Winter here in Minnesota... [Prius Prime - Sub-Zero Commute](#)

2-16-2020 **Spinning Toyota's Stance.** There certainly is a lot of that lately. It's a good sign when the constructive nature of discussions vanishes. That's how you know they have nothing to argue with, that they're previous line of reasoning has fallen apart. In other words, it broke their pattern. This was the statement the antagonists have been struggling to overcome recently: "*Carbon reduction can only be achieved by consumers deciding to spend their own money in ways that deliver a practical return for themselves.*" It came from a Toyota executive in Canada... which seemed a great quote to attack. But lacking substances, the antagonists have been struggling to keep focus in their favor. I find that incredibly telling. Their spin isn't working. This is what I had to say to that:

After a decade of watching failed incentives from government efforts, it makes sense to stop beating that dead horse. We can obviously still invest in infrastructure, but focus on the vehicle itself simply wastes time & money toward reaching the masses. Have you ever considered how when each state that decides to adopt ZEV requirements must face a mountain of litigation? Those fighting the advance forward expend an enormous amount of resources to prevent that progress. Toyota recognizes this and has the balls to acknowledge it. Too bad if you don't agree with that. Facts are not subject to debate.

We must find a way to deal with that reality. Again, this is why "know your audience" is so important. With 17,000,000 new vehicle purchases annually here alone, its up to the automaker to find a means of delivering. Dealers will supply focus on what they can sell with minimal effort and maximum profit. That's a cold, hard reality. Our contribution is to make that process easier. Infrastructure is the monetary investment to encourage. We can make things happen with regard to charging. We can also provide the knowledge transfer to others. That will help the process along.

Watching consumer behavior, we have witnessed obsession with the SUV become normalized to the extreme of it now being an expectation. Sedan production is ending for Ford & GM. That blatant abandonment on their part is a response to the self-deprecating message they have been spreading for 25 years. Toyota found a way to adopt, adapt, and improve. RAV4 Prime is an undeniable solution to the problem, one that focuses on consumer decision.

2-16-2020 **Skeptics.** That was the identifier a good friend of my help to provide with his perspective, having moved on to the top-down offerings. From Toyota, to BMW, to Tesla, his explorations have been quite enlightening. That type comprehensive exposure can be very informative. It's what you need to balance technology with what the market will actually accept. We all hear about technology that's exciting & inspirational, but that isn't what the majority actually purchase. This is why Toyota's work to establish a technology for mainstream choice right from the start has been so successful. It's easy to build something when expense isn't a concern. But when you must squeeze out cost to make the offering both profitable & affordable, that's an entirely different matter. This is why I bring up GM so often. All those years of gloating, with so many enthusiasts feeling empowered to insult & belittle, the lesson learned from that having failed should not be so easily dismissed. Those antagonists really try hard to do that, hoping to sway skeptics away from consideration. It's who we need to appeal to... hence bring up "know your audience" so often. They are it... which is why I get so confrontational with those attempting to undermine that reach out to those still uncertain. Anywho, it was worth the volley this time. I saw there are some who still hope for a miracle, rather than doing what needs to be done. Identifying who & what is key to moving beyond this stage.

2-16-2020 **Credit Limit.** It was a nice change of pace to have this question pop up: "*What is Toyota's magic USA plug-in sales number?*" He wanted to know how the tax-credit would come into play with regard to Toyota's master plan and the rest of the market. I enjoyed getting to provide an answer:

When phaseout is triggered (reaching the 200,000 limit), there is an additional quarter (3 months) of full tax-credits available after that current quarter completes. Following that, the volume restriction is lifted but tax-credit value is reduced by 50%. After 2 quarters, the value is reduced to just 25% of the original full amount.

That process worked exceptionally well for Tesla and the same should be true for Toyota. The reason why is simple, intent of the tax-credit was fulfilled. Demand for the technology was established and brought up to the level of sustainability. In other words, the automaker takes advantage of the unlimited volume aspect of phaseout... which contributes to consumers accepting the offering as the next natural step forward.

The cold, hard reality of GM having exploited tax-credits for conquest with a terrible disregard for their own loyal customers became undeniable as their triggering of phaseout grew near. They had not established their technology. Showroom shoppers at GM dealers had nothing desirable. Volt had failed to grow beyond a niche and Bolt was struggling to survive. So naturally, there's a lot of downplay about the resulting fallout... especially with regard to Toyota's progress.

Toyota will face phaseout with 2 models of Prime already well established and the expectation of new & updated offerings to follow. There will be no doubt among showroom shoppers that change is underway. That confidence in those steps forward is vital for both dealer & consumer. So regardless of any future government incentives, progress will have already taken place. It's not magic. It's just a lot of careful planning and a mission unbroken by endless rhetoric.

2-17-2020 **PHEV Bridge.** We are really seeing an increase in the "*bridge to EV*" sentiment now. The role plug-in hybrids will provide toward bridging the electrification transition and it is becoming very difficult to just brush away now. It's becoming evident how little people understand EV technology. Through no fault of their own, there's much ignorance. Exposure is very limited and misconceptions are abundant. That makes undermining progress very easy... and we're seeing that being exploited in many ways. Choices like RAV4 PHEV should help turn the table though. Being able to so easily stir interest will be a game-changer. Remember how that was supposed to be Volt? This is why I pushed "*Who?*" so much. It was obvious whatever technology that came about and was proven would necessitate spreading for growth. The ultimate irony of "*laggard*" will be playing out in the next few months. The enthusiasts have all by grown entirely silent already. They saw the bridge but failed to find a way to across get across. It's all about reaching mainstream consumers on the other side. Bridging from enthusiast to the masses is how you achieve the advancement forward with technology. Engineering alone is not enough. People must accept what you present. Appeal to what they can do: PHEV are an effortless bridge that encourages upgrades at home. It's a painless decision being able to simply drive off the dealer's lot and recharge at home using nothing but a standard 120-volt outlet. After doing that overnight routine for a while, the owner becomes compelled to look into the 240-volt upgrade. No pressure on the when & how is key. After all, most households are simply not capable of recharging 2 plug-in vehicles overnight without an upgrade. Somehow, that bridge needs to be crossed without intimidation. Know your audience.

2-18-2020 **Illogical.** Reading this made me sigh: "*I'd like you to ask PHEV manufacturers standardize a light in the upper rear part of the vehicle that is ONLY powered on when the car is in pure electric mode. That is absolutely necessary for PHEV's to be considered a green alternative. If those cars have an ONLY ELECTRIC external indicator, you can consider them green to enter the city as long as they turn their engines to only EV.*" This is what you get from some newbies, those who haven't really ever given the circumstances or technology any real thought. They just make up something on-the-fly that seems sensible, but really doesn't equate to any benefit. That's just like the insistence upon more range being better. It sounds logical, but nothing is actually gained from having more capacity. In fact, beyond actual need can turn into a negative. Want can be costly to fulfill. There are tradeoffs. Anywho, I responded to that with: That is an illogical request. To ensure a PHEV has enough EV capacity available for restricted-city access, it must have a means of preventing that electricity from being used up during the initial drive to the city. Having a "hold" button means the toggle between EV and HV is at the control of the driver. So at any time, the engine can be turned back on after entering. More importantly, what if the owner lives in the city and that's where they plug in. If EV capacity is used up prior to reaching their recharge destination, then what? It sounds like a planning issue, but getting stuck in city congestion with the electric-heater running presents a problem the owner simply cannot predict. Surprise inner-city delays happen. Lastly, keep in mind that when the engine runs, it is actually cycling on & off. So, there is a mix of EV and HV while you drive even following depletion.

2-19-2020 **One Year Ago.** This was posted a year ago, as the death of Volt was unfolding. That reality hit enthusiasts hard, it was beyond their worst nightmare. Besides their beloved vehicle being abruptly discontinued, there was the fact that I was right about the investment in the technology all along. GM's heart just wasn't in it. They were content fulfilling a niche to relish in praise from those whose opinion was really just a facade. They had lost the war with me. All those battles didn't actually accomplish anything. But what they hated most was my message never changed. I was always pushing for the spread of clean & green technology to the masses, disinterested in glory. Their "*trophy mentality*" meant nothing to me. It made them crazy. I find it fascinating. A great example of that is how relevant my post from one year ago has become. I nailed it with the prediction and even back then they knew it:

That attempt at damage-control is pretty lame. The advertisement for RAV4 hybrid features the second-generation now being rolled out, not the first as you imply.

I have been talking about a "*Prime*" upgrade to that platform for years, just add a one-way clutch and more battery the same way Prius was augmented. It's a simple & affordable way to offer a plug option.

Each time I brought up the larger and more powerful hybrid, I got attacked. In fact, I expect the same with this post... especially when I remind everyone of how GM recently chose to offer Equinox as a diesel, rather than a hybrid.

See, with the RAV4 hybrid becoming a popular choice, due to the regular RAV4 being Toyota's top-seller and the hybrid being so affordable, taking the next step by offering a plug in a no-brainer. Those loyal showroom shoppers will see the plug-in and seriously consider the purchase, simply by association.

All the senseless efforts to undermine Prius and attack me were in vain. Enthusiasts here failed to heed the warning, despite being told hundreds of times GM must diversify their plug-in hybrid technology. It was never spread to a SUV... and clearly should have.

2-22-2020 **Video: Prius Prime - Sub-Zero Commute (alternate route).** In the quest to get a variety of data to share, I took this alternate route to work. It's another sub-zero commute. But unlike the other vehicle, this alternate route completely avoids the highway. With temperature much lower than the 14°F threshold for the electric heat-pump, it's another example of how the engine cycles on & off to provide cabin warming. The drive itself is rather pleasant, lots of hills & turns. The extreme cold doesn't present any challenges. Watch the temperature of the coolant as the engine heats it. When it reaches a certain level, the engine shuts off. When it drops below the minimum, it starts up again. As the system warms, that minimum drops. So, the engine stays off longer the more you drive, despite the cold outside. Overall MPG goes up and the drive proceeds. Plug-Supplied electricity is used for propulsion when the engine is off. You can see that detail on the aftermarket app (a device connected to my tablet via bluetooth from the car). It's handy to have more information available than just what the display on the dashboard shows.

Here's a link to that video... [Prius Prime - Sub-Zero Commute \(alternate route\)](#)

2-23-2020 **Preparation.** Expecting RAV4 Prime to take the market by storm, I have been preparing by creating informational videos to share about how that plug-in hybrid technology operates. Our recent super cold day provided a great opportunity to capture a commute with my Prius Prime. I took a non-highway route to highlight how the engine cycles on & off to give you cabin warmth while also allowing for short jaunts of EV driving. That turned out great. Good thing too. With changes of extreme cold dwindling as hints of Spring start to enter our forecast, this was basically my last opportunity to film. Work schedules and nice lighting don't often coincide nicely with weather patterns. So, I considered this opportunity a fortunate one, something not to be missed. It worked out nicely too. Knowing that even Tesla is playing catch-up, since they have not offered a heat-pump yet, any data showing how that technology will benefit all the extremes is helpful. Under ordinary Winter driving, that's all you need. The less efficient resistance-heater is only necessary during the limited times when it really is the cold season's peak. I have been enjoying that benefit for 3 years now. It's interesting how that makes a difference. Most people won't have any idea. We do though, the people watching for detail on technical videos. So, I'm glad to have created a collection to share prior to the desire for that knowledge from the curious.

2-23-2020 **Interesting Requests.** I especially like comments posted about the videos. This one in particular stood out: *"Have you or could you please do a commute with EV-Auto, where the car determines the best option between electric and engine? I'm thinking you would obtain better mileage if it choose for you?"* It was a request. I like those. Coming from an audience beyond the reach of the online forums, they are often quite compelling. After all, hearing from those outside your peers is the best way to get new ideas. And now that I have covered the essentials, it would be nice to be able to provide some other information. The suggestion of EV-Auto is a worthwhile one. At some point (meaning the warm season, when it's a lot easier to setup all the equipment), I could see myself following up with that request. Ideally, I would do the same drive twice for good measure. We'll see. In the meantime, this was my reply: With this particular type of drive (temperature well below heat-pump minimum), the use of EV-Auto would make no difference. The engine would cycle exactly the same way. In warmer conditions, if your destination is within the charge range, keeping it in the default EV mode is best. The only situation where I could see EV-Auto as having any benefit is on a long trip when there will be several demands for high power, which is when having the engine available (already warmed up) would provide an overall savings. On my commute, in all but the extreme cold (as in this video), my entire drive can be in EV. Switching to EV-Auto, would be a waste. Being able to recharge at work negates the need for engine running at all. For me, it's there for longer trips.

2-23-2020 **Next Step.** At what point does the next step become obvious? Some people still wonder: *"There is a rumor on the Bolt EV Facebook page that there *might* be a reason that Bolts are being heavily discounted and that they are being cleared out."* Knowing that Bolt was never profitable and there is no expectation for profit until GM's next-gen platform is rolled out, it simply makes no sense carrying forward with this offering. Without any tax-credit to leverage, just clearing out stock is a subtle way to allow the failure to fade away seems the best choice. After all, who is there left to speak out in favor of Bolt? All of the Volt enthusiasts have vanished. It's rather strange for all of them to be gone now. Their constant antagonist activity was always such a pain. Now, it's difficult to even convey the gravity of their influence. How could a supposed group of such massive underlying effort now be entirely absent from discussions now? That's just the way it is. The next step required abandoned the terrible path they were on. Forward was not the direction they favored. They endorsed a niche, something to reign over others rather than being an actual game-changer. Ugh. I responded to that *might* comment with: Seeing GM move to another platform for their EV offerings shouldn't be a surprise. The very idea of an automaker dominated by the sales of Pickups & SUVs having their premiere plug-in a small hatchback or wagon was a bit absurd. After all, GM had a prototype plug-in SUV over a decade ago. There's the reality of RAV4 Prime from Toyota becoming a serious draw too. So, starting fresh by moving away from Bolt is a sensible next step.

2-23-2020

First Post, Prime Curious. When you see a "1" in the counter for someone on the forum, there is good reason to give extra attention to their particular post. We often see extremes from the new... either someone innocently joining to ask a genuine question or someone joining with the hope of stirring trouble. Suspicion is easy to raise by just reading what they provide and watching for the reply. That return on whatever comment you provide tends to reveal motive. You can detect a pattern to satisfy misgiving. Here's what caught my attention: *"To give a quick background, wife and I are ready to upgrade from our 2006 Acura TL (that recently needed a rebuilt transmission) and we have been very intrigued by the Prius Prime..."* Was that from a person truly researching a purchase? I posted:

Interesting. That's what my wife traded in for her Prime. She bought her TL used, with a replaced transmission. I think the previous owner didn't know how to drive with a clutch. She also had to have it rebuilt after the back corner got struck by a careless driver. It made a mess of the navigation system, which was stored in the trunk. Anywho, she drives a Prime now and loves it.

There will inevitably be a new Prius Prime in the next few years that will be a huge step forward with the technology. I have been upgrading with each new generation of Prius for 20 years now. Toyota's investment toward electrification advancement is. We see hints as parts of what is to come from what gets rolled out with their other hybrids. Ultimately though, Prius has been a great platform for the greenest of us. And as the "car" slowly vanishes from this market, it makes sense to see Prius evolve into a strong choice for those not interested in something that resembles a truck.

As for your choice of when to purchase, how long do you intend to keep this Prius? There is always something better on the way. That's how new technology works, especially in an emerging market. To take advantage of whatever the next-gen Prius Prime offers, you should consider charger setup. Recharging with an ordinary 120-volt outlet should work fine, but the charging standard at that point will almost certainly be a speed step up from 3.6 to 7.2 kW. If you don't ever intend to provide a dedicated 40-amp line for a charger, a feature of the new tech would be missed. Supplying electricity faster isn't necessary, but that is what you'd be paying for as part of the next-gen offering.

It goes without saying (though I will), that EV range (efficiency/capacity) will increase and the battery will become more robust. That's just another natural step forward with the progression of any maturing plug-in technology.

This generation of Prius Prime has been a wonderful choice for us. We have two. Long highway trips to visit family and the countless drives to grandpa's stuffing the cargo area in preparation to sell his house has proven worth of the technology. Our commutes are entirely electric too, since we can recharge at work. I'm hoping to upgrade to the next-gen Prius yet again. But in the meantime, I'm thoroughly enjoying the EV driving experience this generation provides.

I hope my ramblings helped. Good luck with your decision.

- 2-23-2020** **Differences.** To some, the choice isn't clear. So, they ask: "*Why did you choose Prius Prime and not Chevrolet Volt 2, what is the advantage of prius?*" That sounded sincere to me. It makes sense that there are many who have no idea what the difference are. This is why I really try to focus on actual data, rather than getting pulled into the rhetoric. Hopefully, I did a good job of that this time: Volt offered less efficient EV drive (31 kWh/100mi) compared to Prius Prime (25 kWh/100mi) and less efficient HV drive (42 MPG combined) compared to Prius Prime (54 MPG combined). Electric heating from Prius Prime was also more efficient, offering a vapor-injected heat-pump rather than a basic resistance-heater that Volt used. It was also obvious Toyota was investing in other important design aspects of efficiency, as the carbon-fiber hatch in Prius Prime clearly confirms. Another easy decision-maker was the simple fact that Prius Prime was larger inside. Looking at the bigger picture, it was obvious Toyota would be spreading their technology to other platforms... as we now see with both Corolla PHV and the upcoming RAV4 Prime. That greening of the entire fleet is very important. GM seemed to be all bark and no bite, which has since been proven good reason for concern about actually moving forward.
- 2-26-2020** **Priceless.** There are some who have no idea how we got here and where we are going. That comes from not really understanding what is involved with a vehicle as a whole. Much more is required than just motor & battery. This particular comment provided an invitation to point out some of that: "*Funny how VW was able to develop a sophisticated software program to cheat emission testing but can't come up with something to basically control a vehicle.*" Recognition of what's really involved isn't easy. So much of that can be overlooked by the masses, and often is. Even this extreme example involved the diesel scandal didn't do much to raise the knowledge of many who believe to know a lot about the automotive industry. I pointed out a few things this person most likely had no clue about: Simply programming a disable isn't sophisticated; ironically, not wanting to be sophisticated is how the cheat came about. VW mocked Toyota hybrids with its diesel technology, somehow claiming efficiency was superior. In the meantime, Toyota advanced their hybrid programming to deliver full EV driving. So what if range is limited? That's software operating in real-world conditions deployed in several markets used for several years now. That proven reliability ahead of the larger capacity offerings is priceless.
- 2-27-2020** **Huh?** A fairly new owner of a Prius Prime posted 2 photos. He was confused. How could the MPG be so different on those 2 different meters if the distance was the same? He had no idea. I did though. That's not big mystery, if you know enough about what the system has to offer. I pointed out what he was likely completely unaware of: The car could have been run in place for awhile. Was it delivered with a full charge? If so, it's entirely possible the dealer used Charge-Mode because a level-2 charger wasn't available. After all, that is by far the fastest way to recharge. You get 7.2 kW from the engine, which is twice as fast as the usual rate from level-2 and more than 3 times faster than the factory charger.

- 2-28-2020** **Videos.** I want to film more driving video. I am looking forward to that. I don't see a good outlook for anything Winter related though. The snow is vanishing and predictions are for dry weather above freezing. Arrival of an Spring already was quite unexpected. That's not the normal way we experience March. In fact, even April can be quite inhospitable with regard to what most people expect as the end of the cold season. I do actually look forward to those warm snow storms that pile up lots of the fresh white stuff which melts away quickly... several weeks from now. It looks like that won't happen this year. Oh well.
- 2-29-2020** **Marketing Labels.** Rollout of the SERIES hybrid from Nissan called e-Power beyond just Japan is about to begin. You can imagine the stir that is causing. For example: *"The shocking part is the misinformation happens in the EV community... Imagine how much worse it is in the general public."* Strong emotion to certain labeling comes from limited foresight. When you focus entirely on a single offering, it's easy to fall into the trap of marketing. Labels are an especially problematic aspect of that. The topic from yesterday made that obvious. I jumped in hoping to provide a bit more perspective on the situation: The self-inflicted problem started a decade ago when Volt enthusiasts attempted to coin "EREV" as a type of battery/engine vehicle. Problem was, they kept changing the definition as PHEV offerings advanced. Those new plug-in hybrids would fulfill their criteria, negating the claimed uniqueness of their preferred technology. In the end, they had to succumb to the reality that it was just another way of configuring a PHEV. It's really unfortunate they didn't just adopt the *"No Plug, No Sale"* motto right from the start. The simplicity of that overcomes any type of marketing label.
- 2-29-2020** **Divide & Conquer.** It continued: *"This is the second Japanese company to come out with a "self-charging hybrid"."* I just kept right on going on that: This second entirely different offering from a different automaker makes it clear why a *"self-charging"* hybrid identifier is informative. It's another way of stating it doesn't have a plug, but still takes advantage of motor & battery. Anyone who portrays a narrative that people will someone believe that approach is superior to offering a plug is not taking the situation seriously... or is poorly informed about how the market actually works. Know your audience. Even the most out-of-touch hoppers will recognize the benefit of having a plug. The green aspect goes without saying. Rhetoric from the oil industry falls apart when you see the vehicle presented on a dealer's showroom floor. Misconceptions of power & reliability have been fading away. It's a matter of selling them on cost & practicality now. In other words, worry about *"self-charging"* is what those hoping to undermine the advancement of plug-in vehicles hope you will waste your time on. Don't take the bait! It's a divide & conquer trap. Instead, devote efforts toward spreading the word about how plug-in hybrids offer more.

- 3-02-2020** **Ugh.** There is a small number of individuals dead set on preventing anything else from getting attention. Only "BEV" matters to them. If it isn't a "Battery Electric Vehicle", it doesn't matter. So naturally, Toyota's effort to phaseout traditional vehicles by drawing attention to their regular hybrids is still causing quite a stir for them. It is quite remarkable to see such narrow-mindedness. They have no clue how to get to that majority of vehicles becoming a plug-in. Just like those Volt enthusiasts, hope is upon a miracle battery breakthru. Ironically, we now know that even that isn't enough. People will still fight a viable solution. It's the natural resistance to change. Toyota is well aware of that, hence their marketing. They understand who & how... something enthusiasts tend to be clueless about. It's the classic problem of being so focused on engineering, they neglect the business aspect of the vehicle. We've seen this many, many times in the past. I've learned an effective means of dealing with it too: Self-Charging = ordinary hybrid. Plug-In Hybrid = hybrid with a plug. It's bizarre how some are so determined to twist that into being misleading or deceptive. The battery-pack in an ordinary hybrid doesn't offer a plug, so the only means possible of charging is to use its own engine from within. The difference is obvious, not anything to make such a big deal about. Know your audience. Mainstream consumers recognize the benefits adding a plug provides.
- 3-02-2020** **Analogies.** Sometimes, they just plain don't work. He certainly tried. It was a constructive poster who sees the value in exchanges that make an effort to reach beyond the rhetoric. That's rare... and in this case, ineffective. I'm not sure what he saw connecting the dots for the analogy presented. Lack of a concise message is how the nonsense thrives. So, I jumped in to help: That analogy doesn't work, since it has nothing to do with what people expect from the product. Because "*charging*" is an aspect of design that is implicitly recognized, Toyota is explicitly pointing out their "*self-charging*" hybrids are not the same as their "*plug-in*" hybrids. In other words, this is an effort to differentiate offerings. Notice how no one complaining bothers to acknowledge the necessity to provide such a distinction? Ironically, those complaints are helping to establish a standout marketing term. They are their own worst enemy. Fast-Forward a few years from now when traditional inventory is dropping off and there's a mix of hybrid and plug-in hybrids on the lot. Remember the disastrous "EREV" campaign? The use of "*self-charging*" avoids an abbreviation and briefly informs of design, something quite useful to those shopping at the dealer.
- 3-02-2020** **Let It Go.** They won't, hence the previous ugh. When you find the antagonist just plain doesn't care, you just consider them a troll and move on. That means conclude in some brief & concise manner. This is what I posted in response to the self-charging arguments they obviously will continue to refuse to compromise on under any circumstance: Even novice consumers know "*hybrid*" means it is a gas vehicle that somehow uses electricity to be cleaner and more efficient. After 20 years of being available, arguing that is somehow not the case isn't constructive.

3-02-2020 **Rant.** You pay attention to names, learning from previous exchanges. And sure enough, there's a payoff. Another Toyota topic was starting and right away the attack was launched. They tend to be in the form of climbing up on the soapbox and preaching. They push a narrative, reinforced by repetition... hence watching names. They watch too, fighting back with canned responses. I'm always looking to be constructive. That means addressing change, something their perspective has a difficult time defending. They can't handle offensive moves that don't follow their script. This is where Toyota shines. Volt enthusiasts absolutely hated Camry hybrid, even more so than Prius. You could tell every time I brought it up. Being larger and more powerful, as well as being diverse, there was nothing to compare with. GM was clearly struggling with their hybrid technology and the electric-only effort didn't offer any encouragement. I saw that coming and knew RAV4 would become a serious issue for them. Ignoring Camry was easy. Ignoring RAV4 wasn't possible. Some are still trying though. I asked: Who are you trying to appeal to? An ordinary mainstream consumer couldn't care less about that enthusiast perspective; it just sounds to them like a niche rant. They have grown to recognize Prius as a +50 MPG green choice that was affordable & reliable. Toyota's leadership of pushing the masses forward has been carried over to RAV4 hybrid, which is taking the SUV market by storm... even before rollout of the plug-in model. RAV4 Prime... 0-60 in 5.8 seconds... 302 horsepower... AWD... towing... 39 miles EV.

3-02-2020 **Clear.** Everything they can do to shut us up: "*There is already a distinction. Hybrid. And plug-in hybrid. It's pretty clear.*" That downplay is amusing. Their behavior pattern is quite predictable. That's a telling response to watch for. It's a sign of growing panic. They see change coming. The idea of hybrids becoming the norm from Toyota means an unstoppable paradigm-shift. That's unwanted. They want to skip over steps entirely, jumped straight to BEV. That doesn't work. Skipping steps rarely ever does. With that knowledge, you do the best to minimize... making that step a quick & easy one instead. Here's I put it... well aware of how 20 years equates to "quick" in an industry well over a century old:

The word "*hybrid*" has been so diluted over the past 20 years, it really doesn't tell us anything anymore. Toyota is well aware of history and remembers how effective it was when "*full*" was coined to differentiate its hybrid from "*assist*" and "*mild*". It was a simple means of conveying the message... and worked remarkably. Taking the chance is what leadership is all about. Toyota sees the need and has very effectively drawn attention by coining another. That's what good marketing is all about. Think about how many times Microsoft took advantage of similar opportunities with technology advances.

Just imagine how upset people would be here if all vehicles with a plug were given an "*EV*" label. That is what you are attempting by lumping all types of non-plug hybrid into a single category. Have you ever considered how many different "*EV*" configurations there actually are? At some point, someone will coin a new term to describe DC fast-charging above a certain threshold to differentiate it from others with slower kW rates. It's a dangerous precedent to set by claiming "*already*" in such a vague manner.

Lastly, how can anyone possibly claim "*clear*" in a market so rapidly evolving. Even some here struggle to keep up with all the changes and the wide variety of approaches. Expecting an ordinary consumer to be up on all that is crazy. How could they possibly recognize if their own information is still up to date? It most definitely is not clear. All you have to do to confirm it is ask how efficiency is actually measured. How many here really understand what "*MPGe*" or "*kWh/100mi*" tells us? In short, those making a big deal about "*self-charging*" don't recognize the challenges of marketing. They are focusing on the wrong thing.

3-02-2020 **Loads More.** There was a random tweet from some random Toyota executive. An antagonist took advantage of it by only posting the first sentence. Such a blatant effort to mislead is not something I will just let go. That's an invitation to go on the offensive. So, I did:

Pointing out the omission of the rest of the quote tells us the real story. This is what you intentionally excluded: "*We're introducing the RAV4 Plug-In Hybrid this year, with loads more coming. Thanks.*" Spinning the situation to make it appear they were being disingenuous required leaving out that important part.

Toyota took the time to create a flexible platform, one that could be profitable by offering a variety of choices. We already see Prius Prime and Corolla PHEV. In a few months, RAV4 Prime will join the mix. It's only a matter of time before the "*self-charging*" hybrids gain the attention of the masses to the extent that traditional production can be phased out. What helps that process along is consumers seeing the endorsement of "*plug-in*" hybrids also playing out.

It's the step forward we haven't seen from other legacy automakers. In fact, all this attention toward Toyota could really be an effort to take attention off the other them. They have only presented niche solutions, nothing to replace their business-sustaining vehicles yet... quite the opposite of what Toyota is doing. Watch what happens with RAV4 Prime. Then think about what comes next... the loads more coming.

3-03-2020 **Shame.** The attacks on Toyota are telling. It's the only middle-market legacy automaker that actually delivered. VW has bold plans, but nothing at all to leverage. GM supposedly has plans, but seriously lacks credibility. Nothing else in volume for the masses is expected. So, much of the effort to divert attention is based on hope, not anything of merit. The result is to attempt shaming them. Supposedly, convincing supporters to recognize shame will somehow get them to abandon their hope based on actual successes. Ugh. This is how I dealt with that episode today:

It is quite telling to read posts which so blatantly turn a blind-eye to other automakers and the market as a whole, then claim progress can only be measured in terms of BEV offerings. That defies business logic to such an extreme, it's almost absurd to have to address.

Toyota has been able to deliver a profitable means of EV propulsion on platforms able to reach a wide array of customers. Both the PHEV and FCV being produced offers a clear road to the future. There's no arguing the power, efficiency, and reliability set the stage for high-volume sales. The variety of hatchback, sedan, and SUV demonstrate the potential.

So what if battery-capacity is small still? The durability & chemistry is proving itself as the technology continues to advance. Toyota was able to deliver all those components necessary to build a BEV without using up their tax-credits, or worse squander them on conquest as GM had done. That patience has positioned them to take advantage of the phaseout stage on a grand scale. Attempts to shame Toyota won't change any of that.

3-04-2020 **Moving Forward.** Some never let up. They continue trying to push a perspective that doesn't take into account all the elements at play. That's how you know. Being constructive means not omitting what you don't like. In days long ago, they would "*spin*" stories. Now, it is called pushing a narrative. The intent is the same. Both are attempts to undermine. Neither tries to usher in a spirit of cooperation. That's the tell. When focus becomes some specific technology rather than a goal to move forward, you know they don't have advancing the masses forward in mind. It's the trap enthusiasts fall into. They become so focused on a niche, they have a very difficult time accepting anything else. That's how we end up with that narrow-mindedness. I punched back at today's nonsense in that regard with: You are pushing the narrative that Toyota is not moving forward, that their emphasis on hybrids is not to phaseout traditional vehicles but rather an excuse to not have to offer plug-in choices. That's a load of crap, since the reader must turn a blind-eye to how PHEV delivery was achieved. The fundamental design is shared. To make their already very appealing RAV4 hybrid a RAV4 plug-in hybrid, it was basically just a matter of adding a one-way clutch and larger battery-pack. That's an approach proven very effective for Prius. It's a solid business approach. In other words, attempt to downplay the rise of Prime models all you want. Perhaps this audience may embrace the claim, but it will be meaningless to ordinary shoppers doing their purchase exploration at the dealer. Seeing hybrids become a common choice makes consideration of a plug-in hybrid much easier for everyone... dealer... salesperson... customer.

3-04-2020 **Complete Opposite.** We're fighting the good battle now: "*The self-charging moniker makes it clear from the start where the electricity is coming from. Hybrid already implies the presence of an ICE, the power source. It's the complete opposite of misleading.*" As time goes on, you notice the pattern of rhetoric. They try bringing up the same weakness over and over. Each time, shortcomings of the argue tend to stand out. Confirming the pattern becomes easier. In this case, it was the observation that the self-charging attacks never have any follow up. Lack of any substantive reply provides an invitation to post a comeback with attitude. I didn't even have to say anything this time. Someone else felt comfortable with that offensive. It was nice to watch. Expecting the same scenario to work endless is madness. We learn from watching the mistakes they make. After so many failed attempts, there is eventually some type of reveal that weakens them even more. In other words, the enthusiasts accidentally reveals their hand. That's what I watch for, patiently. They wonder why I would persist to such an extreme, only coming to find their answer when they realize what they had done. Too late. This is a good example. The ability to survive a chaotic situation, one with so many factors of influence as we see in the automotive industry, is to observe, prepare, and wait. It may seem misleading, until...

- 3-04-2020** **Promotion Irony.** Some see how what is being said today is what should have been said years ago. GM's supposed genius was really a facade that didn't actually account to much. Volt looked like a green movement, but was really just a symbol of what could be... not what will come to be. That difference was subtle then. Now, we get comments like: *"Perhaps they could have done that half a dozen years ago and promoted their own products."* Later today is anticipated to bring that, finally. Hope is GM will finally address their own products, promoting their movement forward with electrification. Arguments of whether or not Volt would have done better if advertised more have died. It was a small hatchback. No one would have cared. What mattered was what dealers offered... the SUV. Seeing a future where they include a plug is what changes the paradigm. With "EV Day" hours away from reveal, perhaps that step in the right direction will solidify. It's been a long time in the making and so much wasted opportunity has passed by, it's an incredible irony. GM may promote what they implied their goal was way back in the days of Two-Mode.
- 3-05-2020** **EV Day.** The big reveal was that GM is planning to spend \$20 Billion through 2025 on all-electric and autonomous vehicles. Lack of substance puts this in the same category as all their other ambiguous announcements of the past. There's nothing to put any hope on. Such statements are so vague, they aren't even enough to stir "vaporware" upset. That's what happened with Volt all those years ago. Goals were so ambitious, they sounded totally unrealistic to anyone trying to be constructive. Too many unknowns sounded an alarm. It simply didn't make any sense with so many questions still. How? Who? What? Where? Those important starting points were such a mystery, the realities of cost & consequence wouldn't add up. Clearly, nothing has been learned. It's the same old desire to stir rhetoric, as the voice of GM (the Chairman & CEO for that automaker) made obvious: *"We thought it was time for people to understand that General Motors has a leadership position in electrification and we're moving fast."* That literally tells us nothing. Ugh.
- 3-06-2020** **Litigation.** It is nice to see others starting to recognize there's more to the participation equation than just offering an EV for purchase. So many focus on the product itself, forgetting about the massive collection of resources required to make it happen. Some become enlightened, exclaiming: *"Totally agree!! CARB is kind of a mixed blessing."* That came from recognition of what it takes for a state to commit to supporting the effort. Not everyone is happy about the decision. In fact, there's quite a bit of fighting that takes place. That resistance isn't in a physical form, which would be easy to notice. It's far more subtle. Legal action slows the process to a crawl. Sometimes, it even stops it entirely. Watching progress get trapped by some group with power is so disheartening. This shouldn't be a matter for courts. It should be the right thing to do. Unfortunately, the majority of those online don't see it that way. They claim the environment and energy independence is paramount, but fail to recognize the complete picture. Those elements at play Toyota is standing in defiance of are dismissed by rhetoric. It's sad. In fact, that is how I stated it: Sadly, it results in a ton of litigation from each state attempting to join... hence Toyota's stance. They see all those lawsuits as a wasteful distraction.

- 3-06-2020** **Delay.** It's nice to see questions emerge from comments on a new topic. In this case, it was about the legal matters: *"Okay, I'm still a relative noob as far as details about "carb" states (since we live in a non-carb state) so I'm guessing the litigation is by automotive corporations fighting to prevent any more states from joining CARB ?"* Unfortunately, there really isn't much to say about it. Those forces to hold back change have been incredibly successful. In fact, undermining efforts are so successful they have become the norm. People don't even question the supposed logic. That's just the way things are. The situation is deemed an essential component of our foundation, something unrealistic to change. That type of mindset makes delay easy. Some keep fighting it, despite the odds. I'm happy to be a small piece of that very large puzzle. I witness some of it firsthand. Today, I heard mention of it on our local public radio, an effort I readily recognize. You may be able to as well. It's basically a heightened aware situation. Once you know what to look for, it isn't difficult to find. That's key. That's how we'll overcome some of these terrible efforts to hold back change. These are my general observations here, recently: Minnesota is in the process of joining now. We are seeing pushback from a variety of sources. It has been Senate Republicans and Auto Dealerships getting the attention recently for their resistance efforts. More with a subtle approach is the massive undermining effort coming from the Oil Industry. The goal is to prevent movement forward by getting proposals tied up in a legal mess to cause delay.
- 3-06-2020** **Goals.** When I read this, I got really annoyed: *"As I read it, the Prius Prime's goal is to provide the largest battery they can without the added weight compromising HV-mode efficiency."* I knew all too well his response would be to change the topic, diverting attention elsewhere in an attempt to avoid having to answer my question of source. Many online cannot remember where they heard something, who the source actually was, or even when any of that exchange took place. It's how misconceptions come about and how misleading thrives. Knowing this particular individual has credibility problems (from posting contradictory information) and simply likes to routinely complain, I had to carefully think about my reply. At best, he would just dismiss what I said. More likely, he would use the squirrel response. (No surprise, he did the latter.) Here's what I posted: Not sure where you read that, but it is not correct. I suspect someone assumed that at some point and passed it along as fact which then readers never questioned. The real story is Toyota was targeting affordability. Using the robust stack they had available at the time made it a tradeoff of space & capacity. That cost-effective reliability was key, so they went forward with the configuration.
- 3-07-2020** **Battery Pouches.** I occasionally mention the build of battery-packs consisting of stacks of prismatic or cylindrical cells. Those have been the common automotive choices throughout most of hybrid & plug-in history. Looks like GM will go all out with pouches instead. They offer greater flexibility, since the dimensions can easily be varied. Cooling is a challenge though. The edges differ from the interior, making it a more of challenge to manage operation with regard to thermal control than the other types. This approach should be less expensive, so there's valid reason to explore the potential. How robust they will be remains a question. Can they really sustain a lifetime of vehicle vibration? It seems a strange gamble. But then again, GM strategy doesn't always make good business sense. With Two-Mode, Volt, and Bolt all major nothings, along with smaller failures like BAS & eAssist, there's a history of progress stalls. That's why we should ask the same of any new technology, what is the goal? In this case, according to the press release, it appears to be cost & flexibility. That's quite vague.

- 3-07-2020** **Measuring Progress.** All that supposed nonsense in the past from me about stating goals was for good reason. It was obvious at some point, well beyond the rhetoric, there would be a loss of perspective. People just naturally lose track of purpose & priority. That's understandable. Heck, just look at how little people actually pay attention to politics. Being so poorly informed makes enables a type of government we are now having to deal with. There's argument of legal standing rather than moral obligation. You do it because you should, not because you have to. That means having some way of measuring progress. It's how you know your effort was successful. That's seem obvious... until you actually try. Without a solid target, there's always a way to justify missing it. This is how the "*inconvenient truth*" comes into play. You want to congratulate yourself for engineering achievement but fail to recognize the lack of adoption. Change is far more than just proving a technology viable. You must sell it too. Counting the number of plug-in vehicles encountered on the road from an ordinary drive, like your daily commute, should result in a number growing on a regular basis. In other words, you should see more and more as time proceeds. Stating an expectation of how many is an essential accountability factor. With so much still needed for true change, we need to be concise about how that progress will be measured. What must happen and by when? I put it this way in today's discussion on that topic: BEVs are a long way off for the masses (when that becomes a choice made by the majority). There's simply no way to argue against the harsh reality of lacking infrastructure & support. True, the technology itself is rapidly approaching a point where that is the obvious path, the road to get there is still a very long one. The business, government, and society changes needed are enormous still.
- 3-07-2020** **Currently.** There have been a number of people online just saying: "*I am just saying the lack of batteries is a false narrative as any company that invests in production can have a supply of more batteries.*" There's far more to it than just the production itself. If you build it, they will buy it has been proven false quite well by GM. In this particular case, it is how to best use what is currently available. My reply to that statement was: To be a narrative, context must be disregarded. That context was a matter of timing... the best use of the battery production currently available. In 5'ish years, that will be a totally different matter. It's much like what we saw with the supply limitations when large LCD televisions finally became a mainstream product. Ramp up of the production process proven to provide the best yields took awhile. In other words, that's great timing for the upcoming EV platform Toyota is working on. In the meantime, we'll get a variety of PHEVs to choose from. That's a very real measure in the progress of reducing emissions & consumption right away, directly addressing the current situation. It is very difficult for those pushing ZEV as the only solution to disregard the very real damage taking place by allowing new guzzlers to be put in service while we wait for a "*some day*" vehicle to finally get rolled out in decent quantities at decent prices.

- 3-07-2020** **Red-Herrings.** The most common defense used online to deal with a shortcoming is to change the topic. I see that deflection all the time. Their refusal to address the issue is a solid confirmation of having identified it correctly. Some get really mad too, but try to hide it. For example: *"Several years ago Toyota made a public statement that it was going with hybrids and hydrogen and not electric vehicles. No conspiracies theories needed."* That was such a blatant attempt to divert attention, I couldn't help but to be amused... especially since the "argument" has been used so often, it really doesn't stir much attention anymore. I have found fairly effective ways of dealing with that particular red-herring too: That's an easy statement to take out of context. Just ask when, where, and how. We know hydrogen will be an energy storage/carrier for commercial use. There's much opportunity it both the transport industry and the power industry. So whether or not it also proliferates the personal vehicle market is more of a red-herring than an actual issue.
- 3-08-2020** **Never Plug In.** When an antagonist does finally address the issue, they'll attempt downplay. In this case though, it was outright dismissal. They have figured out that claiming a plug-in hybrid owner never plugs the vehicle in will create enough of a distraction to completely derail the topic currently being argued. So rather than a red-herring, they just provide false information. Just like any other effort to undermine, there is rarely any detail to actually support their claim. At best, you get outdated hearsay. Some study or someone they know tells you literally nothing; yet, they think that's all we need to draw a conclusion with about the entire category. Ugh. It's all quite vague & random. The best approach is to just rebut with facts that are difficult to dispute, as I did today: You are making a big assertion to claim that PHEV owners don't recharge every day. Since it only takes an ordinary 120-volt household outlet is needed for the included charger to recharge the battery, it is as simple of an effort to plug in the car as it is their phone. No big deal. The payoff is obvious too. Daily commuting with electricity saves a lot of gas.
- 3-08-2020** **Doubt & Conclusions.** The foundation of a narrative is to raise doubt and draw conclusions. We're definitely seeing that now. It's the result of GM's EV Day. That stirring of press is an obvious distraction effort to draw attention away from the upcoming loss of tax-credits. There is a little over 2 weeks remaining. Put another way, nearly 10 years of opportunity was wasted. That money was a subsidy provided with the intent of helping each automaker adopt, adapt, and improve electrification. Taking a look at GM dealers, the assessment today would be that's a total disaster. If you are lucky, you would find 1 or 2 Bolt available for sale somewhere in the vast offering of SUVs and Pickups. At many locations, you aren't likely to find any evidence at all of change. In fact, the situation has grown worse since the departure of sedans is well underway. So, the narrative of GM skipping plug-in hybrids because they have embraced a better way is pure rubbish. Better what? They aren't selling anything better. It's not even enough to be a halo effort. There's nothing and won't be for years still. Quite annoyed, I posted this as a reply to a troublemaker clearly not interested in being constructive: GM didn't skip PHEV in any regard. They learned from Volt that building an efficient & profitable plug-in hybrid was a monumental effort... too much to spread the technology to one of their popular offerings, like Equinox. That wasn't the case for Toyota though. Prius Prime has proven it is a viable path to follow. RAV4 Prime is that next step. As for claiming the public hasn't really warmed up to PHEV, how can you draw that conclusion when so little exposure has happened? They are still very much a niche and available only in limited markets.

- 3-09-2020** **20.0 Miles.** Seeing that as the estimated EV distance when I started the car this morning came as a surprise. Huh? There was a "*charge interrupted*" message on the screen to confirm something wasn't right. My thoughts dwelled on it being a charger issue. What if my EVSE (Electric Vehicle Supply Equipment, the proper term for that connector to outside power) was starting to die. Although that's highly unlikely, it is still possible. I wondered what I would get as a replacement if that really was the case. Taking the stats into consideration... 37°F outside... 79% start... 12% end... 3.4 miles remaining when I parked... and 18.1 miles driven total... things just weren't adding up. All seemed just fine. Then it hit me! It was a double-whammy. Not only had I departed for work an hour earlier than usual from having to attend a class that morning, it was also the daylight-savings jump ahead the day before. Being off by hours explained what was going on. Phew! That sure had be wondering what was going on.
- 3-10-2020** **Daily Blog.** Remember that nonsense? It was 2 years ago that it came to an end. Their rhetoric was on a truly remarkable scale. So much influence emerged from the propaganda they created, it was a force strong enough to shift the norm. People just accepted their claims without question. It became the voice for GM and the automaker was thrilled to have such a powerful group of enablers. Time after time, we would get an ambiguous press-release, resulting in that group spinning it to hype. That happened over and over. Not only wouldn't they listen to me, I became the scapegoat for problems. They said I had lost my way and was blinded by loyalty. That's called reflection, of course. I just kept pointing out the reality of the situation, how they became obsessed with a niche and lost purpose. In fact, here's one of my posts from that end: Too little, too slowly was the pointing out of opportunity being missed. It simply never made any sense wasting good tech like that, especially with so many sharing words of praise for the potential. GM management wasn't interested in reaching out to the larger market.
- 3-11-2020** **Reaching the Masses.** Looking back at yesterday's look back from 2 years ago, I can't help but remember the ultimate GM set for itself and failed to achieve. It was the "*nicely under \$30,000*" pricing. That was how they would be able to reach that larger market, the masses. Another quote I pulled from that hostile exchange which brought the daily-blog to a close was: "*To achieve & sustain high-volume profitable sales has always been the goal.*" Supposedly, that was GM's overall mission for the technology from Volt. So.... 9 months after that when GM pronounced it dead, there was resentment. Emotion which had been focused on me had been revealed to be an embarrassing mistake. They got confirmation of having fallen into the trap I warned them about. It was that innovator's dilemma played out over so many years, they lost sight of purpose. They fought hard for a niche, not something ordinary consumers would want. My repeated message of "*showroom shoppers*" finally sunk in. That was the "*Who?*" asked about over and over and over again.

3-12-2020 **Sales Pitch.** The effort being put forth to undermine RAV4 Prime is getting noticed. But rather than me fighting battles at the forefront, I'm instead providing reinforcement. It's nice not being a lone voice like much of the past. Prior to rollouts, there were very few of us well informed enough to play offense. We'd be forced into defense. But now with Prius Prime having provided so much real-world data already, it's not difficult. In fact, I have even seen some Model Y enthusiasts turn on Model 3 with the simple sighting of cabin warming. That difference is profound, but far from obvious. Tesla finally made the switch from relying exclusively on resistance-heating to actually including a heat-pump. The advantage Toyota had must have been quite annoying, in general. But now there's that differing technology within Tesla itself. There's no argument to be made either. It's common knowledge that heat-pumps are more efficient. Using less electricity to achieve the same goal is obviously better. How do you sell that though? The online fighting makes it clear audience matters. Showroom shoppers couldn't care less about what's posted in discussion threads. The nonsense in those venues is meaningless compared to the in-person encounters. That's why it is important to have your sales pitch ready. Enthusiasts generally remain clueless in that regard, not cluing into the importance of appealing to a prospective buyer. He tried to dismiss. That doesn't work when you are trying to draw interest, which is why I fired back with: 0-60 acceleration in 5.8 seconds is slow? That 39 miles of EV is enough range to cover daily commutes. It comes with an effortless sales pitch too, just plug the charger into the standard outlet you already have in your garage. Your attempt to simply dismiss such obvious appeal isn't going to work well with ordinary showroom shoppers.

3-12-2020 **Potential.** Change of attitude comes in odd ways at odd times. All of a sudden, there's some turning point you never saw coming. Things like this reinforce the abrupt shift: "*So when GM talks about caring about the environment..... I call BS. They care about the fat pockets of the shareholders and stakeholders.*" That's not even hypocritical. It's a statement of fact... now well proven. Back when it was mostly just the "over-promise, under-deliver" problem, there wasn't much evidence to support true green intent. Now, such a stance is obvious. That pattern can be detected with little effort now. My arguments long ago had lots of enablers fighting to suppress what I was pointing out. Those same observations are being made by others now. Though it all sounds new, it isn't. Keeping quiet about it is a wasted opportunity. Like before, I want to prevent the repetition. So, I keep drawing attention to the situation: Those were fighting words in the past. Bringing up the concern about GM squandering the opportunity they had resulted in "*laggard*" claims about Toyota. It was always an effort to distract, rather than take the situation seriously. The technology in Volt, praised by owners, never spread to GM's primary product. No SUV. No Pickup. Nothing but a small hatchback. There was so much potential... lost.

3-12-2020 **Could.** It certainly is interesting to hear others state what GM could do. There was a lot of that today. The situation is surreal. Battles I fought long ago are now being repeated, but with very different outcomes. Rather than being attacked relentlessly by Volt enthusiasts, it is mostly just agreement. In other words, the enablers have abandoned ship. They finally saw the inevitable disaster coming. And now that it did indeed sink, what can be said? There is much, and I'll say it: GM's reason for abandoning that path was a matter of not being able to figure out how to make that choice profitable. It had nothing to do with the technology itself. That emotion you mention was an opportunity wasted. Purchasing a plug-in hybrid SUV was something that their customers would have found sensible. It's a simple choice... and quite the irony. Driving around a "guzzler" delivering an EV commute and 40 MPG following depletion negates most of arguments from voices of the past. Going all in now with BEV doesn't change any of that. In fact, those conquest sales with Volt may likely work against GM. That audience has moved on.

3-12-2020 **Remember.** Watching GM failed to recover from ruin, despite their huge statements made only a week ago, has been interesting. Again, what's being said now is what I had been attacked for in the past... even without that attitude, like this: *"This is hilarious. Does nobody remember the Saturn EV-1? GM had their shot at electric vehicles several years ago."* They were so smug and simply didn't care. It started with *"vastly superior"*, then became a narrative taking them in a direction of self-destruction. Pushing a technology by telling people it is worth the tradeoff doesn't make sense. Paying a premium to move from a large SUV to a small compact is absurd. That's no how mainstream consumer think. In fact, many of those large SUV owners sacrificed efficiency and paid more, to avoid having to drive a small compact. Pretending that wasn't the case was a horrible waste. That's why I say *"Know your audience."* so often. They clearly didn't. I pointed that out to help those in denial remember: Enthusiasts tend to dismiss the past. Those pushing Volt worked extremely hard to suppress Two-Mode history, hoping those more recent hybrid to plug-in hybrid mistakes would carry over to GM's next endeavor. Instead, they ended up becoming enablers. It was fascinating to watch that denial play out. It comes down to setting realistic expectations. They were so obsessed with the hope of a better future, they turned a blind-eye to the warning signs. Hype fed the "over promise, under deliver" problem. Volt fell well short of expectations and excuses were made to downplay barriers, rather than actually address them. The situation about to play out with regard to plug-in hybrids is the class "Tortoise and the Hare" story. Could the same happen with BEV too? You better believe it.

3-12-2020 **Solid-State.** Ugh. With so many new chemistries now being tested, I shouldn't have to deal with stuff like this: *"What battery new tech? Main battery-makers are all at the same level and there's no sign the future will be different from the recent past."* Even without any obvious breakthru, the investment in research alone should indicate just how much of a desire there is for a better future. But then again, there are some who ignore & dismiss signs. After all, I routinely encounter a few who absolutely insist that no specs for RAV4 Prime have been released yet, therefore it should be treated with any credibility. That's just plain wrong. Not only has Toyota pointed out the 39-mile expectation for EV range, the 0-60 acceleration in 5.8 seconds, and the 302-horsepower, we have also got the leak of a 17.8 kWh expectation for battery-capacity. Heck, we even know that carbon-dioxide emission will be below 29 g/km. We also know there will be 520 liters (18.4 cubic-feet) of cargo-capacity. For that matter, we also got a confirm that this system will have the same top EV speed of 135 km/h (84 mph). Lastly, we have been told *"The battery is cooled by refrigerant of the air-conditioning system."* Pretending all that isn't known takes quite a bit of desperation. What is especially interesting though is the 230-volt outlet available in the cabin of the premium European model. That makes you wonder how many will take notice of where battery technology will take them, quite literally. Anywho, this is how I responded to the *"future"* comment: Huh? The entire industry is striving to eliminate the electrolyte. In fact, we got news just yesterday from Samsung about their progress toward solid-state batteries. Watch what happens with the phone industry for a general idea how the auto industry will be able to commercialize those advancements. No longer having current constraints of heat & density is a paradigm-shift that will tip the balance heavily in favor of exploiting electricity.

3-12-2020 **Safe.** I find stuff like this annoying: *"Just remember, Toyota does not care about you or EVs. If they think they need to protect the company they will axe anything..."* Everyone should reminded that no legacy automaker has a mission-statement to be green. That's mixed somewhere into the priorities, but don't pretend that profit isn't very important. That makes is conclusion pointless: *"Toyota plays it safe."* What automaker is truly taking a risk? We hear bold statement, but their really isn't much to speak of in terms of actually changing their business. Rolling out a new vehicle with new technology doesn't guarantee anything. Look no further than VW. Despite all the encouraging new, there's nothing yet to support their EV investment in terms of dealer acceptance. For that matter, we have no clue how their own showroom shoppers will react either. Heck, we don't even know about the risk. It seems like a big financial gamble. Is it? How much is really required for payback, to ensure a steady stream of sales after the low-hanging fruit is gone? Sustainability is a big deal often not regarded as important. That comes from the belief of mainstream sales being just a matter of delivering enough range at a seemingly competitive price. How exactly will that be gauged? It's all so vague. Sound familiar? That pattern recognition is why I don't take the *"safe"* claims seriously. GM provided the appearance of taking risk, but detail contradicted the narrative. That's why I kept my response to this brief: Do you really expect readers to not notice the very real progress Toyota has demonstrated with making their hybrid platform available across their fleet without compromising profit or performance? It's a win for everyone involved. The fact that the design carries over so well to a plug-in offering adds to the success. What is their to worry about? That's true progress forward.

- 3-13-2020** **Model Y.** The first one got delivered today, on Friday the 13th. Ironically, this appears to be the official start of a new recession. With so many businesses making plans to shutdown, scaleback, or switch to work-from-home, there's a lot of uncertainty growing. How long will this abrupt shift to avoid a sickness outbreak on the pandemic scale last? The automotive industry is incredibly complex. Technology is only a part of that equation for success. Many, many other aspects of business & industry are involved. Anywho, with respect to Tesla's progress, the only version of Model Y currently offered is the long-range with all-wheel drive. That start at \$52,990. So, any hope of it attracting mainstream sales are just a dream... especially with the financial sector showing so much instability. Now is not the time for expensive choices. Focus on ordinary consumers is more important than ever. Remember how the "*nicely under \$30,000*" target came about and why it was so important?
- 3-13-2020** **Continued Attacks.** It's a renewal of the Volt enthusiast nonsense now coming from EV purists. I find those efforts even more desperate than in the past, since they are so much easier to disprove. The videos resulting from those battles in the past are very effective ammunition for rebuttal posts now. For example: "*But its EV range is low, only about 26 miles. That hampers its EV only efficacy.*" Not only was I amused about the misunderstanding of how efficiency actually works, I was pleased to have that video to refer to as reinforcement of how easy it is to achieve those 26 miles and how much 26 miles of driving really is. In this case, I'll save that reference for a secondary reply, should I need it. His thinking that more range equates to greater efficiency is what I want to initially deal with. That's better material to address attacks with, since it is well beyond just misleading. It is just plain wrong. So, I posted: EV efficiency is a measure of consumption, not battery-capacity. In other words, range doesn't matter. It is how the electricity is utilized that matters. For Prius Prime, it has a rating of 25.9 kW/100mi. That puts it among the top for EV efficiency, far from anything that could be labeled as hampered. In other words, if you are driving within the range available, it will use less electricity to travel that same distance as most other EV choices.
- 3-14-2020** **Deal With It.** He didn't care; instead, I got this in return: "*Which is it, striving to support a backward narrative or facing the truth or facing reality. If the truth hurts, wear it on your chest. The i3 EREV is history in Europe. The Volt is history. Deal with it.*" That was actually a lingering comment from a previous posts, something obviously difficult to let go. Seeing it come up was a nice confirmation of the message getting through. He's upset by the past and blames growing success of PHEV as the cause. I just fired right back, using his own sentiment against him: Continued claims of "*most PHEV owners*" is a desperate attempt to push a narrative based on the past, going out of your way to avoid mention of what is to come. I keep pointing out how power (hp), capacity (kWh), and charge-speed (kW) continue to increase. The upcoming RAV4 Prime is a undeniable example of that and will inevitably be a popular new choice as a result. Technology improves over time. This generational upgrade is a clear step forward. Change happens. Deal with it.

3-14-2020 **Not Plugging In.** It's very difficult to follow ongoing attacks. Antagonists hit multiple fronts all at the same time, hoping to find a weakness. I do the same thing, but my desired outcome is to learn what their narrative... since I already know their weakness. In this case, I just followed the thread. Choosing to respond to someone else also getting attacked provides an ally as well as a new front. The troublemaker is desperately trying to portray PHEV as just a gimmick with the hope of painting a picture of BEV being the only viable means of significant oil-consumption reduction. This was the quote from that other online combatant: "*Regarding not plugging in PHEVs, I cannot fathom why anyone would buy one and not plug it in...*" He was having the same trouble overcoming the nonsense. I jumped in with:

Those claimed studies of "*many people don't bother to plug them in*" lack merit. Notice the absence of when, where, and who detail? That's a red-flag, a warning about the content being misleading. It's really easy to publish a study based on a small sampling in a limited market and continue to quote it many years after any relevance it may have had has faded.

I own a Prius Prime, recharge at work, and like you also live in Minnesota. My commutes on all but those days when the temperature drops below the 14°F threshold for the heat-pump are in EV. So, the benefit from plugging in is rather blatant. And with range increasing, as we see with the upcoming RAV4 Prime, it becomes an easy sell. In the warmer months, EPA rating can effortlessly be exceeded. I routinely see range in the low 30's for the 25-mile rated battery.

Long story short, there's no reason to believe the studies. Overnight charging with just an ordinary household outlet works just fine. For those who do choose to invest in a level-2 charger (and take advantage of the tax-credit for one this year, in addition to whatever rebates & discounts their local electricity supplier provides) can recharge significantly faster.

Think about it. The sustained 3.6 kW rate I see from my JuiceBox means I can replenish 28% of my usable capacity in just 30 minutes. That's 7 miles of EV. Knowing the rate has doubled for new PHEV offerings, that means you'd get 14 miles in just 30 minutes. Why not plug in?

3-14-2020 **Narrative Questions.** This is how you undermine: "*Why would one champion a fading compromise technology with more emissions than an EV and ever fewer advantages?*" That type of question forces a narrative. The antagonist sets you up to lose. If you choose a defensive position, you are reinforcing the supposed message. If you choose an offensive position, they will simply claim you are refusing to acknowledge the supposed facts. If you choose not to respond, they'll just continue on with the narrative any way they want. Needless to say, I had to respond in some fashion. The post prior to that was a taunt, using cherry-picked information, sighting 2 examples to reinforce his perspective. So, I decided to lead in with that: Know your audience. It should be blatantly obvious that Clarity and i3 have nothing to draw any interest from someone wanting an AWD crossover. You're making the same mistake countless Volt enthusiasts made. They were so focused on a specific configuration of a technology that they convinced themselves it could be the only choice offered. RAV4 Prime is a prime example (excuse the pun) of that. The configuration contradicts many claims made about Prius Prime, proving the technology was far more capable than they portrayed it. In other words, the narrative of "*compromise technology*" falls apart when looking beyond just cherry-picked examples and ordinary consumers clearly see that.

3-14-2020 Marketing & Education. Discussion with regard to VW rollout is quite different from what we saw with GM. A lot of attention is being put in the financial aspect. For Volt, it was technical... which was a joke, since we knew what GM was to deliver was proven already. The spin was that approach was "*vastly superior*" to what others would supposedly compete with. Ultimately, the colossal waste of time & resources will be look upon as a scandal. Proof of that comes down to the lack of any real support. The product was produced, but nothing came about with regard to actually promoting it. That's why I'm bringing up the same concern for VW approach. What is the plan? This is how I asked today:

With regard to this article, I'm quite curious about BEV advancement in the next few years. There's a great deal of potential long term, but barriers to overcome... like charger availability... are far bigger of a problem than enthusiasts care to address. We simply don't see many at public locations and most people don't have any exposure to them in homes.

That lack of knowledge makes any type of investment a monumental challenge, something pretty much impossible to deal with on the scale and at the pace VW is hoping for. That sure would be nice though.

Realistically, that sweet spot you mention just happens to be the capacity RAV4 Prime is said to deliver, 17.8 kWh. That a little over double the capacity for Prius Prime, which means the time for a full recharge will be about double with 120-volts. That does indeed put it in the 11-12 hour range. It's the maximum an owner can squeeze out overnight and exactly what's needed to stimulate level-2 charger purchases.

With only a 20-amp circuit, you could fully recharge in 4 hours. With a 40-amp, that time could get cut to about 2 hours... which is the ideal setup for BEV as the next vehicle purchase. That same 40-amp setup delivering a steady 7.2 kW rate equates to about 200 miles of range in around 8 hours. So if the owner is willing to invest and has the time available, a recharge of the acceptable "*280 to 310 miles (451 to 499 km)*" range could be achieved.

Catch is, how will the consumer learn enough of that to embrace such technology? Can we expect to see VW push marketing & education enough for that to happen? This reaches well beyond just their own production. Heck, just getting their own dealers on board will be a monumental effort. What is the incentive to take such an aggressive stance?

- 3-15-2020** **Unrealistic Suggestions.** I got this from someone in Germany on that thread discussing VW prospects: "*The US should really consider to raise their voltage in light of increased electrification.*" It's easy to see how a suggestion like that comes about, but it's uncertain how a not realistic reply would be taken. So, I leaned toward the understanding aspect of constructive exchanges this this instead: That's an interesting misconception. The US already has 240V service pretty much everywhere. It's basically just a matter of combining two 120-volt lines. The issue is having under capacity and poorly located service-panels. That's something each homeowner must upgrade themselves. There is a \$1,000 federal tax-credit available for that through the end of 2020. Problem is, people don't understand the benefit. That is why I ask what VW plans to do for marketing & education. Look at how GM failed at that vital task. Even die-hard fans complain about how little GM did to promote their technology. This very category is where Toyota excels. Think at how the success of RAV4 hybrid has been achieved. Consider how that will contribute to RAV4 Prime sales. That why VW is getting flack already for setting such high sales expectations even before rollout has begun.
- 3-15-2020** **Constructive Exchanges.** That reply to the person in Germany went well. This discussion continued: Residential is split-phase. Commercial is 3-phase. That's the way our infrastructure was built here and that's the way it will remain for generations to come. With respect to vehicle charging, it works fine. Without any supply upgrade, I was able to setup two 40-amp lines. That's good for providing steady 7.2 kW charging to both of our vehicles at any time. The SAE spec does support all the way up to 100-amp lines, but that would be overkill. The affordable 40-amp setup will deliver 200 miles of EV range in 8 hours. Do you feel a household would benefit from faster?
- 3-16-2020** **Working From Home.** It is no big deal for my wife or I. We routinely do it anyway. So, the request for non-essential travel to be halted is fine. The cats will enjoy having us around more often too. Since my job involves the development of computer software, with part of my team on the East Coast and some offshore, the concept of remote access is what we have been doing for many years now. That's new for others. They will get a crash course in virtual meetings and not being able have in-person contact. It is something that becomes natural after awhile. You learn there are other ways to share. Think about how much interaction I have had with others online, for decades, without ever actually meeting them. Being able to do that is quite empowering... and it saves a whole lot more gas than any type of vehicle technology. Think about what that can do for plug-in hybrid interest. If all you are primarily doing is just short-distance travel for basic necessities & entertainment, there's no need for massive battery-packs. It's an interesting rethink opportunity about want verses need. Forced working from home, as well as schooling from home, is an unexpected teaching moment for our rather stubborn country. I wonder what we'll learn from this experience. Hmm?

- 3-17-2020** **Not Paying Attention.** Stuff like this makes you wonder: *"It would be nice if Honda and Toyota could see fit to add them to their larger SUVs as well."* Most people don't pay attention and even fewer make an effort to research. It is a sad statement about our society, but quite accurate. Just listen to comments about the presidency. Sound familiar? It's the same old nonsense I've been pointing out about vehicles for decades. Fortunately, the same advice still holds true. Keeping hitting them with facts: Toyota's newest generation of hybrid system just rolled out for Highlander AWD bumps the combined rating from 28 to 35 MPG. That's quite an upgrade and a heck of a big difference from the traditional model only delivering 23 MPG. With sales here at 239,438 last year, that choice for such a large SUV is definitely a noteworthy effort to improve emissions & efficiency.
- 3-17-2020** **Conquest.** There is nothing like reading this on the Volt forum: *"Thanks everyone for making this place a great forum. I sold my Volt two weeks ago and bought a Tesla Model 3, going fully electric. The 2013 Volt was a great car."* It is the ultimate confirmation of failure. Tax-Credits were intended for subsidizing change, to make the process of moving forward with electrification easier. That meant dealers would feel less at risk welcoming in a change to some of their inventory. That didn't happen with GM; instead, it was a blatant disregard of purpose. Their goal was to seek conquest, selling to those from outside their customer base. In other words, there was no actual pursuit of change from within. Loyal GM customers would just keep buying the same old guzzlers, replacing their aged vehicle with a new model of something similar. This attitude & disregard went on for years, with fierce defense of the approach claiming change would come. It never did. Volt owners have been abandoning GM. Conquest was a terrible idea, doomed to this outcome. You can't just ignore your audience. Showroom shoppers got nothing. So, nothing happened.
- 3-18-2020** **Game Changer.** That shift in attitude & perspective is happening. The signs are becoming obvious: *"With gas prices diving well below \$2.00 a gallon, I can't help but wonder what the immediate impact will be on EV sales? Fuel cost savings are a major selling point."* I never thought I would see the price of a barrel of oil drop below what it was 20 years ago when I ordered my first Prius. That was under \$40, which equated to gas being less than \$1. Without the usual consumption demand... like the daily commute... supply is piling up. That means processing & pumping of oil will slow. At some point (supposedly around \$22 per barrel), it become a loss. That opens up opportunity for green technologies, but this really isn't the ideal for change. But then again, progress is progress. Somehow the game needed to be changed. I guess this is what will push some to the other side of the fence. After all, posting this seems to not have much of an impact anymore... despite the cold, hard reality of the situation: With the exhaustion of tax-credits for Tesla & GM, combined with all the low-hanging fruit being picked (early-adopter demand satisfied), a pause in sales was inevitable. The forces against electrification saw that coming. Also having this surprise oil surplus resulting in gas prices well below minimums needed to justify plug-in choices definitely puts our support in a regroup & replan status. Hopefully, a game-changer like RAV4 Prime will mess up arguments for those hoping to undermine our efforts.

- 3-18-2020** **Complaining.** Some people like to. The infotainment system is a common target of that. Problem is, the complaints are so vague there's really no point. All we essentially get is just: "*Still no Android Auto?*" That complete absence of any reasoning other than the software isn't available doesn't tell us anything. It's like complaining about the radio without any context. What the heck is missing? What do you want it to do? I get complaints like that a lot as a software developer. You hear complaints about making it "better" but have no clue what they are actually asking for. In their mind it is clear, but the need to convey any detail is missed entirely. They think it is obvious, that you should somehow magically know what they specifically want. Ugh. That's why delivery of a next-generation interface in an entirely new medium is a complexity they overlook. They see a screen and expect the same user-experience, despite function & operation being different. Usually, I just let them complain to vent. It doesn't do much good to try to explain platform differences to those unwilling to take the time to recognize the engineering challenges. Today, I did actually reply: It's coming... but not well understood. There has been much confusion about why simply adopting the older version never intended for that type of use isn't just used anyway. To transition from phone-centric software to something actually designed for automotive application, it's basically a start over. That's just like when tablets were introduced. People didn't recognize how an interface for a phone could differ so much. In fact, some never do until seeing why firsthand. In other words, Toyota wants to do this right. So, they have been slowly making it available as the software matures. After all, who should address confusion with the interface or unrealistic expectations? Knowing it is a Google product, think about how Toyota fits into that equation.
- 3-19-2020** **Curbside Service.** What a fascinating turn of events. The interiors of stores & restaurants are being closed to customers, to keep the staff safe and prevent virus spread in general. People still need provisions & food though. That has brought about curbside service on a massive scale. We're seeing all sorts of business switching to delivering what they sell that way. Today, we experienced that firsthand. I drove out to get dinner from a place my wife and I like to spend an evening at on special occasions. I called to say I was there and the order we had placed over the phone was pushed out on a cart. I was able to grab the bag, while still keeping the "*social distancing*" necessary. It was a surreal experience. I suspect there are many more to come. You don't realize how natural close proximity is with other humans until you are forced to prevent it. After several weeks, how will that change the way we interact? I already see ordinary people scrambling to figure out how to socialize online using tools my profession has used for years. When we first got the ability to video-chat and hold meetings on our computers, rather than going into a room to all share the experience in-person, many were lost. There was no basis of comparison and no expectation. Given time, they figured it out. We don't have time in this case. You must immediately adapt. Hopefully, with everyone participating for a shared goal, this should be easy. Curbside is a necessity. Think about plugging in your car. You already have electricity. You see the struggle the automotive industry is about to face. What could we do as a society helping each other to make that easier?

- 3-20-2020** **Staying Home.** We are able to make the best of it, quite unlike so many who cannot. My wife and I can work from home. We have hobbies to keep us plenty busy. The cats absolutely love having us around continuously. So, it's easy for us to stay out of the mess. I imagine it will be quite difficult for some. Many are not as fortunate. Of course, there are a few who simply don't care. Think about how oblivious to need those troublemakers of the past were. They pushed want to such an extreme, it became an immense effort to deal with their loss of priorities. That wasn't life or death though, in the short term. Right here & now, it is necessary for us to do as much as possible to prevent the spread of the virus. People are dying. Seeing how some are still refusing to do their part is unbelievable. With such extreme examples, why aren't they? Will they ever figure it out? Will others observing that reconsider some of their positions of the past? This is far from the only planetary problems we have to address at some point. Sooner is obviously better. People tend to avoid. People make excuses. People delay. It's quite ugly... and well documented in these blogs. We must grow up and become more responsible. The long-term consequences of actions & inactions eventually become evident. Learning from this terrible chapter in our history would be great. We could... make a better world... if we want to.
- 3-21-2020** **Trolls.** After dealing with their posts for awhile, they end up getting blocked. That works well on the computer. But on my phone-app, I still get post notifies when they reply directly to something I posted. Fortunately, the content itself isn't shown. So, I don't have to tolerate their undermining efforts unless I feel up to dealing with that nonsense. Today, I did. His post read: "*A potentially new Prius owner on the oil guy forum when mentioning Prime just knew it had 4 seats and he needed 5.*" It was in response to a comment I made awhile back, but intentionally omitted detail of the situation. It was a blatant effort to mislead by excluding something vital. He only quoted the first sentence. Anyone reading that would have no idea they needed to page back in the discussion thread to discover there was a second sentence, the one stating my point. He was vague too, by not including a link to his source. I was annoyed, firing back with: Talking about quoting out of context! You cannot just leave out the part explaining the response. Here's what I actually posted: "*That's not the audience. Focus is on showroom shoppers, not random on-the-street people.*" That's why it doesn't matter what some random person says on some random forum. At the dealer, none of that would be an issue. It would be obvious to see there are 5 seats.
- 3-21-2020** **Gas Prices.** They are dropping. It's interesting how not filling up the tank for several months changes your perspective. Today, it was a friend with this remark: "*I stupidly filled up at Costco this past December at \$2.559.*" Being able to avoid carrying around winter-formula gas during the warm season is nice. Combine that with the reality of price naturally falling a little anyway due to the transition back to summer-formula, you have a face-palm situation... as was that post. Oh well. I normally use gas a lot faster. But now with the stay-at-home situation, I find myself in the same predicament. Nonetheless, it doesn't stop me from also participating in the discussion: I saw \$1.997 the other day. That struck me as truly bizarre, focusing in on the partial cent rather than the reality of gas falling below \$2 per gallon. When have any of you ever seen that fraction as anything other than the 9/10th value? Of course, it doesn't really matter. With a job that allows working from home, it could take me a very very very long time to use up the current tank of gas. Even our far away restaurant now with drive-up service is within EV range.

- 3-21-2020** **Flat Tire.** Working from home and not going anywhere in public doesn't mean you can't use the local coffeeshop drive-thru, especially when the short drive uses nothing but electricity. That was the only escape from our exile today. So, I was looking forward to the experience. As I was pulling out onto the main road, I noticed the low-pressure warning on the dashboard was illuminated. Hmm? I plugged the OBD-II reader at the next light and prepared my phone to open the Tire-Assistant app when I got to the waiting line. There, I fired up the software. 3 of the tires reported exactly the PSI they should. 1 showed it was only at 10. Ugh. Sure enough, when I opened the door and looked out, the tire was squishy. My decision was to just hope for the best on the way back home. It was only a few blocks. When I parked in the driveway, what had happened was obvious. A screw for sheet-metal had nicely wedged itself between the tread that still looked new, on the tire purchased just late last Fall. That allowed it to be pushed directly in, creating a slow leak. After jacking up the Prius in the garage and taking a closer look, the hole appears to be one that should be easy to plug. Phew!
- 3-22-2020** **Survival, change.** We know the "zombie" businesses will be gone. There's simply no way for those small independent places struggling to survive prior to this will have the resources or desire to continue, even with special grants or loans. They'll move on to something else. Pressure to rebuild will be too much. Combining what's left for talent & ambition works well for long-term outlooks, those willing to suffer through the lean years of recovery will be what emerges from this mess. It's an inevitable reduction/reshuffle. It reminds me a lot of what I have witnessed over the past 25 years with family businesses downtown, where I would eat my lunch from time to time. Patronizing their establishments, which had been there for a very very long time, was always pleasant. There was history I recognized but wasn't really ever part of. They faced challenges over the years. Some adapted. Some closed. However, none had the kind of accelerated timeline we see right now. It's a reality quite unexpectedly aggressive. This isn't just the usual small shop closing up after decades of service either. We'll also see it play out on the grand scale, watching the automotive industry get hit especially hard. It grew dependent upon people willing to spend a large portion of their income on an inefficient means of transport. That's not the situation anymore. Overnight, we now have re-evaluation of that choice taking place on a monumental scale. Just how intertwined those decisions made were part of our lives will become quite apparent, not something to just brush off as in the past.

- 3-22-2020** **Survival, blame.** The tie of the economy into the automotive industry is important. So much of what we do depends upon those vehicles. The catch is, different cultures address survival differently. What we see here is a lot of blame. That is especially obvious with regard to our president, which trickles into his party and supporters. Rather than do something about the problem, they complain about something. Sound familiar? That's exactly what I witnessed over the years with transportation advances. The technology not going anywhere came from GM, a business that played the victim so often goals were forgotten. There was plenty of blame. Look at where it got them. 10 years after Volt, there isn't any progress. In fact, dealers are actually in a worse position now. That advancement to serious emission & consumption reduction will be even more difficult. Quite the opposite is the position for Toyota... an automaker who has had to endure several economic collapses. In fact, most people here aren't even aware of the recession Japan had when the United States was thriving. Toyota learned discipline. Toyota learned patience. Toyota made sacrifices and invested. It was about a better future, not a better bottom line. Ironically, they have no one to blame but themselves for not having anything of substance still. Survival is about finding a way to move forward.
- 3-23-2020** **Survival, recovery.** Throwing money at a problem won't always fix it. In fact, most of the time that doesn't result in the best choices being made. You want to do more than just survive. You want a recovery that will bring you forward. So, it should be no surprise that the rush to get a massive recovery bill voted for will have some opposition. Wanting to do it right means thinking through and discussing options. That's not happening; instead, there's a clear effort to invest in the past. Not a single penny has been allotted for clean energy or anything renewable. Rather than looking at this as an opportunity to take a joined step to better ourselves, there's an obvious effort to help the industries already struggling to survive. Prevention requires doing more than maintaining the status quo. You invest in the future to protect against slipping back. Look at the instability we have seen with oil prices. They have been all over the place... even before the bottom fell out. Seeing \$1.79 today for a gallon of gas is an undeniable sign of trouble... especially as we are witnessing solar & wind technology advance to become cost-competitive. Think about how much will be spent on just covering lost payroll due to this virus outbreak. That's just an effort to keep things afloat. Nothing to build upon what was lost is a very real problem. You can't just expect aged industry to recover without anything to push it forward. After all, we saw witnessed how GM exploited government help, using it for profit & praise rather than investing in the future... as those funds had been voted on for. Remember how the tax-credit money came about? Sadly, the automotive industry is only a small piece of a very large puzzle. However, the energy & emission aspect of it affects many other industries. In fact, they are so tightly knit, we are going to see a lot of unraveling soon. It's not going to be pretty.

3-23-2020 **Survival, facts.** Some are showing willingness to do what is necessary for immediate survival, but I am still not seeing anything with regard to climate change or oil dependency. Not only does that sentiment remain intact, despite the pressing new circumstances, it looks like there may be excuses brewing to do just the opposite. Rather than take responsibility for what needs to be done, there is a very real possibility of relaxed regulation. The idea of moral or civic duty means nothing to a society already stressed. That makes the new problems even worse. Ugh. An interesting perspective though is that only applies to our culture, here in the United States. That sentiment has been true for Japan. Remember long ago, before the Great Recession? They had their own economic collapse. Recovery from that was quite a struggle; however, it taught them well about how to prepare and deal with future economic & social challenges. We are now looking at the start of a new Depression, the real thing. Countless businesses will close. Those that survive will likely have to completely rethink their strategy. This will directly impact the automotive industry, in many regards. Toyota is one of those businesses with a good understanding of how to plan next steps and to implement them with knowledge of how to deal with surprises along the way. The chance of GM being able to do that is what? They are barely surviving their own undoing as a result of failing with PHEV advancement. The concept was sound. The approach was flawed. Having just abandoned that for supposedly an all-out BEV investment sounded doubtful even before this virus turning the economy upside-down. Of course, rolling out a small hatchback to an audience of SUV buyers never made sense anyway. Survival is not a strong trait for some...

3-24-2020 **Survival, accountability.** My biggest gripe with GM was sighted right from the start with Volt. It came from having watched Two-Mode become a mess. There was no accountability, transparency, oversight from within. So when the government bailout came along and the success of Volt became intertwined in that effort, I worried about the very same thing. We had no clue what the program deliverables were, there were no timelines, there was no one to ensure progress was made. The same thing is happening with our "bailout" of the country now. I'm seeing the same no-strings-attached approach. Remember all the tax-credit money being wasted on conquest sales rather than being using to actually improve the company? Heck, what about the corporate windfalls a few years ago? All that relief money from the lowering of taxes resulted in lots of stock buybacks. How did that actually help consumers? How will any type of money given to automakers now be used any different? There is still no accountability. Without specific milestones agreed upon, what incentive is their to strive for the overall goal? No penalty for falling short or not delivering anything at all is a very real problem. Survival depends upon always making some type of progress forward.

3-24-2020 Rivian, Ford, Porsche, Tesla. Remember that daily blog for Volt, my look back 2 weeks ago? I kept wondering if the website that had turned into a venue for rhetoric would change as a result of GM's recent affirmation of purpose. Hope that the rapidly approach end to their tax-credits and the obvious new market challenges would bring about perhaps some type of rethink. Nope. It was the same message of intent, GM would go all in with BEV by abandoning PHEV entirely. Of course, that leaves you wondering. It's the same lack of commitment we saw with Volt. Sure, they were endorsing a technology, but there was no accountability... hence the "*too little, too slowly*" concern that came about way back in 2009. That turned out to be exactly the problem too. GM delivered the minimum, a halo product. The irony of that situation is profound. Repeating that again is stupidity. Doesn't anyone else see the pattern? Not learning from history... Anywho, back on that website and speaking of repetition. I was curious if it would somehow turn into a propaganda machine again. Nothing new had been posted since June 19 of last year. All those nasty antagonists have vanished. Not a single one of them comments anywhere I frequent anymore. They either stopped participating online entirely or started a new identity to hide behind. It was always a dead giveaway they really didn't care when they'd launch an attack on you by posting personal information about you. They realize a revealed identity means being held accountable for comments... which is why they would always make sure theirs was never revealed. Needless to say, I was surprised to discover 4 new articles had popped up within the span of just 2 hours. I had checked at exactly the right time. The previous 4 distressful articles had rolled off the rotation. All that was left was the awkward & abrupt final post. The new ones featured Rivian, Ford, Porsche, and Tesla. That was telling. Nothing about GM on a website dedicated to Volt. There was no comment section anymore either. It was simply given a "*closed*" label. The end had come. It was truly dead... exactly 1 week prior to the end of tax-credit exploitation. The hope conquest sales of a supposed "*game changer*" would bring about an embrace of that technology had failed miserably... and everyone knows it.

3-24-2020 Deny, Distract, Deflect, Divide. Speaking of conquest, our horrific president is failing miserably too. Trouble is, the situation with the spread of the virus is trouble for our immediate health, not the long-term as with emissions & consumption. People are dying from his employ of the same tactics those terrible enthusiasts had used. I most definitely recognize that pattern. The deny, distract, deflect, and divide is very much what I had to deal with over the past decade from them. It was a relentless fight to stay on target. They would do everything possible to undermine those efforts. In other words, rather than focus on the actual goal, it's a game of blame. That is so upsetting, with regard to vehicle production & sales. Think about the magnitudes worse it is with regard to people suffering from a sickness we have had the power to significantly reduce. It comes down to prevention. Some see it as expensive & unnecessary. They prefer to brush off the risk as insignificant. Look at what happens as a result. So much opportunity wasted... Sound familiar?

- 3-25-2020** **Sienna.** This shouldn't be much of a surprise to anyone. Sienna (Toyota's large minivan) is due for a next generation. It will be last of the TNGA upgrades, which brings about a number of big improvements. The most obvious is to make hybrids directly competitive with traditional vehicles... in every regard... to the point where phasing out the traditional is no big deal. And that is exactly what we have been witnessing with the other vehicles Toyota produces. But with the minivan, it's a market with a very limited audience and fading competition. Simply outright abandoning the traditional model, to offer only the hybrid, makes sense. That's the rumor we heard more of today. Supposedly, there was a dealer preparation meeting for the 2021 product-line and that information got leaked. It immediately fed speculation about a "Prime" model. The system used for RAV4 Prime would lend itself well to the minivan platform too. That would be sweet. We'll find out... and that could be abrupt as well, since the 2020 model year is coming to a screeching end. When production resumes after the virus shutdown, it will be time to start watching inventory to avoid having to clearance out too much. That will be quite challenging this model-year... but a welcome fresh start for an all-new Sienna.
- 3-26-2020** **Intentional Misleading, part 1.** Today was off to a good start... ugh. The title of the article was "*Why Would Anyone Buy a Toyota Prius Prime When You Could Buy a Tesla Model 3?*" The opening paragraph highlighted affordability. That was a bad sign. Sure enough, the next paragraph stated "*Carfax says the Prius Prime starts at \$34,600...*" Yup, this was an article with the intent to mislead. I wasn't happy. I did a search to find out where that number came from. Turns out, that number came from Limited model, the fully loaded edition. It also included the destination fee. The reality is, starting price is actually \$27,900. That's significantly lower than we were led to believe. And since the premise of the article was why and focused on affordability, that means there should have been mention of the tax-credit still available. That can reduce the price by up to \$4,502. The story changes dramatically when you discover starting price of a Prius Prime is actually \$23,398. You don't even have to look up the starting price of a Model 3 upon finding that out. But if you do, you'll find it is \$39,990. That's such a drastic difference, there's no possible way the writer of such an article could be considered a journalist. That's outright deception which only took me a minute to confirm. Internet searches aren't rocket science.
- 3-26-2020** **Intentional Misleading, part 2.** Midway through the article, this was added to the mix: "*Additionally, the Model 3 will come with Tesla's semi-autonomous self-driving feature...*" That doesn't come with, it is an extra. That package upgrade is \$5,000. No where is that mentioned though. You are lead to believe it is included as part of the car's usual features. Stuff like that is very frustrating to encounter. If you're lucky, there is a comment section. The odds of someone reading what you post is slim too. So, what's published is usually all the reader ever knows about. They don't question industry writers. That information is implicitly trustworthy. Ugh. This isn't anything new. We saw the same deception practices 20 years ago. Having some type of recourse is nice. That's why countering it with video has become so effective. That is a fact which is difficult to dispute and easy to share. I still get tired of the endless battles. Honest debate is asking too much. The lazy and those with something to lose will just follow the crowd, helping to enable misleading along the way. Fortunately, sticking with the cause ultimately results in victory... as I have blogged about many times here.

3-26-2020 **Detroit Transition.** An article in the EV blog posted about GM and Ford outlooks certainly was interesting. I was intrigued what the perspective of others was now, in the light of new pressure on business & consumers. So, I jumped in with the hope of stirring some discussion:

It was obvious back when gen-1 Volt sales started to tank and GM did that big price slash that the desire to electrify had faded. Follow up to that move should have been an announcement of an upcoming SUV using the same tech. After all, we had already been shown a prototype of a plug-in hybrid Saturn Vue back in the Two-Mode days. That next step was long overdue; instead, we got news of a gen-2 Volt that would further refine traits enthusiasts had praised the vehicle for. It was a step in the wrong direction. Focus was on a niche audience. GM's own loyal SUV buyers would have nothing to actually buy.

All these years later, we now see the rise of the SUV in plug-in hybrid format, but not from GM. Specifics from the upcoming RAV4 Prime are leading that revolution. If Ford truly has sincere intent with their SUV offering, it would become a complementary offering... since those two PHEV are configured quite differently. There will be nothing from GM in that category though; instead, there will supposedly be a competitive BEV model of SUV a few years from now.

Watch what happens in the meantime. If Toyota really does kill their traditional model of Sienna, making that minivan hybrid only, it will set the stage for another +300 horsepower PHEV offering. That puts Detroit at a clear disadvantage. Just look at how some jumped over to Chrysler for the Pacifica. The status quo is definitely on the verge of being shaken up.

3-26-2020 **Piecemeal Data.** The topic about Detroit's future brought about this: *"GM has declared no more PHEVs. We'll get a RAV4 PHEV and Ford has several HEV and PHEV SUVs coming this year. Given the poor sales of the Outlander PHEV, I doubt Americans will buy many of these. And the take rate of Pacifica PHEV was only about 2%."* Seeing such a jumbled & disconnected grouping of information was annoying. It's worse than cherry-picking. They were just random facts. That type of piecemeal data only serves to feed a narrative. There's no critical-thinking with such vague assertions anyway. You don't build a line of reasoning from such disorganized statements; yet, that's what thrives online. Ugh. I fired back with: RAV4 is Toyota's top-selling vehicle and the hybrid version is around 20%. The PHEV model will offer 39 miles of EV versus Outlander's 22 miles and around 40 MPG for HV efficiency versus Outlander's 25 MPG. Comparing the two as if they were in the same category isn't constructive. No one is going to buy that line of argument. As for the attempt to compare a minivan to a SUV, that's absurd. Understanding audience & market is very important. GM can declare whatever it wants based on whatever it wants. Missing that opportunity is their loss. If you choose to doubt the potential, so be it.

3-26-2020 **Market Narrative.** It continued: "*Yeah, GM should have done PHEVs earlier, but now the tech is too obsolete to invest too much into. And they are going the right direction with battery only solutions across their brands and vehicle segments.*" I got a kick out of seeing the "*obsolete*" argument being used. After watching that nothing-to-gain approach fail countless times, you have to wonder if that was nothing but a knee-jerk reaction. After all, there are some who participate online without ever practicing critical-thinking. That from-the-gut type of response makes them feel better, that's it. Amused, but hoping not to sound close-minded or condescending, I posted:

The label "*obsolete*" doesn't actually mean anything, since it has no relation to sales. People continue to use & buy technology that has been replaced with better solutions for decades. The reason why is simple, there's a balance of cost & benefit. That's a bitter pill to swallow for those embracing the newer technology. But that's the cold, hard reality of business. Like it or not, that's the way it is.

With regard specifically to PHEV verses BEV, it is especially difficult to convey information. Comparing a PHEV driven with only electricity for the daily commute to a BEV presents challenges, since the results are the same. How do you up-sell to the BEV when there's the obvious advantage of having a gas-engine available in the PHEV for longer trips?

Arguments of design or complexity are meaningless to a consumer with priorities not matching those here participating in discussions like this. When they walk the showroom floor, their exposure to the technology is profoundly different. Most enthusiasts have a very difficult time accepting that... hence their opinion of "*obsolete*" not matching your definition at all.

In short, the should-have-done and going-the-right-direction don't mean anything either. It's all about sales. That's the measure of change, not what marketing tells us.

3-26-2020 **Complicated.** Ugh. Someone went off on some rant about how simple the process should be, upset by how people are making it way more complicated than it actually is. It's understandable that they don't have the background to have a constructive exchange of knowledge. But to argue that everyone is making a big deal out of nothing is quite counterproductive. If it was really that simple, how come there's so much struggle still. Why isn't that next step naturally taking place, especially with such generous subsidies helping to encourage change? Annoyed, I pointed out:

There's more to it than that. GM failing to deliver anything whatsoever with regard to a plug-in choice yet means a truly compelling BEV could potentially destroy their ability to sustain a transition. In other words, without any type of phased approach, they face the Osborne Effect. It's ironic how much Toyota gets hammered for investing in PHEV, when such an approach helps protect against that very problem.

Think about it. By the time Toyota rolls out their dedicated BEV platform, they are expected to have at least 4 choices of PHEV in production (Prius, Corolla, RAV4, Sienna) and 2 choices of EV in production (CH-R, UX300e). All those will help to build up sales knowledge and service experience in the meantime. It also gives dealers variety to offer that already have a plug, instead of just adding to a massive backlog of orders to fill.

Tesla had the advantage of having basically no competition and an eager early-adopter audience. That made limited choice and high sticker-price far less of an issue than it will be a few years from now. That low-hanging fruit has been picked. Legacy automakers also have the challenge of legacy dealerships, needing to appeal to their inventory desires and sales practices.

In short, it's far more complicated than most people realize.

3-26-2020 Recognizing Data. I was captivated by the opportunity to respond to this on the discussion about Detroit reaction to change: "*Just have to look at the numbers. BEV sales have been on more of upward trend than PHEV.*" I knew his view was limited & outdated. What happened in the past doesn't tell us much about what to expect coming up, if you don't recognize the variables. Sometimes, even that isn't actually needed to see how off predictions can be. His statement is actually false in Europe. The trend has swayed in the other direction there. I didn't bother to mention that, since his focus was just on the United States. Here's what I did say:

Recognizing data source tells a different story. Last year had 2 major events for the plug-in sales here. One was the scramble for Tesla to ramp up production of Model 3 and the scramble for consumers to purchase them prior to tax-credit expiration at 2019 year-end. The other was disappearance of Volt, a vehicle which had exploited tax-credits for conquest sales prior to 2019. Both tipped the scale heavily in the favor of BEV and focused entirely on the early-adopter market.

2020 will bring about a major player in the PHEV category. RAV4 hybrid is already a strong seller, which sets up the nicely configured upcoming PHEV model to draw in an entirely new audience... one that Tesla has yet to reach. And since Toyota is a legacy automaker, there's the potential with this new offering to stir interest from their dealers who previously didn't see demand.

In other words, trend of the past tells us nothing about what to expect from an entirely new audience. It's how market growth works. That next level doesn't necessarily resemble the prior, since purchase priorities of the next differ so much. Put another way, selling a plug-in to a well-informed enthusiasts has basically nothing in common to the approach needed to appeal to a mainstream consumer.

3-26-2020 Disappointing Outlook. Shortly after the press started sharing projections from Detroit about EV expectation, there was disappointment. It was almost as if the EV community did a collective sigh. The numbers were far lower than anyone ever anticipated. This great revolution of new BEV choices was only to bring a 5% penetration in over 5 years time. What kind of change is that? Seeing such an outlook so poor left many without words. How do you support being let down like that? The production of ICE (Internal Combustion Engines) was to have a grim future at that point, with plans of discontinuation by 2030. It was the wildly optimistic enthusiasts hyping up expectations again. Ugh. I posted this wake-up call: The problem of "*over promise, under deliver*" speaks for itself. It has a long history. What's even more interesting though is the Reuters detail published today that he's referring to. It states a projection of the two biggest American automakers producing 5 million SUVs and Pickups in 2026, with only 320,000 of them electric. That falls well below the expectation of major change... and certainly not the "*options for consumers will be there from GM soon*" you hope for. Look at Toyota's top-selling SUV for some perspective. RAV4 sales for last year totaled 448,071 here. That's just one vehicle from one automaker. 320,000 split between two automakers and split between SUV & Pickup makes that number really disappointing in terms of the supposed revolution they were hoped to represent... especially when that's projected for 6 years from now.

3-27-2020 **Repeating History.** It's fascinating to witness the repetition: *"On the other hand, if consumers don't come to the party, you can't expect manufacturers to churn out BEVs that customers refuse to buy. The public loves their gas cars, global warming be damned."* Remember the excuse GM made for ending EV1 production? Full of ambition to fire back, I did with:

So rather than push GM to advance its fleet forward, you're choosing to be an enabler. Just allow loyal GM customers to continue buying their guzzlers without any accountability. Ugh. We have seen that entire life-cycle play out already with both Two-Mode and Voltec. It's fascinating to watch history repeat, yet again.

Notice how much Toyota gets mocked for doing the opposite, transitioning their entire fleet of passenger vehicles to hybrids? That sets the stage for a very easy next step, getting them to consider a plug-in hybrid. And as you have heard countless times on this website, PHEV is the gateway to BEV. Once the consumer begins to enjoy the benefits of plugging in, their interest in the gas-engine sours.

The irony of those here turning a blind-eye to the obvious solution for legacy automakers is amazing. It's such a natural path to reach the mainstream audience. Yet, many choose a path of purity and consequences be damned.

In other words, you're making the same mistake CARB made 20 years ago. Remember that mandate? Remember why it didn't work? You're focusing on a technology, not a goal.

3-27-2020 **Exaggeration.** You know you have an antagonist cornered when they reply with an extreme, some type of response grossly exaggerating what you actually posted. For example: *"And your solution is for all automaker everywhere to stop making all ICEVs right now. Yeah, I'm sure that would work."* Of course, I said no such thing. I had posted several comments about automakers have some sort of transition plan, an approach to phaseout the out with a next step technology. Stopping cold wouldn't make any sense, period. The dealer business couldn't support such a drastic change across the board. With a particular vehicle, sure. In fact, that makes sense if there is some obvious succession. But if it is a step backward or requires too much on the consumer's part, not a chance. Know your audience. It wasn't that complicated in this case. He just simply either wasn't paying attention or didn't care. So, I kept my reply brief and without any point to argue: Ignoring the wide variety of HV and PHEV options available for transition to BEV by replying with an exaggeration...

3-27-2020 **Dealing With Rhetoric.** When arguments fall apart for the antagonist, their next step is to attack you personally. Most of the time, it takes a form like this: "*But that IS your solution, isn't it? Aren't you saying that manufacturers should stop producing and selling ICEVs?*" They simply make something up and ask if that is what you meant. It is an obvious divert technique, right out of the troll playbook. They hope you'll take the bait. Sometimes, I do... but with a twist. Since he wanted to make it personal, I looked up one of his own quotes to use in the reply to frame the discussion: To quote your own post from the previous GM discussion: "*What they don't want to do is waste resources developing more efficient ICE instead of developing their EV platforms. ICE is dead, won't be around much longer, and it makes little sense to dump billions into new engines that are on the way out.*" That looks like a continued misunderstanding what a PHEV is and has to offer. Nothing is needed to develop a more efficient ICE. You just take whatever is already available and supplement it with electric-motors with batteries powered by plug-supplied electricity. GM did that already to create their Voltec system. This is what everyone expected to be rolled out in a SUV platform, like Equinox or Trax. Development was already complete and real-world proven. The approach worked, but GM abandoned it anyway... despite leveraging so much of what GM had already established. That was GM's phased approach to BEV offerings. Toyota, Honda, Ford, Hyundai, BMW... many automakers are following a similar path to reach that ultimate goal of no longer producing ICE. It is a natural transition which should appeal to the masses.

3-28-2020 **Simple Advice.** We have people working from home, not driving their vehicle anywhere near as much. Apparently, this person wouldn't be driving at all for quite awhile. I'm not sure how that's possible. Never going anywhere for several weeks isn't something we're hearing. Even with the reduction to essential travel, people still travel. If nothing else, they'll need toilet paper eventually. More realistically, they'll need food. I can't imagine too many people going to the grocery store and purchasing a supply of things to eat for several weeks. Some will, but that won't be the norm. Significant reduction is the expectation. And in that case, there's nothing to do. The longevity of your battery-pack is just fine in that circumstance. In that regard, I provided this simple advice: The advice is to drive the car from time to time. Use electricity or gas. You have that choice with the HV/EV button. At home, plug in randomly rather than every night. We have been patronizing local businesses. They are still working to provide food services and they still need money. So, it's out to get something to eat. The improvised curb-side delivery has been working great too. There's the drive-thru for the local coffee shop too. Eventually, you'll run out of some supply (toilet paper), so you'll need to run an errand for retail anyway.

3-28-2020 **New Misconceptions.** The start of the weekend brought this: "*For long periods without use, apparently the best is keep the charge to HV level (no more than the 20% HV charge). Read that here somewhere.*" I was curious where that new member to the forum came across such misinformation. I also wanted to intercept that before it becomes a new misconception. After all, many of those situations can be turned into a teaching moment. So, I posted: Incorrect. You have any recollection where you read that? It's helpful to find out the source of new misconceptions. Think about it. Toyota's hybrid system has strived to maintain about 65% since for longevity since the very beginning, over 2 decades ago. That balance has proven itself well for a wide variety of uses & conditions, even with different chemistries. So out of the blue reading that HV level is better makes no sense, especially since that is below 14%. Keep in mind that there's a lot of anecdotal comments passed along on the internet, some never confronted by critical-thinking, just accepted as fact. Don't be afraid to ask for links or detail to support a claim.

3-28-2020 **Facts.** Things change over time. The best of sources back in the past may no longer be up to date or even relevant years later. So, it best to check. That new misconception stir brought this about: "*Good to get the facts, we may need to research a bit...*" That's the kind of reply you like to get. I added to the discussion"

When doing that research, the comment posted is revealed to actually be part of a question... someone looking for confirmation of that being a valid suggestion. It's a good example of how hearsay gets passed along and later ends up becoming assumed fact.

In this case, it is easy to see a red-flag about the supposed advice, because the second sentence doesn't make any sense: "*After confirming that EV mode has switched to HV mode, turn the power switch off.*" It's an illogical step. EV mode is always default. Switching to HV just prior to powering off achieves nothing. There is no point stated for doing that either.

The first sentence tells us more about the circumstance of the post though: "*Leave a low level of charge in the hybrid battery (traction battery) when leaving the vehicle undriven for a long period of time.*" What was stated as the "hybrid battery" has been misunderstood to only represent the HV quantity, not including the EV quantity. It doesn't state whether that "low" represents the usable portion of the pack or the entire capacity either. So, you end up with a confusing mess of numbers the reader must interpret on their own.

This is why I share those driving videos with the OBD-II data added. That extra information provides insight to nudge people's brains for desiring a closer look. You discover there's more at play than a simple value being stated at any particular time. It's a complex system Toyota worked hard to create a "*for dummies*" interface.

3-28-2020 **Owner's Manual.** The on-going discussion got really good: "*I can understand your criticism, but the sentences quoted are a direct copy of the PRIME owner's manual.*" That type of bewilderment is easy to figure out if you work in my field long enough. It's simply the issue of not keeping documentation up to date. In fact, it sometimes isn't ever accurate. You have a different person or group writing up the manual than the engineers handling the software. Somewhere in between is an analyst figuring out details of the interface. That may or may not sync up with design and it most definitely does not get maintained well. Investing in the resources required to keep a manual, which only serves as a general audience guide anyway, rarely ever happens. In fact, that is why some of the references aren't as concise as you'd like and they come with a disclaimer about how what you see may actually differ. That's why what we do online has been so engaging & rewarding. As owner's we become part of the process... putting the "*manual*" in manual. Taking it literally like that isn't for those unwilling to commit. But some of us do get a bit enthralled... I had a conversation with the woman who oversees Toyota University training materials. She was well aware of what I do. We discussed the content I provide as a consumer, having no connection to Toyota other than having purchased their product. Her feedback is why I am taking so much time to research Prime prior to creating a User-Guide for it. I also wanted this particular document to span the technology, rather than a single vehicle. So, it could be quite timely for RAV4 Prime rollout... especially with me working from home now, no longer spending time driving the daily commute.

3-28-2020 **Is the Prime Advertised?** I was surprised to stumble across a video for RAV4 Prime. I believe it was for consumers Norway. Knowing how progressive that country is, been the world leader in EV ownership, that should have been expected. I was astonished by the timing though. It seems rather early... or is it? Supposedly, we'll see it here and in Canada. So there, earlier is entirely possible... or was prior to the virus. Anyhow, I found an old thread to revive that would serve well to post a link. It was about advertising Prime, back when that label was used exclusively for Prius. Now having it also refer to RAV4 is great. My comment was: 2 years later... a new "*Prime*" advertisement has emerged. Mention in the video is "*Elektrisk Rekkevidde: 65 km*" which translates to "*Electric Range: 40 miles*". Here's a link to watch the video... [Toyota RAV4 Plug-In Hybrid er klar for bestilling hos Toyota Bilia](#)

3-29-2020 Denial. We have seen it in many forms. A new aspect of denial is finally starting to get some serious attention in the EV world. That is long, long overdue. With my career in software development now quickly racing toward a 30th anniversary (40th if you include my education), there's much I can contribute toward the topic. Summarizing all that is simple... maintainability. For software to survive the test of time, it must be well designed. To quickly deliver refinements, flexibility should have been part of the fundamental approach to how it was constructed. Most new to programming don't have a clue how to achieve that. I often find having to present architecture-layouts and process-diagrams to explain how that can be delivered. It is often a major challenge, since speed & cost are big tradeoffs for that. Needless to say, my background makes me well informed on the topic. So, when hearing about VW struggles to now deliver on schedule due to software issues, none of that is a surprise to me. In fact, much of it was quite predictable. This is the same reason I was so hard on GM. Knowing what it actually takes to make hardware operate well and support upgrades, you must understand what it takes to provide the software for it. Anywho, this is what I posted today with regard to the denial issue VW enthusiasts now face: Who is in denial? On a very regular basis, we here claims of how many years Toyota is hopelessly behind and scrambling to catch up; yet, there's never any detail provided to actually support that. Reality is, we haven't ever been given reason to doubt they aren't on their game already. After RAV4 EV, Mirai, Prius PHV, and the Prime family have all delivered a variety of EV operation without any trouble. The software works fine. Denial comes from those focused entirely on EV range. They make jokes about a BEV not being available and divert attention to hydrogen with the hope no one will take the time for a closer look. When a closer look is taken, we see refinements to deliver more using less. That requires mature software to handle such a continuous flow of upgrades. Think about all the interplay which occurs between battery, motor, inverter, charger, cooling, heating, and of course safety. Clearly, some cheering for VW haven't until recently.

3-29-2020 Sloppy Writing. Most who write review articles are just industry writers, contributing their own observations. None are really ever a journalist doing extensive research. So, it's good to know what you're reading. Today, I ran across the same media source that published a very misleading article last week. Then, it appeared to be intentional misleading. This time, it looks just like sloppy writing. It was an article titled: "*How Capable Is The RAV4 Hybrid?*" I immediately got suspicious when the starts-at prices were listed. Hybrid = \$28k. Non-Hybrid \$25k. Quickly scanning through the article. Why no mention that AWD comes standard with the hybrid but not with the non-hybrid? To get AWD from a non-hybrid, you have to choose the \$33k model. That's \$5,000 more than the hybrid, never mentioned! Similar issue came from the towing-capacity. It listed the hybrid as 1,700 lb (which is incorrect, it's actually 1,750) and never mentioned anything about the base non-hybrid, only a maximum of 3,500 lb. Again, there was no way to know that base non-hybrid didn't offer that. In fact, it's only 1,500 lb. Sloppy? In the end, it did declare RAV4 capable. But from reading what was written, there's some assumptions & misleading at play. You are clearly not provided with quality reporting by any means. Blah.

3-29-2020 **\$1.64 Per Gallon.** Watching the price of gas fall has been surreal. We all knew the stay-at-home orders would bring demand down to such a level that supply issues were inevitable. There's simply too much gas now that people are no longer driving a daily commute. Only driving to the closest grocery store and maybe retail is a dramatic reduction of miles. In fact, that's so low all of the napkin calculations fall apart. Suddenly, the 25-mile range for Prius Prime is more than enough. Even the farthest out destination for curb-side pickup of food is just 10 miles away... which means starting the engine to use gas costs way more than electricity. That warm-up cycle usually gets washed out due to distance. Since there is no distance anymore, the penalty is obvious. Electric-Only driving is cheap, even in times of dirt cheap gas. Will we see lower than the \$1.64 from last night? Who knows. At this pace, I certainly won't need gas anytime soon. Heck, I may not need it for a few months now. Makes you wonder how this will impact the oil industry. For that matter, the airline industry. I wonder how much all the lack of travel will allow our air to cleanse. Living in an area where there is usually air traffic (about 12 miles from the airport), lack of overhead traffic is noticeable. Empty streets are beyond bizarre. These are strange times.

3-30-2020 **Critical Thinking.** There isn't any. The political disaster we are now dealing with makes that obvious. Relating that lack of cognitive enough to automotive choices, it's easy to see how we got in this world of hurt. Without even considering vehicle type, there are blanket statements being made about the future. Today, it was this nonsense: *"Once batteries are available in sufficiently large numbers and formats this whole PHEV intermediate step can be forgotten."* Sound familiar? It's the same old vague. Lack of any type of quantitative measure or even some milestone expectation, there is just a general dismissal of concern. More importantly, there is no one to be held accountable. Meritless steps are taken without any justification or even target set. It's just a move taken that is supposedly for the better... and people accept it at face value. Ack! That's just so bad, I don't know where to begin. We have become lazy, stupid, and uncaring. Needless to say, that type of audience has no clue what critical thinking is. It's just like the days of that daily blog, they'd climb up onto the bully-pulpit and say whatever was wanted. Each day was a fresh attack on principle & logic. Ugh. I keep pushing back though. Here was my rebuttal: Think about the product life-cycle investment and the shortcomings of infrastructure, not to mention how long it takes for mainstream buyers to embrace a "new" technology. Typically, that's several generations. Lacking the variety of choices currently, it isn't just battery supply either. In other words, we're looking at around a full decade of PHEV offerings still. Put another way, how long will it take for a vehicle purchased tomorrow to need replacement? That statistic alone reveals a picture of just how many years the general mindset takes to get a majority to shift. Like it or not, that is the reality of the situation... without even addressing all the forces that will be fighting against having any type of plug offering.

- 3-30-2020** **What !?!** That same confusing publisher had another article on RAV4 Prime today. It blew my mind. What the heck was this suppose to mean: "*The Prime's hybrid engine allows for 25 miles of driving with electric use only before the engine kicks in. It has a 31-mile range for electronic use only and a combined estimated 90 mpg.*" Reading it was so confusing, so bewildering, I didn't know what to make of it. He used the word "engine" two different ways and quote two different "*electric use only*" values. Huh? Even more strange was the 90 MPG estimate. Where in the world did that come from? It simply made no sense. What message was he even trying to convey? I was left baffled. How would others reading such a mess interpret the article? With an upcoming plug-in hybrid SUV also coming from Ford, having such grossly inaccurate reports from supposed journalists makes you wonder. Was that intentional? If so, was it to undermine the RAV4 or all PHEV offerings? Ugh.
- 3-31-2020** **Oil Prices.** They are falling and the stir to reduce output as demand plummets and supply overflows is getting heated. This was the big news today: "*US crude plunged nearly 7% and finished at an 18-year low of \$20.09 a barrel Monday as the coronavirus pandemic continues to deal a devastating blow to energy demand.*" Something will happen. I suspect some of the smaller drillers will just join the large pool that has already filed for bankruptcy. My guess is there won't be anywhere near the recovery anyone could hope for either, since it's this type of event that causes irreparable damage. Too much depended upon a constant flow. Too much depends upon the price being higher as well. Not having a profitable business makes continued investment a problem. More and more drilling was expected for a variety of reasons from a variety of sources. None of that matter though when the resulting fuel isn't being used. I can imagine the workforce re-evaluating the benefits of working from home after this... especially since investments toward infrastructure from setting up hardware for employees is taking place right now. Not having to lease or maintain as much office and is an obvious gain for business. An obvious gain for employees is not having to commute as much, or ever. There's a lot of travel that won't ever happen again either. This is a rethink moment for everyone involved. Oil won't be as desirable afterward.

3-31-2020 **Rolling Back.** News of the inevitable came today. Those climate policies set in place by the previous administration are no more. Automotive emission standards have been weakened with the excuse of saving money, which makes them more accessible... as stated by U.S. Secretary of Transportation: "*By making newer, safer, and cleaner vehicles more accessible for American families, more lives will be saved and more jobs will be created.*" That has never made any sense, especially this time when the claimed savings is just \$1,000. The report I found from Consumers Reports on this topic states the opposite. It will increase fuel cost by \$3,200. It will increase vehicle cost by \$2,100. And it will cost to nearly every state (45 of 50) at least \$1 billion in net consumers losses. That impact from dirtier air is significant. Ironically, we are dealing with the worst air-borne virus spread in human history right now. So that last thing you would want to do is make a decision to add pollution to the air, making it even more difficult for our lungs. Yet, that is exactly what's happening. There's simply no excuse for allowing more carbon and more smog when hybrids have proven quite worthy of reducing those emissions and PHEV & BEV are actively proving even more. The solutions are already established. Heck, even solar hit the tipping-point last year, making it price competitive with fossil fuels... well, until the stay-at-home paradigm shift anyway. Rolling back is absurd. I can't believe so many cruel & evil people have been put in place to empower greed. This legacy will we pass down to our children is shameful.

4-01-2020 Predictions, bankruptcy. They are especially good when it comes in the form of an assertion: *"In ten years or so Toyota declares bankruptcy, the subsidiary get's spun off to pay off creditors, and the subsidiary buys the Toyota name. This way the Toyota brand lives on without the legacy factories weighing them down."* I was amused by that. It was confidence without substance. Not liking the approach is no reason to call it a failure. There is no merit to drawing that conclusion. If Toyota is to fail, what about all the other industry players in no where near as good of a position? It makes no sense, especially without any reference to what the industry stance will be in that timeframe. I fired back with:

Toyota recognizes & responds to what is actually happening to the market here and you declare their doom. Nice.

Reality is, neither their dealers nor mainstream consumers care about BEV choices. Cost is still far too high and infrastructure far too lacking. That will changes throughout this decade and Toyota is preparing for that... as evidence of this article confirms. They are using compliance to refine future all-market offerings. Remember, the goal is to offer something that is both profitable & sustainable without subsidies. Initially focusing on a specific market supportive of that makes sense.

Meantime, Toyota is pushing EV technology into the market here which legacy automakers been reluctant to pursue... the SUV with a plug. That upcoming RAV4 Prime is exactly what mainstream consumers have been begging for. Heck, even supporters of Voltec overwhelming validate it is what would appeal to ordinary shoppers.

It's really unfortunate so many BEV enthusiasts have turned a blind-eye to what the business truly needs. A powerful SUV offering 39 miles of EV travel, while also delivering AWD and basic towing, is that product this market has been waiting for. Toyota has acknowledged that and will soon be fulfilling the demand with a product which will significantly reduce carbon & smog-related emissions. Attempting to spin that to a bankruptcy outcome is absurd. You do realize the electric technology in PHEV is the same as that for BEV, right?

4-01-2020 **Predictions, suddenly.** This is the response I got: "*In three to five years you'll start seeing all-electric SUVs that cost considerably less to manufacture than the RAV4. Suddenly there will be zero reason to buy a hybrid.*" That of course stirred my attention to being vague. Start is a meaningless term. There's no scope whatever from that. From the time a person first sees a Prius to the time they see one sitting in a driveway somewhere in their neighborhood or a few times on a daily commute could be quite a few years. That already puts us at something like 6 to 8 years out. There's nothing "*sudden*" about that. Sure, it might alter perception of industry, but it doesn't change what people drive for a long time. Transition is painfully slow even when the technology is readily available. Cost plays a major role and typically takes a few generations to finally squeeze out the well-established technology. I pointed out:

3 to 5 years! No, that's not at all realistic. In fact, you've lost your mind. The 2020 RAV4 LE has a 14.5 gallon tank, delivers 30 MPG efficiency, for a 435 mile range. That means the customer is going to expect at least a 300-mile potential to be considered competitive. That requires a 75 kWh battery-pack. That RAV4 has a sticker price starting at \$25,950. How much is the price of an equivalent Model Y today? Answer: it starts at \$52,990.

Toyota will be giving customers a taste of EV driving. It won't be cheap, but it require any compromise. At the same time, Toyota will be building up production of the same cells that will be needed for BEV choices. So what if they start their real-world experience inside a PHEV instead? The experience & relationship with a supplier will become well established while the battery market takes shape.

Sorry, but your rosy picture of a soon-to-be-future isn't based on any type of substance to build upon. It will happen, but no where near as fast. That isn't even taking into account the forces against the technology either, like dirt cheap oil.

4-02-2020

Predictions, capacity. The requirement of roughly 100 kWh capacity as a minimum for BEV to take on traditional vehicle replacement should be obvious to anyone studying the market. It comes down to the cold, hard reality of expectations. People will want an effortless 300'ish miles of range, period. No matter how much that defies logic, it is what will be demand. Want overpowers need. We have seen that play out over the past 2 decades. What people believe is more important than the facts saying otherwise. That's how we ended up with giant guzzlers. People just plain did not care about what we truly important. Their priorities didn't have to be logical. It is driven by emotion, not critical thinking. So, even when there is seemingly sound argument, the detail tends to reveal shortcomings. For example: *"Price parity estimates generally assume a 60kWh battery pack at \$100/kWh. That price point will be reached within 4 years. If you feel that parity requires 75kWh then it's still only 6 years out."* It seemed a sound reply to my reaction to the suddenly claim. He tried to convey consumer reaction based on trends of the past, with regard to early-adopters. That's the trap enthusiasts easily fall into. He clearly did too. I tried to present reason to second-guess his own reasoning: That price parity generalization misses the point. 75kWh is a minimum for acceptance. It delivers 300 miles in nice conditions. In the winter, between heater consumption and longer commute times, the resulting low 200's will not appeal to the masses. That means we are realistically looking at 100 kWh capacities for something competitive. To be able supply enough vehicles with that at a competitive volume is very wishful thinking. Trend data shows us how slow ramp-up & acceptance on the scale (a sizeable chunk of each automaker's production) will take awhile, without even taking into consideration the disastrous economic situation currently playing out. We're talking end of decade.

4-03-2020

Fighting Fire. It is interesting how some will place blame elsewhere, like on an executive or corporation for the sake not having to actually deal with the problem... or so it would seem. But when you look deeper, what they are really doing is shifting attention to you. Notice that from this subtle message: *"Well, sorry if I don't go along with poisoning my fellow Americans so the ultra rich can make more money. But yes, if cheering on someone who will *** over the little guy for the sake of the super rich becoming richer, conman president is certainly the guy. Rolling back the automotive mileage standards will only help Big Oil CEOs. Period."* In other words, by not agreeing, they feel it disassociates them from any responsibility or obligation. That is basically a "bystander" defense, providing an excuse not to have to do anything. It's why there was always such a fundamental hate for Prius. Continued success of the technology Toyota had employed meant change throughout the fleet. In fact, that is why the Volt enthusiasts kept making Prius the focus of attacks and pretended no other hybrid existed. By ignoring Camry & RAV4, hope was that would hold back market growth. Ultimately, those efforts fail. We're seeing it now with arguments like the one mentioned here. That comment doesn't actually achieve anything. He was upset at Toyota's seeming forgiveness of what's happening with EPA regulation. In reality, the situation is quite the opposite. I doubt he'll open his eyes enough to see it. But maybe someone following the thread will:

Looking at the bigger picture, the real problem can be seen. Rules get tied up in litigation. It ends up wasting resources, time & money that could just be otherwise used elsewhere... like for advancing battery tech. In other words, there are many who have fallen into the trap of thinking regulation what brings about innovation. Forcing change doesn't work.

Try looking at it from another perspective, offering incentives. The tax-credit was exploited by GM, used for conquest sales rather than actually bring about change to their dealerships and loyal customers. It was just another way to waste resources. Not only did Voltec fail so bad it was abandoned, that also served as an excuse to abandon cars too.

We see the self-destructive efforts to push SUVs and Pickups growing. People will fight intensely to own that type of vehicle. This is why Toyota is about to rollout an impressive plug-in hybrid SUV. The narrative of greed doesn't work when we now see that they are fighting fire with fire.

4-04-2020 Denial, Dysfunction, Delay. Leading to the election of this president, we heard him complain about how terrible the current administration was, that he would fix mess when he got in office. 3 years later, we are far worse off and all he can do is blame his predecessor. There's no accountability whatsoever, despite so much time and so many warnings since getting elected. That complete absence of responsibility is exactly what I saw play out with GM. Anyone who served as an excuse would be dismissed, so there would be no one to actually fulfill an obligation. Goals themselves were always ambiguous, where there wasn't any good means of measuring progress. It was a mess for the automaker and is now a mess for the government. In other words, failure of leadership can happen on any scale... using the very same techniques. Watching those familiar tactics successfully remove checks & balances, systematically until there's nothing to provide resistance anymore, is so disheartening. It's not the act of that happening, it is the enablement. So many people turn a blind-eye to those activities. Some even claim they are beneficial, accepting mixed messages and missed milestones as part of the process. None are willing to face the consequences. Remember the disaster Volt enthusiasts encouraged? Remember why they did that? Notice how none of them are around anymore to help GM get out of the mess their support made possible? This all too familiar pattern is easy to see, if you look for it. Most people don't. That is your warning of problems to come.

4-04-2020 **Behind?** I found this intriguing: "*If GM is one of the 3 furthest behind in electrification, then how come they were just 3 months behind Tesla in having their cars phased out the U.S. Federal EV tax credit?*" The reason why should be obvious. There is a new audience now. All the apologists are gone. In fact, it is as if Volt itself is dead. You simply don't hear from owners anymore. That's because many have moved on and the rest don't see any point. Why support a technology GM itself has abandoned? There's nothing to achieve anymore. No matter how much of an endorsement an owner provides, it falls on deaf ears. No one cares anymore. So, my intrigue comes from hearing what others think GM's next step should be. Volt enthusiast absolutely hated Toyota and refused to acknowledge there would ever be a next PHEV offered. Now that there will be, I'm really hoping someone will provide constructive feedback. I tried to stir discussion on the thread addressing EPA rollouts and how GM fits into that:

GM isn't really behind, it's just suffering from self-inflicted wounds. Their tax-credits were wasted on conquest, rather than using them to transform dealers and loyal customers. Think about who purchased Volt. Those buyers were just outside enthusiasts taking advantage of the opportunity, people who never owned a GM before just enjoying the early-adopter bargain. Most simply moved on to other brands as their lease expired or to pursue the next opportunity. So much was lost by not rolling out Voltec to something a current GM owner would likely upgrade to. It's sad the entire idea of a PHEV offering got abandoned. But that was the choice GM made.

Ironically, many made fun of Toyota for taking the time to target their own loyal customers instead and following the path of Tesla. So what if the narrative of "*behind*" gives an impression of struggle? Anyone taking the time to look at the bigger picture can see the long-term strategy of using the unlimited aspect of tax-credit phaseout is a very wise move. Look at how well that worked out for Model 3. Figuring out what will appear to showroom shoppers in the meantime is priceless.

As for the topic of regulation/mandate rollbacks, the expense related to litigation for establishing them in the first place requires a great deal of resources. It's simply better to stay focused on the goal instead. Even if there is no enforcement of it to push the rest of the industry, those other automakers will have no choice but to deliver something competitive in the end anyway.

4-05-2020 **20 Reasons Not To Buy, propaganda.** Today got off to an interesting start. It was obvious from the beginning it was an attack article written to mislead about Tesla. You could tell it had been circulating media sources for awhile; Model 3 was listed as "*recent*" and no mention of Model Y. Those electric vehicles have captured the imagination of consumers; however, there are supposedly 20 reason they should not be purchased. Coming from an enthusiast source... you know, those old-school collector & muscle publications... this was no surprise. In fact, that kind of nonsense is the propaganda we saw 20 years ago, unchanged. The comprehensiveness of their campaign to undermine is what we've come to accept. They simply don't care and willingly circulate incorrect information. It's really unfortunate, but understandable. There is no way to compete with electric. The performance from motor & battery is impressive. Tesla has exploited that, fundamentally changing the "*sport car*" experience. The silent speed & power is difficult to compare. Making a gas-engine capable of that is far more difficult. As for responsiveness, there is no way to deliver such an experience. Tesla is a clear winner in that regard... and they don't like it. In fact, this is a case where "*vastly superior*" actually has merit. Whoa!

- 4-05-2020** **20 Reasons Not To Buy, highway.** The first reason setup the tone of the article: "*And since there isn't much braking on the highway, the battery rarely gets recharged, so the range is small.*" It also treated the audience as idiots by conveying a long-time debunked misconception. The claim was efficiency was the opposite as cars with a gas engine. They try to portray the use of electricity as a penalty. But to do that, you must disregard the past 20 years of real-world data from hybrids. If that was the case, there would be no MPG improvement from them. Reality is, there is no such thing as a highway that has neither hills nor traffic. Both engage regenerative energy capture, without ever touching the brake-pedal. That helps to prevent loss which traditional vehicles have no means of dealing with, that opportunity is lost... wasted energy. The other loss is from the inefficiencies related to city & suburb driving. That's obvious with a traditional vehicle. Even with start/stop ability, there's simply no comparison to the complement/supplement of power from an electric-motor. Of course, you must disregard the law of physics related to aerodynamics to believe any of the enthusiast gibberish anyway. The faster you drive, the more resistance there is. Air pushing against the car presents a greater penalty at faster speeds. It's not linear either. The cost to efficiency is quite dramatic as you speed up.
- 4-05-2020** **20 Reasons Not To Buy, hype.** The second reason was just plain stupid. It focused on the "*look at me*" attitude supposedly coming from owners. That's so hypocritical, it's hard to believe that was so high on the list. A quick glance on their homepage was exactly what they were complaining about. Every single photo screamed exactly that. They are major source for hype. Simply driving around a Tesla is not a statement for attention. Most owners are just endorsing what they believe by making that purchase. They are voting with their wallets. Driving around a muscle car, especially those featured in the photos with fancy paint & highlights, is a statement of what? Ugh. Sometimes, you are just left in dismay.
- 4-05-2020** **20 Reasons Not To Buy, environment.** Next came a rant about battery production. It was horribly vague and claimed: "*...their factories pollute the air as much as driving a conventional car for eight years.*" I found that especially amusing. Since when is the lifetime of a vehicle only 8 years? Why was the write so afraid of mentioning what happens in the following 4 years? After all, that is what vehicles tend to average now before being replaced. And why no mention of recycling? Even if the initial production pollutes, what about the significant reduction that comes from reused those same components again later? Of course, the whole "*pollute*" reference was rhetoric anyway. When there is no distinction between carbon emissions and smog-related emissions, be suspicious. That type of detail omission is a red-flag. Though with an article listed nothing but a paragraph for each reason, that isn't anything you'd call journalism anyway. Lastly, there's never any perspective given. How dirty is any of that compared to a traditional vehicle burning petroleum and the process used to acquire that vehicle & fuel?

- 4-05-2020** **20 Reasons Not To Buy, charging.** The usual lack of charging stations was brought up, as if that was the only place you could ever refuel. No mention whatsoever was made about the convenience of simply plugging in at home. Again, it was all horribly vague, nothing but a paragraph for each claim being made. Travel was emphasized to draw attention away from everyday use and multi-vehicle households. It's that mindset that a single vehicle must deliver absolutely everything you would ever need for transport. That's how we ended up with giant SUVs that never go off-road and never tow anything. You must always be prepared for an extreme. Ugh. Though, this is a know your audience propaganda piece. It appeals to those not wanting to actually consider want verses need.
- 4-05-2020** **20 Reasons Not To Buy, time.** Again, spin in the article required you to imagine charging only takes place at charging stations and is required for any type of travel. That made the "*too long*" narrative for timing easy to emphasize. No mention of any charger availability at home is key. If people don't ever realize a EVSE is available... or even see the acronym to wonder what it means... they'll just assume the worse. It stands for "*Electric Vehicle Service Equipment*". That non-descript label & term does actually serve a purpose. It draws attention to the fact that there is something else involved in the process. When you tell people it is basically just a large adapter, they can readily understand how it can be used at home. Just like plugging in your phone to recharge, it's all you ever need to do. That's simple and requires no thought about how long it will take. The device is ready whenever you are. So, conveying a message of overnight recharge is no big deal. It just works. No worries. No need to ever hunt down a charger when you are out & about your daily routine.
- 4-05-2020** **20 Reasons Not To Buy, scary.** Fear is a tactic I was surprised not to see right away. The message conveyed was service would be limited & expensive. If you have a problem on the road, it may be impossible to get help. Ugh. It went on to stress: "*Also, roadside service won't help you if you run out of electricity, which is the most common problem.*" That is an outright lie. Some services offer generator service to allow you to charge enough to get to an electricity source. Those that don't will simply provide a tow for the same purpose. It's not like you would ever be complete abandoned. After all, how far away is the nearest public outlet? It's not that big of a deal and it a rare circumstance anyway. Gauges in the car and apps on your phone make it very easy to recognize state-of-charge and where to replenish. After all, 100% of all vehicle service providers have electricity. If all you needed was to just plug in, they could provide that. It's amazing how fear is used to scare people into resisting change.
- 4-05-2020** **20 Reasons Not To Buy, spare tire.** At this point, I am already growing tired of reading such nonsense. Roughly 75% of new vehicles don't come with a spare tire anymore. So, it doesn't matter anyway. After all, there's plenty of cargo room in a Tesla. The frunk (trunk in the front of the vehicle, space available for a spare since there is no engine) is an option. There's the usual repair-kit that vehicles without a spare include. That's a jack, pump, and goo to seal the tire. Again, how often are you going to travel long distances anyway? If you are just roaming around the metro area and suburbs, help is always near by. Getting a quick patch or replacement tire can be done anywhere and has absolutely nothing to do with being a plug-in vehicle. This article tries to misrepresent electric propulsion as somehow being different. If your combustion engine dies while on the road, you don't expect the repair to take place on the spot. Towing to a shop for service is routine for any type of vehicle.

- 4-05-2020** **20 Reasons Not To Buy, tires.** The insane acceleration Tesla offers will cause the tires to wear out quickly. Since when is that a reason to not buy one? Will anyone be using that neck-breaking speed for ordinary driving? No. In fact, that is absurd to even mention. Yet, it was. And not only was that highlighted, they was presented as if there was no way to avoid the acceleration. The writer was attempting to create a misconception that the huge amount of torque available from electric motors was the only way they operate. It's too easy for a belief like that to be spread. They just over emphasize to make you forget about ever taking anything else into consideration. It's a common deception technique.
- 4-05-2020** **20 Reasons Not To Buy, cold.** I became irritated by this: "*It is long known that electric devices are not dependable under cold temperatures.*" It then went on to add: "*some systems may stop working...*" That is an outright lie. There is nothing about Tesla, or any plug-in vehicle for that matter, that has dependability issues in the cold. There is no concern whatsoever for operation to fail. If you have electricity, no different than having gas, the system works just fine. Such a blatant attempt to distort reliability is a clear act of desperation. At this point, there should be concern for what this article will stir. It is a source for feeding rhetoric. Misinformation written like this is for the intent of causing harm.
- 4-05-2020** **20 Reasons Not To Buy, slippery.** If you keep repeating the same message over and over again, people loss touch. The undermining takes hold. In this reason, the claim was "*Tough to drive on slipper roads.*" That is also an outright lie. The "*enormous torque*", as they put it, has literally nothing to do with driving on snow or ice. It went on to state "*even the slightest acceleration is a problematic*". Then it continued by including "*dangerous*" to make sure you feared the technology. Again, that is a crock. For me in the Prius Prime, there are buttons to adjust pedal sensitivity. If you want more play, don't use the POWER mode. Geez! This isn't rocket-science. It's just a matter of switching to NORMAL. You can even go further by switching to ECO. Then, it's no big deal on those "*challenging conditions*". What kind of people believe this crap they are shoveling?
- 4-05-2020** **20 Reasons Not To Buy, breaking.** This one was quite amusing. When a publication about vehicles calls it the "*Breaking System*", you have to wonder how that article was sourced & edited. But then again, perhaps not... since they wrote this: "*First, they use regenerative braking to recharge the battery and second they sometimes brake without stopping the wheels by cutting the power to the engine.*" That makes no sense whatsoever. There is no engine! And if cut power flow from or to the electric-motor, there is no longer any resistance. That's like shifting to neutral, which would do nothing whatsoever to contribute to deceleration. They were obviously just making up brake information to mislead & confuse. What I found most telling though was how it gives you the impression there are no friction brakes available. Omitting that information about the vehicle having the ability to stop using ordinary brake-pads is a major clue to intent. This was undeniably more evidence of wanting to deceive by dishonest means. You cannot just leave out vital facts, especially with regard to safety.

- 4-05-2020** **20 Reasons Not To Buy, charging.** Oddly, it was brought up again. Listed the same reason a second time goes beyond desperate. The emphasis was fear. It brought up "*range anxiety*" and stressed the problem of going somewhere with few charging stations available. It became clear way with this statement: "*Also, if you want a good charging station at your house, it will cost you and take time to install.*" The writer was being vague for good reason. He wanted you to get the impression recharging with an ordinary household outlet was impossible. You are lead to believe not only is a "*good*" charging station required, is that if you have a bad one there may be issues. Ugh. I can't believe I put up with reading this rubbish. But I will persist and find out what nonsense is to follow.
- 4-05-2020** **20 Reasons Not To Buy, purchase.** Blah. You are told the new way of selling vehicles by Tesla is "*strange*" because it is unfamiliar. That of course is yet another attempt to appeal to fear. To be new is to be bad. Of course, then came the outright lie: "*Also, there is no test drive. Dealers have no test cars and they are not allowed to take you on the promotional drives.*" That is so far from the truth, I don't even know how to reply. The writer was trying to portray a purchase experience of being forced to making your decision sight unseen. This is how an antagonist raises doubt. They spread misinformation that you would be difficult to verify. Unless someone actively seeks an answer, how you find out?
- 4-05-2020** **20 Reasons Not To Buy, cupholders.** Really! Not having any available in the back is a reason not to buy? Purchasing an aftermarket cupholder for rear passengers is such a complicated & expensive process, the entire decision should be abandoned. Ugh. Of course, that too may be another lie. A quick online search reveals complaints about the location in the armrests not being well thought out. So, either that wasn't available initially or you are lead to believe that hasn't ever been an option is really pushing it... because that search also revealed a wide variety of upgrades. You could choose anything from a cheap plastic window mount for just \$1 to a fancy aftermarket leather-wrapped \$350 console to fit between in the middle above the flooring. Needless to say, that is an absurd excuse for deciding not to purchase.
- 4-05-2020** **20 Reasons Not To Buy, finish.** Quality of vehicle assembly is very much a subjective element, if explained. Different people have different priorities. I could see how that may be a valid point to list, if there was any actual detail included. To just say "*lacking*" doesn't actually tell us anything. It's the same old spin we've seen for years with Prius. People would complain with claims of being unacceptable, but never really explain what they were referring to. It's the avoidance of detail that's a dead giveaway. Lack of substance tells the real story. So even if they have something legitimate to convey, they didn't actually do it. The message of disappointment is transmitted with the hope you won't question why. I don't find that helpful at all. It's no different than reading product reviews for anything else. If it is just a vague low-rating post without any explanation, there's no reason to accept what was posted... literally. What was the reason?

- 4-05-2020** **20 Reasons Not To Buy, software.** This one was pure gibberish, like when you listen to our president. The claim was the system gets regular software updates: "*However, sometimes, the updates are too advanced for the drivetrain. So, to keep up with the new version, you need new hardware or a new drivetrain.*" What kind of nonsense is that? For that matter, what kind of person is supposed to believe that load of garbage? The updates are just refinements to the existing system. There is nothing required physical changes. I find it amusing to see that "*too advanced*" in the claim. What in the world would that actually mean? Think about it. What would that refer to? There's simply nothing of merit to support the claim. Heck, you can even look up the software versions and see what was included. It's all improvements to what already exists in the vehicle. Like updates to your phone or computer, there's never any new hardware needed. Ugh.
- 4-05-2020** **20 Reasons Not To Buy, expensive.** Just when you thought you've seen it all, they make the "*too expensive*" statement. That seems reasonable too, reading further: "*...that is more expensive than comparable electric cars from other manufacturers.*" Huh? What else is comparable? The luxury features from Tesla are no match to mainstream offerings from GM, Nissan, or Hyundai. All are a lower grade of build, that way for the clear purpose of appealing to a mainstream customer... not someone willing to pay more to get more. Interestingly, another "*you can't even test drive*" comment was added to this reason. Again, that is just plain not true. So at best, we're dealing with vague references. More realistically, this is just more misleading by being vague and making implicit references with the hope you'll make incorrect assumptions.
- 4-05-2020** **20 Reasons Not To Buy, resale.** This reason stated off good, pointing out how the evolving market makes used values difficult to predict. But then the topic of worth diverted to recycling, with the claim that "*...this is not possible since the batteries aren't recyclable.*" They are nothing but a string of many, many, many rechargeable lithium batteries. Those are already known to be commonly recycled. There are collection bins for lithium batteries in many retail stores already. It's not a big deal and more definitely is possible. I'm quite annoyed at this point, but only having 2 reasons remaining, I'll stick with the commentary. Blah.
- 4-05-2020** **20 Reasons Not To Buy, repair.** The element of fear "*get stranded by the side of the road*" was added to the claim of it being impossible to repair. Overlooking the fact that a plug-in vehicle is far less likely to strand you anyway, since the design is much more robust than a combustion engine with hundred of moving parts, there's the reality of not being able to repair them on the side of the road either. If your vehicles somehow loses power and forces you to pull over, what would you be able to do right there on the spot to get it going again? Is there anything in a traditional vehicle than can be fixed easily, at the location, without any tools? I can't think of a single thing you'd be able to do with respect to needing a mechanic. Unless it is a flat tire, you're going to need a tow anyway. In other words, this reason was a red herring.

- 4-05-2020** **20 Reasons Not To Buy, self-driving.** It was stated this way: "*Self-Driving can provide a false sense of safety. And Tesla car had been particularly problematic.*" What does that have to do with the technology itself? We all know people have been mislabeling autonomous features, leading you to believe the technology is so advanced the car will handle everything for you. That has never been true and warnings are given on a regular basis to that affect. The "*full self-driving capabilities*" advertised are for future software upgrades. The advanced hardware included capable of providing "*no action required by the person in the driver's seat*" is clearly identified as a forthcoming feature. It isn't available yet! The word "*future*" was quite intentionally excluded from the reason... which is why it was labeled as a "*Self-Driving Scandal*". The only deception about how it works comes from those trying to undermine success.
- 4-05-2020** ***Phew!*** Reading those 20 reasons was painful. It was a great example of the extent some people go to for the sake of misrepresenting technology that brings about change. Focus of the article was Tesla, but it's easy to see how Toyota has been a target of the same type of efforts to impede progress. We have seen that same nonsense for 20 years now. A great deal of effort is used to feed misconceptions and to spin facts. Some won't even bother with that; they will just keep repeating the same lie over and over again until source is obscured and detail forgotten. You'll get assumptions and experiences confused as mixed messages come into play. A simple look at GM is all it takes to wonder what's really going on. If Volt was so great, how come no other plug-in hybrid will be offered? And if Bolt was proven to be superior to Voltec, why isn't it selling well and where are other BEV models? There's a lot working against advancement in the automotive industry and Tesla has emerged as the Apple equivalent. People that are willing to embrace the proprietary approach and willing to spend a premium to get it will be very happy with their purchase. That leaves the rest of the market vulnerable to narratives... which is how Tesla becomes a means of undermining everything. If it continues to be successful, it is labeled as a niche. If it shows any type of weakness, it is sighted to be the canary in the coal mine. It's a lose-lose situation, which is why I took the time to explain how the attempts to misrepresent come about.

4-05-2020 **5,873 Sold.** That's the total reported for quarterly sales of Bolt. Everyone knowing there was a scramble to take advantage of the final tax-credit opportunity, it didn't need attention. Instead, the posting started with a comment about the crazy discounts. I see this as much worse than the situation Volt was in. At least with it, there was still attention given to the effort of GM to push electrification. True, they were without merit. But nonetheless, there was a spotlight. Now, there's nothing. Everyone jumped ship. You simply don't hear anything about Bolt anymore. A few weeks ago, we got news of a mid-cycle upgrade coming for the 2021 model. But with stay-at-home severely impacting expectations for the industry, those plans were abandoned. Bolt will supposedly get upgrades in 2022 instead. Sales began in December 2016. That will its sixth year. With sales just barely above what Volt was able to achieve (an average of 1,600 to 1,700 per month), what would that accomplish? It represents no growth in a time when the rest of the industry is seeing new choices. Think about what RAV4 Prime alone will do for putting pressure on GM to finally deliver something their own loyal customers will be interested in. This takes "*too little, too slowly*" to an extreme. Voltec failed to achieve change, despite getting so much praise for being a game-changer. Bolt has done what? Remember, the goal is to find something to replace what's on the dealer's lot. All I see is growth for more SUV and Pickup sales. Why is their no push for something, anything with a plug? Here's what I had to say on the topic today about recent Bolt sales: We have been told Bolt doesn't make a profit, so the crazy discounts only serve to keep inventory moving. GM's own loyal customers aren't interested either. That is in no way a sustainable business model. What is the point?

4-06-2020 **Facing Insanity.** How would you deal with it? I now have 1,000 pages of personal log documenting 20 years of my experiences. It's rather amazing how the crazy debates grow to the point of insanity. You wonder how the heck a person can be in such deep denial, outright lying without any care or concern. People support that too, enabling even more. I'd face it both frustrated & bewildered. It's not the kind of thing you would ever want anyone else to also have to deal with; yet, here we are. My exposure was confronting antagonists fighting Prius and what it represented. Everyone else has forcefully been drawn into to the consequences of having elected a president clearly not interested in taking care of the country. I have learned to counter the appeal to emotion with substance. In other words, my best offense was to hit troublemakers with real-world data. The following is what a physiologist shared about the situation, a description I found all too familiar: "*The sense of grandiose omnipotence that he displays seems especially appealing to his emotionally needy followers. No matter what the world says, he fights back against criticism, continues to lie in the face of truth, and above all is still the president. What matters is that he is winning, not whether he is honest or law-abiding. This may seem puzzling to the rest of us, but when you are overcome with feelings of powerlessness, this type of cartoonish, exaggerated force is often more important than true ability. This is the more primitive morality, as we call it, of "might makes right", which in normal development you grow out of by five.*"

- 4-07-2020** **Volt Owner Review.** It was refreshing to look backward now, on a past that really was history without a twist. I wondered how long it would take to actually reach this point. A video review from a Volt owner was shared. This is what I posted as a comment after watching: The video was nicely done, an excellent footnote to what things were like back when GM still had lots of potential in that market. It is really unfortunate that opportunity to expand Voltec to more desirable platforms wasn't pursued. The most obvious next step would have been to offer a PHEV model of Equinox. With so much experience, so much of an investment, so much of market yearning for exactly that, the decision not to is baffling. True, it would have upset the fragile equation of profit. But then again, seeing GM push the tech out to more vehicles would have enticed dealers to endorse it. The mixed messages about its future and knowing other automakers were more interested made it a hopeless cause. When his lease expires, you think he'll get a RAV4 Prime? The better seating, the larger cargo, the more efficient heater, the AWD system, the faster acceleration, the ability to tow... It does make you wonder how GM will respond to such an offering.
- 4-08-2020** **Caught Unprepared.** I certainly have a lot to say on this topic. Over and over and over again, I repeated the "*too little, too slowly*" concern. There was years of downplaying the situation and use of every possible tactic available to try to get the speaker to shut up. Sound familiar? That same type of nonsense from both Two-Mode and Volt... it's hard to believe such terrible history could repeat like that... is now happening right before our eyes with our presidency... every excuse imaginable, along with finding someone to blame. Upon getting caught unprepared to such an extreme, what option is available at this point? It's the trapped-in-the-corner situation again. That's quite remarkable. Opportunity was wasted. Time & Resources were squandered. The very same reaction witnessed all those years ago... lash out at anything... the final act of desperation. This is the consequence of not preparing. Denial of the problem won't make it go away.

4-09-2020 **10 Miles.** That's the rumor circulating today about the EV range for an upcoming PHEV model of F150 pickup from Ford. This comment, in the long discussion thread, is what caught my attention: *"...it won't be worse than the first generation Prius Plug-in, which had an all-electric range between 0-12 miles. You ask how Toyota could possibly build a plug-in car that might have an AER of zero miles? I don't know; ask them! Seems like an amazing feat of engineering to me."* It came from a known troublemaker and was my invite to dive in... and I did:

AER (All Electric Range) was a marketing term coined to distinguish plug-in design like Volt from Prius plug-in. Since they served entirely different purposes, it made sense. Forcing an unfit definition on so many years later does not. So whether it delivered 0 miles or 12 miles was always a moot point, a red herring with the intent to mislead about how the system actually operated.

Having a larger battery and a plug was provided Prius with the ability to take advantage of supplemental electricity from a source other than gas. That provided more power for a MPG boost. The system was able to draw 38kW for propulsion. If demand was below that threshold, the engine would remain off. If it exceeded that, the engine would start to provide the additional power needed.

Prius Prime has a larger battery-pack, providing the ability to draw up to 68kW of power for propulsion. That's enough to accelerate onto a highway and cruise up to 135 km/h (84 mph) without the engine ever starting. Of course, calling that distance AER is a moot point now too, since Volt is dead, has no successor, and lacks what comes standard on Prius Prime... a heat-pump.

In short, your criticism of "worse" doesn't take into account what really matter. The vehicle will still be taking advantage of a plug, regardless of whatever rating or label it is given... using electricity instead of gas.

4-10-2020 **Guessing Operation.** Having a discussion about a plug-in hybrid pickup brings in an entirely new group of people into the mix. Some have no background whatsoever and just start wildly guessing about operation, how the upcoming new system will likely work. That means all the same old assumptions get stirred up again. In this case, it was about horsepower. I jumped in to provide some insight: Horsepower equates directly to battery size, not just what motor is available. We've seen that with Prius. As the pack grew, so did the power without any change to the hybrid system itself. The gen-1 model increased from 27kW to 38kW from nothing but capacity increase. The gen-2 model introduced a clutch, so that larger pack combined with a second motor distorts the calculation. Be careful when looking at numbers. In this case, that is correct, 44hp would be just an assist. Prius Prime is able to draw 68kW from its pack. The result is 91hp available for EV driving. That's enough to propel that size vehicle just fine without ever starting the engine. The same cannot be said for a much larger vehicle, like F150.

- 4-10-2020** **Building Narratives.** There are some who have questionable motives posting stuff like this: *"...it's because Toyota isn't interested in building anything more than mild hybrids."* then go on to include: *"...it's safe to say the percentage of electric-powered miles is far lower than it is in a properly designed and built PHEV, such as the Chevy Volt and the Honda Clarity PHEV."* It originates from being a Volt owner, then getting burned by GM abandoning the technology. But what was the purpose of becoming a plug-in owner if you don't want to see the market move forward? So what if your preferred approach failed. That's no reason to spin stories to build narratives about another that is showing genuine progress. Annoyed, I responded with: Trying to relive glory days of past doesn't change the reality that GM chose not to participate going forward. Voltec died as a result of the decision not to spread it to other vehicles... like a SUV or Pickup. Meanwhile we see this Pickup planned from Ford, along with a SUV. As for the nonsense of *"properly"* designed vehicle, the avoidance of addressing how Toyota's tech advanced is quite obvious. The effort to not mention Prius Prime's ability or its successor, the upcoming RAV4 Prime, couldn't be any more of a wish-GM-would-have-done-that situation. How will GM respond? It is all about targeting the core market. That's why Ford is looking into augmenting a F150. Owners will be thrilled to finally get an electrification choice that will return a noticeable gas savings. Whether or not it meets your approval as a Volt enthusiast doesn't matter.
- 4-10-2020** **Who?** It continued with a long, drawn out soapbox presentation. It was a pie-in-the-sky presentation without any scope. You know they type, where both audience & timeline is undefined but no one seems to have a problem with that. So it sounds credible, but there was no relation to how it applied to the situation at hand. In other words, it was a long-term prospective completely void of any relevance to what happens right now. That happened a lot with Volt in the past. They focused so much on the ideal, they lost touch with the moment... which is how so much opportunity was missed. Who was all that supposed to be addressing? I grabbed to of the basic conclusions draw without any supporting evidence to rebut with: Again, who are you trying to make a case that *"the days of the PHEV are over"* to? The painful lesson learned by Volt enthusiasts is that they had no audience. Their preaching to the choir meant nothing to mainstream consumers, those who shop the showroom floor. So, none of their claims of superiority ever reached beyond the niche. It turned out to be an approach that didn't appeal. Why? That question is what should be addressed, not drawing a conclusion of *"I don't think PHEVs satisfy anyone anymore."* simply based upon generalizations of simpler & cheaper. After all, that doesn't at all resemble the business of automakers or dealerships. Think about it. What is your sales pitch to a potential buyer? Remember, the audience. What does a SUV or Pickup shopper consider for purchase priorities in 2020? How are you going to convince an ordinary person that short EV distances from an ordinary household outlet for a reasonable price isn't better than the other choices there on the lot?

4-11-2020 **Sarcastic Insults.** This was inevitable: *"Gee, Toyota has "advanced" the state of its PHEV tech from "0 to 12 miles" all the way to... well, they are touting "39 miles" for the upcoming RAV4 PHEV."* I seek out that type of attack, where they try to put you on the defense, as an opportunity to take an offensive position. I certainly took advantage of that this time, creating a nice outline of what he was attempting to avoid:

Pretending to address the tech by throwing out one random fact is a dead giveaway of a nerve being struck, especially when the post ends with both *"sad"* and *"pathetic"*. The reason why is obvious, those other facts are quite relevant to this discussion as well. Those characteristics carry over nicely to a pickup.

SIZE matters. The offering from GM had a cramped interior, but included a technology lots of potential. Unfortunately, the opportunity to make it grow into a much larger vehicle was squandered. Toyota will soon be delivering that instead.

SPEED draws lots of attention. Whether it's useful or not, that is a selling point. Showroom shoppers are impressed by the ability to accelerate quickly. 0-60 in 5.8 seconds will put many vehicles to shame. That will indeed be impressive.

HORSEPOWER for those times you do actually load up the vehicle or find a need to tow, that desired power is there. The upcoming plug-in hybrid RAV4 will deliver 302. Having so much torque available is part of the fun-to-drive equation too.

AWD is a major selling feature, so much so, even a model of both Prius and Camry offer it. That is a purchase priority for many. Having it included as a standard feature for the PHEV in a SUV platform totally makes sense.

HEAT-PUMP offers cabin-warming efficiency many plug-in owners are envious of. That is most definitely advanced tech to avoid discussion about what you are trying to undermine the message of automaker progress.

EFFICIENCY when the battery-pack is depleted will be impressive. Just like the other Prime design, resulting MPG from hybrid mode will be substantially higher than its traditional size & power counterpart, about 38 MPG.

RANGE seals the deal. As much as enthusiasts tout the desire for more, real-world statistics simply doesn't support the claim. Ordinary consumers simply don't routinely drive beyond those 39 miles of EV it will provide. In other words, all those facts avoided add up to make a compelling purchase. And that's without mentioning the 10-year, 150,000-mile warranty or any of the safety features included on all models. You have been called out for attempting to undermine Toyota's best-selling vehicle soon to be available as a PHEV.

4-11-2020 **No Plan.** Regardless of what argument is using, ultimately, each automaker must have a plan. No statement of intent or even a clear investment should be reason for concern. Yet, those that support GM don't. Just like our current administration, there's just a mix of confusing messages, no accountability, and no obvious direction. Heck, for that matter, there isn't even a next step identified. That's the same old nonsense we've seen from years with both the troublesome automaker and certain people in office. We get these bold declarations of advancement without anything ever happening. In fact, it is often a slip backward. Ugh. I continued on with the replies to the rhetoric:

That narrative of "*GM killed the Volt because they think there is no place for PHEVs anymore*" gets more interesting each time someone tries to support it. The reality of the situation is easy to see once the perspective is backed away from the weak argument based solely on range comparisons.

Put simply, GM couldn't deliver something profitable. Their design was inefficient. That put it at a clear disadvantage for competing in the PHEV market. Neither the EV efficiency (31 kWh/100mi) nor the HV efficiency (42 MPG) of Volt made it compelling from a business perspective. Ironically, the "*vastly superior*" tech it had to compare to came from its nemesis, Prius. Delivering EV efficiency of (25 kWh/100mi) and HV efficiency of (54 MPG) meant it would use less fuel to travel the same distance. In terms of battery, that meant a lower cost since fewer cells would be needed.

Dealers seek easy profit. They refuse to carry inventory something that's challenging to sell. A high sticker-price without anything compelling beyond EV range is a very real problem. Not having any tax-credits remaining and having wasted the opportunity to exploit the unlimited aspect of phaseout means GM has nothing to work with anymore. Their squandering of subsidies for conquest, rather than transforming their own customer base, really does mean there is no place... for them. For the rest of the market, the PHEV still offers a great deal of potential.

4-11-2020 **Understanding Tax-Credits.** Some still don't, despite so many years of exposure. Much of that comes from so much exposure to intentional misleading. There's quite a bit of propaganda aimed at undermining the message of purpose. That confusion from mixed messages, spinning outcome, and just making up stuff is rather effective. Sadly, we get stuff like this as a result: "*The whole tax credit argument makes no sense. I mean, if Toyota is dependent on tax credits to sell the Rav-4 Prime, then what are they going to do when those credits run out?*" That came from someone who is well informed in the plug-in community, yet still uncertain. But at least he is aware of that lack of clarity and is asking for more information. I especially liked his look forward, a scope often avoided... because so many are just hung up in the moment. Finding out about the bigger picture makes it challenging because of that. I tried my best to convey purpose is a relatively short response: Those tax-credits are for breaking the status quo, to finally get dealers to embrace the technology. Getting them to establish momentum to create a new norm (inventory readily available) was the subsidy purpose. GM perverted it into a use for conquest instead, which is where the dependency came from. Nothing changed with regard to dealer interest. The reason why should have been obvious. Those purchasing Volt were not loyal GM customers.

- 4-11-2020** **Doubting Purpose.** Even when it is told directly, acceptance can be difficult. But hey, that's still better than the outright dismissal I have grown use to getting. So, this was a definite improvement over that: *"I'm not even sure they want to sell us PHEVs being how poorly the Prius Prime is stocked in the USA, despite the fact they could sell a ton more than they do."* It's easy to fall into that feeling of doubt when the sentiment is passed along so often. Undermining purpose by repeating a different message over and over again is the tool of an antagonist. They say what they want you to believe at every opportunity. Critical thinking is how to overcome it. I try to provide a means of helping that process along: That anecdotal reasoning is easy to understand, but doesn't match what we've been told or Toyota's goal. All along, we've seen an effort to move the entire fleet. That means having lots of patience and the willingness to not succumb to the easier path. Lots of Prius Prime simply doesn't make sense knowing there's a RAV4 Prime on the way. Why would they waste tax-credit opportunity like that? The goal of reaching the masses wouldn't be achieved by hatchback. Know your audience.
- 4-12-2020** **Range.** A new discussion was started, comments posted based upon range/price measures... which is as informative as something like horsepower/price. What purpose does it serve if some of that capacity is rarely or ever used? If you never tow anything that massive, what is the cost of having that ability? It turns into a penalty when you pay for far more than you actually need. Sound familiar? It's that same old want verses need problem. The oldest example is acceleration speed. Some people absolutely insisted more was necessary, but couldn't actually prove it. In fact, they were so desperate to spread such a narrative to undermine Prius, they just started lying. That's what pulled me into this mess. I was shocked how far they would take the dishonesty in the name of supposedly helping endorse cleaner technology. That's why they were so baffled that I would endorse more than just a single automaker. It made no sense from their perspective, since they were really just serving their own interest. So when I see stuff like this, I question motive: *"Meanwhile in the real world, range is often the most important metric with a BEV along with price and msrp/range metric is an excellent data point to show value of each model in a comparison chart."* Before I could even respond, someone else sharing the same concern as me jumped on that same statement. It's nice no longer being alone. It's also nice that range is finally getting scrutiny, which is long overdue. I sounded off by replying to him rather than the troublemaker with: Totally agree. If most of your driving is nothing but a daily commute, focus on range makes no sense. My daily commute is 36 miles. That makes a PHEV with a supposedly *"inadequate"* capacity of 39 miles reason to question the priorities of those against it. Increased range doesn't accomplish anything for the bulk of that vehicle's usage. It is a blatant example of diminishing returns no one sharing Price-Per-Mile statistics is willing to address. At some point, more is not better. In fact, it can be a negative. Why carry around capacity you will rarely ever need?

4-12-2020 **Change.** You can see some of the antagonist stance beginning to slip. My guess is the combination of a saturated market, ending of tax-credits, and the collapse of the oil industry has crumbled the foundation of argument far more than anyone wants to admit. Remember how GM fell apart? There was so much damage-control going on near the end that direction had been completely lost. They had no idea what the next step should be. That's exactly where some of the BEV enthusiasts are now. They have been so obsessed with pushing range further and further they no longer have any clue how much is enough or what to do when it has been achieved. That's why the rumor of a F150 as a PHEV on the way has them perplexed. Knowing a BEV would be so expensive direct competition with a traditional model would be impossible, they have nothing to promote. Hybrids offering a modest amount of capacity have always presented a glimmer of hope though. They don't like that at all... especially since that hope is becoming realistic. There's echoes of that too: *"Toyota will get this right with the new Tundra. They have the worlds best hybrid systems and I believe they will build a full size pickup with a gas hybrid that has class leading mileage."* Discovering the supposed laggard has a feasible means of advancing forward is beyond upsetting. Most people are challenged with facing the prospect of being on the wrong side of history. They don't know how to acknowledge having overlooked something. I do my best to get out in front of that, pointing out facts often to prevent such a predicament. Used as a teaching moment, it's easier for them to accept... defeat. But that's what change is all about. Today's example went as follows: Evidence of that is becoming difficult to deny. Toyota is inching its way closer and closer. 2020 Highlander hybrid delivering 35 MPG with AWD and a 3,500-lb towing capacity makes that quite apparent. In fact, knowing that helps to explain Ford's move forward with a PHEV model of F150.

4-12-2020 **Per-Mile.** What a contrast from the past. I have allies now. That's what I wanted all along. There were some who absolutely refused to believe a person owning a different automaker's vehicle could share the same goal. Ugh. Thankfully, their voices have a harder time stirring attention nowadays, due to stuff like this: *"I think range is important and price of car is important. However, I do not see why msrp/range is a useful metric."* It's easy to just dismiss that when I post. But when someone relatively unknown does, the enthusiasts is at a loss. I was more than happy to join in to point that out too: It is only useful to enthusiasts. Try presenting the same info to a showroom shopper. They'll walk away in dismay, surprised that you'd even bother to appeal to them with such a statistic. Know your audience. The ordinary wants to know how much the price they are willing to pay will provide in return. That's why GM targeted Volt for *"nicely under \$30,000"*. It was a compact hatchback and that's how much people typically budgeted for with that category of vehicle. That practice of delivering for a print-point is a very well established market approach... and has been extremely successful... which was a big reason why Volt failed to such extreme. It was too expensive, plain & simple. Belief that more range makes a vehicle better is futile. As you pointed out in previous posts, range increase provides a diminishing return. So, the idea of *"Per Mile Of Range"* pricing doesn't reflect the reality of what a mainstream consumer is actually looking for.

4-12-2020 **\$1.29 Per Gallon.** It sounds like there will finally be substantial cuts from oil producers. They were pumping so much beyond demand, it was putting the world in a position for serious problems. The supply isn't being used. In fact, consumption has dropped so dramatically we are hearing reports of air over major population centers clearing to extremes that haven't been witnessed in the lifetimes of many. Imagine being able to see a mountain range from where you live for the very first time. That must be an incredible experience. What's bizarre though is how cheap gas has become. That would normally be cause for celebration. I don't hear any of that though; instead, it is concern for loss of jobs and possibly parts of the industry falling apart. Certain operations are unsustainable when little to no profit is being made. In fact, holding on to excess inventory can be costly. Oil is so abundant, the realization that "*peak*" doesn't mean supply on downturn is becoming apparent. It is really what some of us have been screaming about for years... actually, well over a decade. What the term "*peak*" actually represents is the permanent loss of stability. When you can no longer depend upon the strong, on-going source of revenue, things start to get ugly. It progressively gets worse, but all the excuses coming from apologists obscure the warnings. They say everything will be fine and return to normal, despite the lack of merit to support such claims. This here, right now, is the turning point. Too cheap is a very real problem. Investors feeling uncomfortable tips the balance. Difficult decisions will need to be made. If not, losses become even easier to notice. Like it or not, permanent change is coming. There will be a new norm. It will be fascinating to witness how that comes about.

4-13-2020 **False Hope.** Its spread is a very real problem. How does one combat an idea? There is nothing to physically battle. The impossibility of victory becomes apparent very quickly... as is the reality that whomever is repeating it won't ever stop. I have witnessed that so many times with my support efforts, its an endless fight. All you have to do is just keep saying something, especially if there is a hint of truth in its origin. The most common of these is to point out the results of a survey. How old it is, how small or limited of a sample it was, or how relevant it applies to the topic makes no difference. Antagonists will just keep bringing it up as it is somehow proves their point. The purpose is to appeal to your emotion. If it feels right, it must be. That kind of manipulation is the old snake-oil bit. People fall for, simply by not bothering to check facts. Critical thinking is a lost art. The wisdom of something sounding too good to be true being enough to raise concern is just a memory from long ago. I see too many clinging on the hope without any substance to support it. Those meritless claims are something to cautiously watch for. In times like these, it is very easy to encounter someone trying to manipulate you for their own benefit.

4-13-2020 **Hummer EV.** Speaking of false hope, the promotion of the upcoming Hummer EV blows the mind. Next month, GM will reveal some detail, stirring excitement for a Fall 2021 rollout. The latest hype comes from a filing last week of a trademark for the new logo. Sound familiar? That is very much like the "*range anxiety*" excitement that came about for Volt. It's a showmanship type move to rouse excitement, not anything to actually bring about meaningful change. There's a sucker born every minute too, gobbling up the hype to build it into hope: "*Again, offsetting the fuel consumption of these 10mpg beasts will do more for the environment than switching an hybrid owner to a BEV.*" Obviously, I had much to say about that: That offset sounds plausible, if you don't take into account the market for it. The potential for sales of a 1,000 horsepower system generating 11,500 pound-feet of torque and 0-60 acceleration in 3.0 seconds is tiny. This is a niche vehicle, period. Ironically, those pushing the narrative of GM discontinuing their Voltec system to avoid wasting investment money in a platform that people won't buy have been painfully silent on this bitter reality. It's the same history repeating itself, yet again. GM craves the spotlight, neglecting their core product as a result. There's no balance. It's Volt all over again, but this time they aren't even trying to pass off the technology as a family vehicle. And yes, I noticed how you attempted to skip the category of PHEV entirely. Reality is, a pickup with a "*paltry*" capacity of only 10 miles of EV range will do far more for the environment.

4-13-2020 **Operating Costs.** It is such a disappointment when websites intended to help promote electrification fall short on the same thing, again and again. How many times must electricity amount be brought up before it is finally addressed? Fortunately, there are more of us pushing for that now. Today, I was joined with: "*MSRP per mile of range doesn't account for operating costs such as energy consumption...*" Seeing that was great. Of course, it's difficult to know if that will make any difference. I have been bringing up the topic for years now. I didn't let this opportunity slip by either: That statement is key to gauging motive of those who claim to be green. You can validate by simply bringing up the KWH/100MI rating. Guzzling electricity is not what we should be turning a blind-eye toward. Yet, the topic is virtually never addressed. Each time I try, someone attempts to divert attention elsewhere or make up some excuse. In fact, this is from a comment I posted back in January 2017 about that very topic...

35 kWh/100 mi = 97 MPGe = 2017 Ford Fusion Energi

35 kWh/100 mi = 98 MPGe = 2015 Chevy Volt

31 kWh/100 mi = 106 MPGe = 2017 Chevy Volt

30 kWh/100 mi = 114 MPGe = 2016 Nissan Leaf

30 kWh/100 mi = 116 MPGe = 2016 VW e-Golf

29 kWh/100 mi = 111 MPGe = 2017 BMW i3 PHEV

28 kWh/100 mi = 119 MPGe = 2017 Chevy Bolt

27 kWh/100 mi = 124 MPGe = 2017 BMW i3 EV

25 kWh/100 mi = 133 MPGe = 2017 Toyota Prius Prime

Naturally, the response was to attack me for that effort, rather than acknowledge the concern being raised.

4-14-2020 **Propaganda.** After dealing with those "*20 Reasons Not To Buy*" this comes across my feed "*20 Downsides Of Electric Vehicles Drivers Often Overlook*". It was nothing but an echo of the same propaganda from that other article. They just sorted & adjusted the content, repurposing it for reaching a different audience. Those same lies were repeated. Stuff like the batteries cannot be recycled is frustrating to read. It is blatant dishonesty. But coming from a society which has come to accept & dismiss at face value, it's no surprise. Loss of critical thinking has consequences... as we are learning a painful lesson about right now. Eventually, a snake-oil salesman will get caught. I watched that play out in slow-motion with the enthusiasts. One by one, they would finally either get exposed or realize things had fallen out of favor. The result each time was to flee. I watched countless individuals abandon ship when it came to the shortcomings of Volt... countless familiar names lost to history, which I'll never forget. They were so much of a problem, constantly fighting for a cause that didn't make sense. What they were endorsing had no path forward. It was nothing but hype to make you feel good. That lack of substance is exactly what we're seeing now with the presidency. He's telling people what they want to hear, not what is actually happening. That desperate need to retain the spotlight results in a frantic effort to rewrite history. This is exactly why my blogs are so extensive. I documented the what, when, and why is what they said. It serves as proof of how things got so bad and provides a means of detecting the repetition... because we all know the same old propaganda will be spread again later. Ugh.

4-15-2020 **Lexus NX450+** The reveal of a Prime model from Lexus happened today. That was unexpected, due to the stay-at-home orders. You don't really expect much nowadays until the economy gets going again. We're all waiting out the required time, hoping the worst of it is over. It's obviously not, but at least there's optimism... which I think this is what Toyota intended to contribute to. There are some things worth waiting for... as Prime taught us, many times. An interesting aspect of the reveal was to learn a little bit more about the upcoming RAV4 version of this same tech. Although not official, we have known about the 17.8 kWh battery pack capacity (of which 16 kWh is usable) since late last year. That was an accidental publish which was quickly retracted. What we haven't known about is price. Heck, there hasn't even been a rumor. There has been speculation though. Targeting a "nicely under \$40,000" price would make it highly desirable, a nice balance of price & performance for such a large & versatile vehicle. That magic number appears to be \$36,500. It provides a basis for luxury equivalent pricing, which is enough to hold us over for now. After all, other new vehicles are on the way too. I had to remind the hypocrites of UX300e. They were claiming this PHEV proves Toyota has no interest in BEV. Providing a contradictory reminder of their obvious omission felt quite vindicating. I even threw in basic specs for good measure... 54.3 kWh battery-pack. 150 kW of power. 0-62 mph in 7.5 seconds.

4-15-2020 **Critical Thinking.** It still doesn't happen. All we get is generic dribble: "*I would think that a Volt powertrain would be enough power for a '1/4' ton pickup, especially with a bit larger battery.*" How is that representative of thought? After an entire decade of hearing about the game-changing technology and watching it struggle to advance... and fail, what doubt remains? It's not like they couldn't see Toyota spreading hybrid technology across the fleet. Or are some really that blind? From a perspective of making sustainable profit, I know many are. They see great engineering and shut off the brain. Believing the "*if you build it, they will buy it*" mantra is business suicide. Being that naive is... well, an enthusiast... being optimistic beyond logic. I let the poster know that too: The reason GM didn't follow through with Voltec wasn't a technical issue. It was the Osborne Effect. That reality of such a "*vastly superior*" product would have been a paradigm-shift their business model couldn't handle. This is why topics... like a rumored F150 PHEV with 10-mile EV range... are getting so much attention. That approach offers a path forward without major disruption to dealer/consumer behavior or expectations. It is a natural next step forward. In fact, this is exactly why Toyota has transformed their fleet to offer a wide array of hybrid choices. With such variety validating the technology, seeing an upgrade to include a plug won't upset the fragile business balance. Think about it. There is a RAV4 Prime and a NX450+ PHEV on the way. Both target core Toyota & Lexus shoppers... offering power, speed, and range in a SUV platform... without asking much from the dealer. It will simply be a model upgrade choice to carry, like a package option. Not a big risk for anyone involved. The delicate reality of sustainable profit will be supported, rather than interrupted.

4-15-2020 **Concerned.** Sometimes, you run into someone with no knowledge of the situation or background to follow progression of need: "*If Toyota was concerned about the Osborne Effect, they would not be releasing a PHEV version of their BEST selling models...*" That would have been something just fine to let pass, if it wasn't the sentences that followed conclusion drawing of the claim plug-in hybrids don't have any opportunity. Generalizations like that are annoying in the first place. But when you are on the precipice already, looking forward to the journey down on the other side, it's almost farcical. There is concern where there shouldn't be. You prepare for years for such an opportunity. That's the point of all of this. Ugh! With some dismay, I posted: That reveals a misunderstanding of how the PHEV is actually designed. For Toyota, it is basically just the addition of a one-way clutch and larger battery-pack to the hybrid model... so simple, supplying more can be reasonably accommodated... a clear effort to avoid the Osborne Effect. To further provide evidence of Toyota setting the stage, look to production of RAV4 hybrid. It is being ramped up in Toyota's being plant in North America, the one in Kentucky which prior to this had favored Camry. Seeing that volume switch to RAV4 is an undeniable step preparing for an onslaught of increased demand ahead of time. As for your attempt to compare a high-volume legacy automaker to a success much lower volume new automaker, that doesn't make any sense. They are fundamentally different. In fact, their business models have almost nothing in common. With your comparison to GM or Ford, they don't have demand for a sedan. Know your audience. This is about offering a plug-in hybrid SUV.

- 4-16-2020** **Setting Traps.** Our president is a selfish troll. That's quite obvious. What isn't is why some so loyally follow him. It's fascinating to see such blind trust play out on that scale. I saw that same behavior with the fierce defense of GM. That didn't make sense either. Wild promises that couldn't possibly be fulfilled were supported. It got to the point of absurdity. People didn't die though. True, they would slowly be destroying the environment, limited resources, and our children's future, but the outcome was challenging to prove. This is blatant; yet, it is backed anyway. So, he feels comfortable setting traps to make an example of his opponents. Sound familiar? I went through that same nonsense. The similarities are remarkable. Such a vivid past makes recognition of the pattern undeniable. He believes any victory is a victory, even if won by dishonest or disingenuous means. Such a reckless regard for integrity never senses to amaze me. It's like witnessing a caricature come to life. Interacting with that results in some of those traps catching the person who set them. It's those psychological aspects of narcissism preventing the world around them from being perceived correctly. Learning how to deal with that is quite a challenge... as our society is now just becoming aware of. It eventually gets easier to address, but the consequences are just as real no matter how well you prepare.
- 4-17-2020** **Day Of Reckoning.** That especially nasty troublemaker from years ago emerged out of nowhere to defend the death of plug-in hybrids from GM. His comment provided an interesting stir: "*It may be too soon to hold services for Voltec.*" That got me to look up the statement he made once upon a time about this very event. I found it and felt a reminder was in order, telling him what was what now: That day of reckoning has come. In your own words at the close of 2017, when news came of Volt to reportedly cease production in 2022: "*How many here doubted that you'd be first to dance on the Volt's grave?*" It's time to dance. Refusing to accept what the data tells you won't change the reality of the situation. And after a decade of denial, no successor speaks for itself. From that exchange, the words "*too little, too slowly*" tells us why. No more excuses. It was all about goals... and still is. Each automaker much deliver a well-balanced solution. This discussion thread reinforcement the importance. Delivering 10 miles of range would indeed do that. Too bad if you don't like it.

- 4-17-2020** **Too Late.** He didn't like it, but I didn't care. The same old nonsense was attempted: *"I'll be patient a little longer. Future Voltec products have been promised by GM for whatever that's worth. If there's room for 10 mile PHEVs and the 25 mile Prime, there's room for better."* Each time in our history went something went wrong and a shortcoming came back to bite him, the response was similar. Except now, there's no reason to provide any resource. It's over. I let him know why too: Too late. Opportunity has been missed. GM squandered tax-credits on a configuration their own loyal customers have no interest in. Toyota did not make that mistake. Toyota still has tax-credits available and they will be used to draw interest for a plug-in version of their top-selling vehicle. GM also missed out on the phaseout stage, where tax-credits switched to unlimited sales quantity. Tesla did quite the opposite, exploiting that chance to deliver high-volume during a time of high-demand they created from the previous stage. It is incredibly ironic how all those *"laggard"* claims backfired and the concern for moving too slowly was validated. As for your claim of future products, that is just plain not true. GM has clearly & repeatedly stated they are going all in on BEV production and see no market for PHEV. Meanwhile, we are about to see Toyota deliver a RAV4 Prime... a fast & powerful SUV plug-in hybrid with decent range and priced reasonably enough to stir interest from their own loyal customers seeking a core product. In other words, what the heck are we waiting for from GM, especially after so many years of hearing *"be patient a little longer"* for something supposedly better?
- 4-18-2020** **One Month, No Gas.** What a strange situation. I haven't traveled outside of the EV range available to my Prius Prime for entire month now. So, I went out of my way to start the engine today. It was just on a run to the drive-thru for coffee, but that's more than enough to keep the system fresh. Of course, someone cut out in front of me on the drive there. I was annoyed how they simply didn't care. They never acknowledged my presence or even tried to speed up. Had I known, I would have passed them. Ugh. Oddly, the same thing happened on the way home. Driving 15 mph below the speed limit, why? You'd think with so little traffic, they'd been going to fast... and not cutting you off. My guess is people are preoccupied with other issues. That's not safe for driving. Being distracted is never good... especially when you have someone that got out specifically to drive. Coffee was a good excuse to get the use a little gas instead of electricity. That shop was further away than the usual, perfect for that purpose. Oh well. I can try again in a month.

4-18-2020 **Recurring Interest.** I certainly found this interesting: "*GM has certainly made its mistakes, but they are the company that got people actually thinking about EVs. They started with the EV1, next came the Spark EV, then the Volt and finally the Bolt. All those efforts were half hearted and somewhat disjointed, but it certainly shows a recurring interest.*" Of course, my interest was quite different. Mine was with regard to the halo we are once again watching GM manipulate people with. It's the same old propaganda, but no one else seems to recognize the pattern. Even that post completely missed what was truly taking place. I attempted to provide the detail, but who knows if it will make any difference. Excitement the Hummer EV is beginning to stir already resembles the same old nonsense we have seen several times already. I posted:

Actually, that pattern reveals disinterest. Look closely at your list of electrification projects. Notice what's missing? Understanding audience is key. None of those targeted their own loyal customers.

GM's first mass-market technology attempt was Two-Mode. That was to be a highly scalable platform, able to be resized for different vehicles and to accommodate a plug. Trouble was, there was no clear audience. Who was that technology designed to appeal to? It certainly wasn't those who were looking to replace their aged SUV from GM with a new one. The follow-up to that was Volt, which suffered from the same problem. That technology didn't have an audience of GM owners either. We see the same situation with Bolt as well.

Watching GM repeat the same pattern confirms it really isn't a mistake. True, they are indeed getting people to think about EVs. That isn't bringing about change though. Do you really think a 1,000 horsepower system generating 11,500 pound-feet of torque and 0-60 acceleration in 3.0 seconds is designed to target shoppers at GM dealerships looking to replace their old GM pickup? For that matter, how many will even be produced? It's the same old distraction tactic. Get people excited about something to appear technologically ahead of the competition, but don't actually impact the status quo.

4-18-2020 **Fighting Facts.** It only took 9 minutes to get this reply to that recurring interest post: "*Perhaps you can contrast and compare GM's history with Ford, FCA, Volvo, BMW, Porsche, Toyota, Honda, Nissan, etc. And maybe rank each company on history and level of interest and involvement. Until then, I'd say your argument is very weak and falls in the general category of reflexive bashing.*" It was a classic downplay & dismissal with an added personal insult. I was quite amused. That defensive posture in reaction to an offensive play was very much expected. He was appealing to emotion. I was pointing out facts. His instinct was to fight. It's quite bizarre how someone believes they can portray a different history as valid, without being called out, simply by omitting particular details. Of course, had he actually addressed them, I would have followed up with more history: BAS and eAssist. But it was clear that wouldn't be necessary. Ignoring what I posted and attempting to focus the spotlight elsewhere was the dead giveaway of intent I hoped to confirm. So, as usual, I made my response brief: Whether or not another automaker is guilty of the same thing doesn't make GM any less guilty. Judging it as "*weak*" doesn't change the fact that it is a recognizable pattern repeating either.

4-19-2020 **Declaring Victory.** Supposedly, I am required to admit defeat at this point. Ugh. My own text from 2 years ago sums up what actually happened: "*Now, some just declare victory without any supporting facts. They just plain don't care.*" With the declaration coming from someone looking forward to the upcoming Hummer EV, it was to be expected. Know your audience. Some enthusiasts block out all reasoning with a desperation to justify their choice under all circumstances. That approach of absolutes is the clue to look for. Focusing on specifications is the confirm. I saw it shortcoming after Volt made its debut. There was no flexibility whatsoever. GM would deliver precisely what had been promised, period. Victory didn't have to be waited for either. It was only a commitment to the technology, not actually doing anything to bring about change. Praise was victory. In other words, this is that same old "*trophy mentality*" all over again. This is why it was so easy to dismiss Prius. This is also why so many antagonists are struggling to dismiss RAV4 Prime. Watching them challenged by facts is interesting. You can only spin reality so much before the desperation becomes obvious. In fact, that is the point our president is at now. With each interaction being a flurry of lies, nothing is getting accomplished... which is exactly what I witnessed with Volt... hence the "*too little, too slowly*" concern. Victory of what?

4-19-2020 **Advancement Spin.** Since drawing a conclusion cannot take place without supporting evidence, I take stuff like this as meritless spin: "*...had a piece on LICE (legacy internal combustion engine) manufacturers making cuts to R&D budgets, since C19 has cut what little positive revenue they had. This does not bode well for their EV efforts, and that means it does not bode well for their future.*" To properly respond, I look at the few facts actually available and combine them with documented history. You can recognize patterns that way, which provides a basis to identify how advancement will likely take place. Notice how that keeps emotion out of the equation? The use of "*does not bode well*" is a clear attempt to avoid using logic. Making a statement of passion is usually much more effective than cold, hard facts. That's an unfortunate reality, but a good indication of intent. What for it. That spin is sometimes very easy to overlook. Here's how I dealt with it today:

Actually, it will probably mean the opposite. When money for R&D vanishes, you are forced to take some unexpected risk to capitalize on market opportunity. Most are quite reluctant to take that required step forward. It is necessary for recovery though. Watching this play out will be interesting.

With the case for GM, they have been quite timid about their existing PHEV and BEV tech, hoping to start fresh in a few years. So, it's a head-scratcher. Their strategy was calculated based on an auto-industry and oil-industry which have since both fallen apart. Complicating matters is the uncertainty of future income for consumers.

With Toyota, it's a very different situation. There is no R&D necessary. They are already positioned for this. It is now matter of ramping up hybrid production to phaseout their traditional models, which sets the stage for their plug-in hybrids. It doesn't involve a lot of risk, since the architecture is already rolled out and the tech is readily available. Being able to carry the entire fleet forward is exactly what's needed. It also makes the following step to BEV a shorter one, since their customers will see the electrification progress.

That's why the attention on a Hummer EV is rather absurd. What purpose does it serve with regard to the business at this point?

4-20-2020 **Whoa!** The price of oil had fallen to a 21-year low... as of this morning. Since then, the market has collapsed entirely. \$0 per barrel is bizarre. Soon to come are negative prices, when the infrastructure suffers from inventory problems. Where do you put millions of barrels of unwanted oil? Things are about to get ugly. This situation hasn't ever existed before. To abruptly stop using something usually in high demand is a real problem. It get worse when you give it some thought too. Each barrel of oil yields a variety of resulting product. The largest portions are the many gallons of gas & diesel. Since gas isn't being purchased much anymore but diesel remaining in regular use (for commercial deliveries to businesses & homes), there's a new imbalance to deal with. This is why the price of diesel hasn't been impacted but the price of gas has plummeted. What a bizarre and very unexpected set of circumstances. Who knew that the tipping-point for oil would arrive with such an obvious bang. There's no missing this moment in history. No debate... only concern for inevitable change... to discover what "*normal*" will end up becoming.

4-20-2020 **Behind Spin.** It will be interesting to see how statements like this change when Fall arrives: "*Actually Toyota is doing as little as they can to move the ball forward.*" Of course, we really don't know what the situation in either the automotive or oil industries will be then, but that's no reason not to keep looking forward. The key is knowing where to look. Forward is forward. That's progress regardless of how it is achieved. So, the conclusion to that dribble posted was just more of the same old downplay nonsense: "*...I'm not sure 39 mile EV range of the RAV4 prime is going to cut it when others can run silently for over 200 miles.*" The more is better mindset doesn't actually achieve much. For some cases, it doesn't achieve anything. In fact, this is why it can be referred to as rhetoric. Holding back progress entirely is a goal for some. They throw out claims like that to impede the entire process. It's quite frustrating when you notice the pattern. Anywho, I turned that narrative around with:

Those who do not believe in the bottom-up approach will get that impression. In reality, the perception of little (or "*behind*" as the narrative puts it) is a powerful means of moving the entire fleet forward. See, the challenge with top-down is it gambles the technology will rapidly drop in cost and the market as a whole will readily accept the technology. As we have all witnessed, neither is playing out as hoped.

With respect to a RAV4 Prime having to compete directly with a 200-mile EV, when are you thinking that will happen? Take some time to think about the specs. That size, speed, horsepower, and AWD offered in high-volume would come from who? That's where the bottom-up makes a difference. With RAV4 so popular and built in Kentucky, there's a supply/demand balance. Toyota won't be shooting themselves in the foot. Please explain how a 200-mile EV would be able to satisfy the pressures a large legacy automaker must deal with. The realities of business paint a picture of great barriers to overcome still, something only Toyota has addressed with regard to dealer & consumer. It's not all about engineering.

4-20-2020 **Dealing With Nonsense.** Some of it is so repetitive, there's nothing to gain from quoting the full text anymore. It has been torn apart to small pieces, proving no value in return. They had little to work with coming into this pandemic. Coming out of it, there's no point. Their nonsense has been weakened to the extent of not serving any purpose. Even just plain old delay has a no outcome. Rather than wait, people will move on. So, I was happy to respond to today's batch of it: Know your audience. That reference of "*tend to buy*" is data from the early-adopter stage, when enthusiasts took advantage of lease & tax-credit opportunities. It has almost no relevance to how ordinary consumers will behave and has basically nothing in common with their purchase priorities. With regard to "*one side of a scale*", that's just rhetoric. It is easy to confirm too. The claim of "*going to win*" is meaningless. Win what? In fact, the absence any stated goal or measure is a key component to rhetoric. Of course, anyone who understands the engineering sees the shared technology. To propel a RAV4 Prime you need the very same hardware & software as a RAV4 EV. The primary difference is one also has a gas engine and the other a larger battery-pack. Remember, the true customer of a legacy automaker is the dealer, not the consumer. They want to carry inventory of mature technology. Having hybrids so well proven, the stage is set for plug-in hybrids... which in turn, make the next step to BEV a very easy one. As for the "*it would be interesting to see the percentage of people that have PHEV plug them in consistently*", that's nothing but a propaganda feed. Who do you expect to believe such nonsense? 39 miles of EV is more than the first Volt offered and no one made claims of it not being plugged in. RAV4 Prime is larger, faster, and more powerful... better pretty much every regard, for that matter.

4-21-2020 **Calculating Expectations.** Unlike the crazy approach from enthusiasts, who build hope from hype, there's a better way. It comes from studying information available and collecting data to see if you can extrapolate anything from it. Someone did that today. I was thrilled to see a sensible post. So much of the EV mindset has been based up the niche known as Tesla, the group as a whole is at a lost about how that applies to legacy automakers with dealers selling to mainstream consumers. They have little in common... and let's face it, the status quo has not budged. That sets up for a terrible outlook just prior to the 50th Anniversary of Earth Day, but it's reality. That is what we learned from Volt... so much barking with no bite at all. The entire fiasco literally did nothing to bring about change. What difference is there between a dealership now and one back prior to rollout? The technology didn't advance the market forward... which was my point all along. Something needed to emerge from Voltec. Nothing did. Instead, it died. Supposedly, the solution now is to abandon the integration of engine & motor entirely for the sake of BEV focus instead. That means taking a closer look at what the technology has to offer and setting realistic expectations. Since GM has proven worthless, attention is shifting to Toyota/Lexus. This week brings about the first rollout, in China. People are attempting to figure out what that means in terms of range. What would that same vehicle be rated here? This was one such speculation: "*186 miles on WLTP. Under 150 miles EPA/real world.*" I took that and built upon it with the information I had, providing some calculations to support those numbers: NEDC rating is listed as 13.1 kWh/100km, which calculates to 21.1 kWh/100mi. Translating to EPA, you get about 30.17 kWh/100mi. That lines up well with ratings for Bolt, Leaf, Niro, Clarity and i3. Assuming 90% of 54.3 kWh total capacity, you get 48.87 kWh usable for EV. That comes to an EPA range estimate of 162 miles. Assuming 85%, you get 153 miles.

4-21-2020 Reality Check. Lashing out at Toyota is really just an excuse, a distraction away from the true struggle. That means we get this on a regular basis: "*How many electric cars do they make? Who cares of the death spiraling ICE.*" To them, it's a numbers game... not a measure of true change. Remember how GM played it? Volt sales were almost exclusively either leases or fleet. That's why I argued so often about the "*game changer*" not actually accomplishing anything. Neither of those "*owners*" were loyal customers who went to a dealer to replace their aged GM vehicle with a new GM vehicle. They were nothing but conquest with little to no business-sustaining profit. It was really just a shallow effort to game the system, one which focused almost entirely on ways to exploit the tax-credit. This is why there is so much rhetoric now with regard to how Toyota has instead focused on upgrades across the fleet. Their new architecture was rolled out almost entirely unnoticed. It sets the stage for phaseout of traditional vehicles while at the same to preparing for plug-in offerings. Getting such a massive audience to take notice is genius. They hate that reality. Highlander, RAV4, Camry, Corolla, Avalon... all well known Toyota choices available as hybrids, both affordable & efficient. They are directly competitive with their traditional counterparts. That annoys the antagonist to no end. Making matters worse, we see the possibility of a new minivan only being available as a hybrid and the next Prius only be available as a plug-in hybrid. That's real change. Needless to say, some of that underlying infrastructure shift is starting to get attention... by those who don't like it... which makes be quite delighted to punch back with a reality check: Toyota is a very strong industry player in the design & production of electric-propulsion components. So what if most are currently only used with systems that have small battery-packs? They are a juggernaut in the BEV realm, which is still very much in the early stages. Heck, we don't even know how the expiration of tax-credits will impact the market, because that literally just happened. The experience gained from hybrids, plug-in hybrids, and fuel-cells is priceless. All depend upon highly refined hardware & software for EV driving. Attempts to downplay that are futile.

4-21-2020 Progressive Rollouts. A series of upgrades is far more effective than attempting a big bang. In fact, significant change all at once is exactly what should be avoided. Toyota wrote the book on how to do it write, quite literally. They learned how to promote improvement and showed the world. It was quite fascinating at work to take a certification class and discover that process would be the basis of what we would be studying. That turned out to be one of the most enjoyable classes I have ever taken in my life too. Though challenging and quite a draining experience, I took away a lot from that. Some of it came from already having made so many real-world observations of Toyota's approach. It clearly works, despite all the claims those naysayers attempt to tell you otherwise. It works. That's why what we are witnessing right now provides encouragement of what will likely follow. I keep it short & sweet with: Don't forget there is a higher density chemistry on the way. Rolling out the platform to China with existing lithium makes a lot of sense. Refine the vehicle itself before expanding to other markets, with a battery upgrade. That is exactly what Toyota did with Prius 20 years ago. Gen-0 was for Japan only. It used D-cell batteries. Gen-1 was rolled out to the United States 2.5 years later, featuring prismatic batteries. That was quite an upgrade... which most people didn't even know about. In fact, I bet many just learned about it from this post.

4-22-2020 **Subaru Evoltis.** This is co-development effort with Toyota to deliver an EV by 2025 with a possible range target of 300 miles. That kind of news has been putting antagonists in a difficult position. They require an enemy to focus on, someone to attack & blame when things go wrong. Seeing Toyota break out beyond their carefully constructive narrative is a big problem. They are trying to spin the situation back in their favor though: *"Toyota could easily have pushed to adopt CA standards nationwide. That is not what they have done. All you have to do is adopt the highest standard and you are safe. Let alone being a leader and pushing standards forward. The only pure EV Toyota ever shipped in the USA was a Tesla designed RAV4. It is 2020 and over a decade since the first Tesla shipped and nothing from Toyota but hybrids. It is almost as if they said we innovated once in the last twenty years and that is good enough for us."* That was the full post, the attempt to belittle & mislead in its entirety. That's the kind of post I like to take the offense on. I'm more than happy to take on their nonsense. And, I did:

Completely disregard what was posted and respond with a blatantly false narrative instead. Ugh. The legal hurdles involved with that adoption is a trap and Toyota unwilling to take the bait; instead, they are just going ahead with the technology push anyway. There's a big difference, lessons learned which others also disregard.

As for the claim about RAV4, that's absurd. Toyota rolled out their new architecture throughout the entire fleet, enabling affordable upgrades with minimized overhead. In other words, a variant of RAV4 EV will begin rollout in just 1 week and a RAV4 PHEV will rollout in a few months. Both are undeniable efforts to fulfill that highest standard.

With regard to being a leader, that comes from actually changing the status quo... not just agreeing to do so. Phasing out their traditional passenger vehicles across the fleet, replacing them with hybrids that can easily be offered as plug-in hybrids is genuine leadership. They are focusing on their core customers, making a true difference. Downplaying that reality won't change it. Toyota continues to push forward, and as this topic confirms, they are helping pave the way for others to follow.

4-22-2020 **Is Tesla Thriving?** That is an interesting question to pose. It was not taken well though. Comments were argumentative right from the start. There was no sense of balance or any interest in being objective. It was very much an enthusiast response. That's unfortunate, Tesla has opportunity and has demonstrated an impressive ability to adapt. Those traits should be very helpful with the next steps. Problem is, no one really knows what that means... and the growing antagonism is evidence of that representing challenges to come. Uncertainty isn't the friend of those to focus too much on passion to sell a product. Mainstream consumers need more substance; want is less important. Anywho, I tried to give praise, among with some foresight: With regard to low-hanging fruit, Tesla did indeed thrive. Tesla had a lot of venture capital available, carbon-credits to sell in a market hungry for them, and basically a monopoly. All that is changing now. This next stage without tax-credits, needing to draw attention from those not enthusiastic about change... in a world with the oil industry now struggling to survive and other automakers attempting to grow in the market... is going to be very challenging. There is also the bitter reality of people in general having less disposable income even after the economic recovery. Think of the perspective of what legacy automaker dealers have. What are they going to want to push to bring in consumers with. Those business-sustaining sales are what keeps the industry going.

4-23-2020 **Watching It Again.** The start of the first day after the 50th Anniversary of Earth Day sure got off to a good start. I got the same old nonsense from 13 years ago. Remember how Volt started? It was literally the same thing I am seeing again. To watch that history repeat is remarkable... since I know exactly what to watch for this time around, and have the experience to counter it. This time, it was rant to me posting: *"Toyota's top-selling vehicle in just the United States alone last year was RAV4, which sold 448,071. That raises the question of what Tesla's growth plan is..."* That was in reply to a supposedly bashers of Tesla listing sales results from the past 8 years. 367,595 was the worldwide total for all Tesla sales combined last year. My interjection of reality stirred a rebuttal absent of any facts. It was just a repeat of the very same propaganda we saw for GM way back. That cheerleading without any actual leadership direction is a dead giveaway of a problem. How will such *"progress"* be achieved? I asked about such a future this way: It's ironic how you respond to a fact by appealing to emotion, then conclude with a remark about goals but don't actually state any. That type of posting is what turned genuine support for Volt into enthusiast rhetoric. They would do everything they could to stir a passion for the technology by focusing on its appeal, doing as much as possible to avoid reality of the business itself. Seeing you repeat that history is fascinating... especially since their posts ended up diverting so far from goals. The question of Tesla's growth remains. Avoiding any measure of quantity and mention of product diversity is a solid confirm of history repeating. How will Tesla achieve *"biggest automaker in the world"* with such an incredibly vague response? What are you endorsing?

4-24-2020 **\$1.11 Per Gallon.** I noticed the price while in the drive-thru at the gas station/coffeeshop today. Since my approach was from the back entry, that was quite a delight to see while waiting in line. After getting our coffees, I drove through the pump area to snap a quick photo to mark that moment in history. By dumb luck, a new Prius just happened to be driving through the scene precisely at the time. I hadn't even noticed it coming. So, there was nothing to prepare. Looking at it afterward, the sight of an in-focus white hatchback perfectly lined up in the capture was a very nice surprise. I highly doubt I will ever see prices that low again. That's a scene from 20 years ago, when I got my first Prius. What a surprise to relive such a memory now... well, kind of. It has been what, at least 2 months, since I last filled up and only 1/8th of the tank has been used so far. I won't be needing to fill up again for a very long time. That's fine. I can witness it from the eye of a lense instead.

4-25-2020 **Feeble.** It can be enthralling sometimes to read comments relating to the "*behind*" narrative for Toyota, for example: "*These feeble range numbers prove Toyota is way behind. If you're not passionate about something, you come out with stuff like this.*" Since when has Toyota ever focused on passion for the secret to their success? Even back when I was waiting for the delivery of my first Prius 20 years ago, I was well aware of Toyota's reputation for their "*boring*" vehicles. They were looked upon as family movers. Those who owned them were pleased about the affordable & reliable choice they had purchased. I worked great for getting from place to place. The reality that speed & power has been mixed into the equation now goes completely unnoticed... by those making an effort to downplay. That's no different than decades ago. They focus on a number that appears disappointing, then beat it to death hoping you won't notice anything else... which is where I come in. I point out those other traits of interest. But in this case, I was just on the attack. The post came from a well known troublemaker, burned by supporting GM to Volt's bitter death. Now, he wants to ensure Toyota has a difficult time advancing forward. I attacked back, injecting some logic into the on-going comments: Measuring progress based on range is either naive or doltish. It tells us nothing about the technology itself. Anyone can squeeze in a lot of capacity. Making it reliable & affordable is an entirely different matter... something Toyota has proven to deliver exceptionally well. Those of us who actually take progress seriously measure it based on how much that technology changes the status quo. Rollouts appealing to the "*passionate*" fail to achieve that. Mainstream consumers are fundamentally different from enthusiast. Know your audience.

4-27-2020 **Range Ratings.** There is a website which... up until recently... served as an objective source of plug-in related news. The growing struggle with Tesla has shifted a bias over to hyping video-footage completely unrelated to the promotion of electric vehicles and focusing on range. In other words, they have lost direction. That clear sign of goal uncertainty is a warning. Red flags like that in the past weren't taken seriously, so it is no surprise they get blown off now too. Disregard for actual market change is a very real problem... hence the Tesla issue. Sure, those vehicles are great, but they are proving to be an expensive niche. Reaching ordinary consumers has been far more pie-in-the-sky of a hope than anyone wants to admit. This obsession with range reveals how much further (pun intended) they still have to go. Even when some supposed threshold of distance acceptance is reached, there's much more to address still. That's where Toyota shines. Their approach is reverse. They are focused on those other factors, the priorities that become a major barrier when trying to reach out beyond the niche. Larger audiences require thought beyond a single mindset. What I find amazing is how many people need to have that brought to their attention. Most are clueless as to how business operates. In this case, there's far more to sales than just range ratings. Ugh. Rather annoyed, I jumped into the topic today with: These ratings reveal a serious loss of priority. Looking at range based on battery tells us what with regard to purchases? There is a very real problem of diminishing return that no one seems to want to address. We just keep getting more of the wrong focus. Attention should be directed to vehicle efficiency, not the size of the tank. It's really unfortunate when the "*kWh/100mi*" efficiency rating is completely ignored, disregard from topics like this as if it makes no difference. In reality, that's far more important. It is how much electricity you actually consume that matters, not how much can be held when full. Sadly, this is why EV supporters get labeled as enthusiasts, rendering their opinions to just that of someone out of touch with the mainstream. They can be their own worst enemy at times.

4-27-2020 **Early Majority.** I tend to avoid quoting very long statements, since the message tends to get muddled. This one was easy to ensure it would get followed up without confusion. So, I that's what I engaged in: *"You talk about "enthusiasts" and "mainstream", but highly efficient cars tend to be small and aerodynamic and look like the first generation Honda Insight, which doesn't appeal to the mainstream and driving one labels you as an enthusiast. EVs are approaching a transition from "Early-Adopter" to "Early-Majority" buyers. But to make that transition, EVs need to appeal to mainstream tastes that prefer larger, boxier, SUVs and crossovers. Pick your poison: do you want hyper-efficient EVs that are limited to niche hyper-milers, or do you want moderately efficient EVs that are widely adopted by the mainstream?"* It should be no surprise why I decided to pursue such an overly simplistic lack of thought. That's how misconceptions perpetuate. So, I replied with:

It's always intriguing to encounter someone who hasn't given the matter any thought. The assumption you are making is quite obvious... and quite incorrect. How will you respond is my curiosity. That's the type of feedback we can use to constructively inform others.

Consider RAV4, Escape, CRV, Equinox, Outlander, Tiguan and Rogue. All are Crossovers with FWD similar in size & shape. Despite having shared aerodynamics, they deliver very different efficiency... 26/35... 27/33... 28/34... 26/31... 25/30... 22/29... 26/30. Those city/highway MPG ratings are all over the place, not in any way what your *"poison"* implies. Reality is, there are far more elements of efficiency at play than just the generalization you claimed.

When it comes to EV propulsion, the situation becomes even more complex. Conversion from DC to AC is a matter of hardware, which varies profoundly from automaker to automaker. Did you ever consider that? What about the traction motor? What about the type of cabin heater? What about the software controlling it all? Then there aspect of performance, the trade-offs better power, speed, and consumption, most definitely have an influence. You ever think of that? There is also the weight of the battery-pack. In other words, you now have very good reason to take a closer look at what *"kWh/100mi"* ratings actually tell us. It most definitely is not just a vehicle size & shape category. That's how you know whether a similar looking vehicle is efficient or if it guzzles electricity.

4-28-2020 **No Agreement, No Progress.** Trying to get people to recognize the importance of balance is extraordinarily difficult. This derives from our society no longer having an understanding of the difference between want & need. They have justified weak excuses for so long, that approach has become the norm. You simply reason your way to a decision. Stated another way, objectivity has been lost. The influence of emotion clouds logic. So, we get stuff like this: "*From a *practical* point of view, I am much more concerned about range than efficiency.*" It gives the impression of being thought, but the injection of opinion reveals otherwise. That's easy to confirm too. Get them to state a goal. At some point, range will suffer from diminishing returns. If no such milestone is identified, there is likely going to be a problem of endless pursuit. In other words, efficiency will never get any priority. Delay has consequences too. If you commit to much to one particular design without the consideration of all influencing factors, you end up backing yourself into a corner. This is how both Two-Mode and Voltec failed. Learning lessons from past mistakes is most definitely not a strength of online discussions. Ugh. I tried to point that out with the following: The point is to draw attention to the balance of priorities. Again, there is a very real problem of diminishing return that no one seems to want to address. It's the more is better mindset that will end up harming BEV sales. Unless the supporters can agree upon fundamentals like that, we're all screwed. Notice how disastrous public chargers have been due to that very same problem. No agreement, no progress. That brings up back to practical. What range is that? If you study the history of the BEV, you'll see it has been a sliding scale. Ask why. The answer will trouble you.

4-29-2020 **15 Million Sold.** I was wondering how long it would take to hit that significant milestone. It seemed to be approaching, but I wasn't seeking out the data. Assuming the announcement would be made upon reaching it was reasonable. And sure enough, Toyota did as soon as the worldwide count for purchases of their hybrids reached it. That number is absolutely amazing... and quite validating. Any technology to reach such a level, especially when it starts at such a significant price-point (greater than \$20,000 per sale), is a really big deal. This isn't like when people replace their phone. It is a purchase you will likely utilize for an entire decade. Whatever you decide upon has major implications too. Choosing a guzzler can be very expensive to maintain. The same is true for an unreliable brand or model. So when it comes to the broader category of technology, there is no easy matter of "size" to measure against. It is far more difficult to evaluate the value of. That's why the endorsement of 15,000,000 owners can become a significant influence. In fact, that plays a major role in what dealers select for inventory. They know their customers.

5-01-2020 **Listening To Science.** We are still dealing with the nonsense of negotiation, where the people opposing measures to address the problem feel it is possible to make a deal. You can't make a deal with a virus any more than you can with the climate. They don't understand what is at stake or how their decisions have no impact on the outcome. Watching reactions to the pandemic overwhelmingly confirm that. Whether or not you believe you are doing enough doesn't change the reality that you are not. We will suffer from the effects of smog & carbon emissions, period. No feel-good effort make up for not fulfilling a requirement. That's what stating goals was all about. We saw it with Volt. There should have been a spreading of the technology across the entire fleet, period. Even if milestones were not reached, it was still progress forward... which is the point. That momentum builds... once you have everyone in agreement about purpose. See the pattern? Both with the technology for vehicles and the medical advances for the pandemic, we need agreement. Next steps in the right direction are essential. GM did nothing to break the status quo. We're seeing the same with our federal government response. All these excuses, delays, and red herrings are a massive waste of resources... at a horrible cost. Both will have long-term consequences yet to even be imagined. We're in for a world of hurt by not listening to science.

5-02-2020 **Not Worth It.** Software upgrades were a hot topic like July, when I posted this: *"Google just began rolling out the new version today. Think about how complex software upgrades to just phones are. Carriers routinely take a very long time to provide a new OS. Having to wait 6 to 9 months is quite common... and quite unrealistic for a vehicle model-year. See where I'm going with this?"* Today, I posted a follow up:

9 months later, there have been many upgrades... 4.6 and 4.7 and 4.8 and 4.9 and 5.0 and 5.1 and 5.2 with 5.3 soon to be available... confirming much work still needed to be done to establish that different approach.

People didn't understand what it would take to transform an application not designed for that new platform. It totally makes sense that Toyota didn't want to deal with the inevitable flurry of customer requested updates to their vehicle. Just imagine what it would have taken to support an upgrade process. Waiting until a stable version becomes available and has proven effective of at-home upgrades, rather than having to burden dealerships with low-profit services, was the better choice. It simply wasn't worth being hasty.

As the Android Auto matures on the automotive platform, being able to seamlessly executes upgrades without interruption to the driving won't be a big deal. Think about what it takes on your phone. Will the car stay active and have internet access the same way to download software while not in use at home? Will you be willing to wait while the upgrade installs? Will you schedule the upgrade for later?

This is a paradigm shift, a new ownership experience for automakers to address. Delay until Google works out the kinks is an effective way to avoid issues the automaker has little control over.

- 5-02-2020** **Emotion.** The pattern is astonishing: " *Use information to determine action - not emotions, not politics, not what people think or feel, but what we know in terms of facts.*" That was the trophy-mentality I observed all those years ago with Volt, sighting concern over approach to its design favoring emotion rather than constructive goals. Supporters became enthusiasts as a result of that blindness, turning hope into meritless hype. It became a race in the wrong direction. So much of the resources went into favoring a niche, the effort was doomed. They kept praising traits which provided no value moving forward. That's exactly what we are seeing now with the pandemic. The focus on supposed "*freedom*" is not doing anything to actually help the situation. In fact, it is wasting resources on what will clearly become a fall backward. We'll end up having deal with losses which could have been prevented. For GM, there is no recovery. The project died. All that work to figure out how to blend motor & engine abandoned due to mismanagement. It was remarkable how much emphasis was placed on feedback from owners. That is asking the wrong audience... hence "*Who?*" It made no sense planning to appeal even more to a niche. You want mainstream acceptance, you must follow wherever that logic takes you... like it or not.
- 5-05-2020** **Lessons Learned.** The parallel continues: "*As the death toll mounted, the briefings became less about providing critical health information and more a forum for Trump to air grievances, shift blame, stoke feuds, spread misinformation and inspire false hope.*" That is exactly how Volt enthusiasts responded to faltering sales. They would never accept responsibility or take any action to provide direction. It was the same old nonsense we saw back with Two-Mode. No matter what happened, there was always something to deflect with. In other words, there was never any takeaway, no lessons learned. Each event was treated in isolation to prevent a cohesive story from ever emerging. This is why I kept having to deal with the same old nonsense routinely, they would do everything in their power to keep people from becoming aware of the bigger picture. Any distraction possible was better than allowing others from discovering what was actually happening. Our president and his administration are the same type of problem, providing excuses and feeding enablers for their own agenda. In other words, they just plain don't care. It's really sad.

- 5-06-2020** **Switch Narrative.** There is an on-going effort to portray the introduction of plug-in vehicles as the only solution available. Electricity sent from a battery is the future, period. It's a fear that continues to grow from BEV purists. They fear diversification. When a technology appears too weak to stand on its own, that is typically a sign of hiding weakness having been identified. I know that reaction far too well from Volt enthusiasts. Their fear was simply speeding the technology to other vehicles with other configurations. Their belief was that would dilute the message GM was sending. Ironically, GM itself did that with their many vague & ambiguous press releases. Those attempts to feed hype confused purpose. No one knew what the goals were anymore... which brings us back to the narrative. What does the "switch" to electric intend to accomplish? With hydrogen, it is obvious. We see diesel as a serious emission & consumption problem. Large transport needs an alternative. Advancing that technology through deployment of real-world tests with small vehicles is far less expensive and allows for far more flexibility to explore the opportunities. That's why we see on-going efforts from Toyota, Honda, and Hyundai in that realm. Whether or not those small vehicles become a standard part of the business later makes no difference to the experience gained for application on larger scale use. This is how I responding to the rhetoric attempting to spread the "switch" narrative today: Commercial & Fleet use of fuel-cells is inevitable. The hydrogen deniers attempt to spin a narrative of impossibility, that there's no way EV could co-exist. They refuse to acknowledge all the elements at play. That narrow-mindedness about the problems we have to address will eventually become too difficult to deny. In other words, there is no switch. It's really a matter of recognizing dual-path develop is necessary to serve the wide range of needs.
- 5-08-2020** **Compromise.** Notice how the effort to establish & reinforce a narrative requires being vague? Detail is how you confirm insincere efforts. If they refuse to respond or give you something unclear, it becomes obvious after awhile they just plain don't care. We saw Volt enthusiasts do everything possible to avoid addressing lack of change. They pretended the status quo would somehow magically be altered simply by the presence of Volt, that nothing actually needed to be done to get mainstream consumers to embrace the technology. Their choice had serious consequences. Now, we see some in the BEV community pushing to undermine plug-in hybrids with messages like this: "*The Volt is a compromise. All PHEVs are compromises. They work but are, by comparison to pure ICE and BEV, very expensive to design, build, and fix.*" That opportunity wasted is now quite obvious. But since virtually all have jumped ship, abandoning what GM had been praised so much for, there is no one to respond. They gave up. I haven't. That's because I have solid facts and real-world data to work with. It's very difficult to get me to shut up when so well armed with so much material, especially the videos. So, the online battle continues in this new war: Notice how that statement attempts to create a stigma for the word "*compromise*" rather than acknowledge what it really means is to deliver a balance of priorities. Also, notice how "*very expensive*" is absent of any perspective. It's that lack of attention to detail that allows people to just blow off comments from enthusiasts. Why bother taking them seriously when they don't take the time to explain what they are passionate about. In other words, those generalizations are what people see as rhetoric. They do nothing to impact the status quo.

5-08-2020 **Limited Supply.** It will be interesting as the year progresses to find out what kind of spin is stirred. That was often why I frequently that daily blog for Volt. They worked hard to come up with stories. None were ever strong enough to stand the test of time though. Limited duration & audience is key. When looking at the wider market and long-term plans, what they spin makes no difference. They certainly try though, as I was happy to point out today:

That narrative fell apart today. It was started by those who prefer the fast approach, race to get whatever has proven successful to market, then flood the market with it. That works just fine for startups. For established providers, it can be disastrous. We have a real-world example of that too. GM's effort with Volt was failure for that very reason. Sure, it worked, but it wasn't able to return a profit and the technology itself was terribly inefficient. That is exactly what you don't want as a legacy automaker.

Toyota has been taking the time to do it right, waiting for the technology to mature for delivering a high-volume solution that was easy to sell and returned a profit. There was no rush. There was no pressure to deliver. There was no limited supply. It was all just a load of nonsense stirred by those hoping to undermine progress.

That progression is easy to validate, as of today. Lexus UX300e (Toyota's new EV for China & Europe) will come with a 10-year/1-Million KM warranty for the battery, which includes a very clear capacity degradation threshold of 70%. Such an incredibly long endorsement of confidence tells us a lot about how much unseen success has been achieved by Toyota.

In other words, Toyota invested but has not ramped up yet. Production of the new format/chemistry is not needed until the vehicle it is for gets rolled out.

5-08-2020 **Misconceptions.** New audience. New participants. Same old misconceptions: "*Hybrids are only economical if driven in a certain way, if used for a lot of long distance driving then they're as bad as a regular ICE vehicle.*" We get new ones too: "*PHEVs with an electric range of at least 50km make sense as a stopgap to full BEVs if you don't have access to a good fast charging network for long trips, but otherwise hybrids are 1990s technology dressed up as the future.*" I was annoyed, but more than happy to confront the nonsense. So, I did: It is interesting how you expect an obviously false statement in reply to Toyota hybrids to be accepted. That "*as bad as*" claim is just plain not true. It's so easy to prove too. Toyota hybrids use a smaller engine... which in itself contributes to greater efficiency... combined with the use of the Atkinson-Miller pumping cycle, rather than Otto. Using that well-proven technology on their PHEV offerings is the next step forward. The best example is the upcoming RAV4 Prime . That will offer 62 km of EV range, then will switch to that highly refined HV operation following depletion. It's a win-win, before even taking into account how much of that technology is carrying forward to their BEV offerings. In other words, that supposed "*stopgap*" measure is a means of profitably moving the entire fleet forward. The focus on "*if you don't have access*" completely ignores that bigger picture issue. Think about what dealers will be willing to carry during the economic recovery.

5-08-2020 **Addressing Speculation.** There's a lot speculation with regard to Toyota's rollout of the new Lexus EV in China and the very generous warranty it includes. Lacking any industry standard or even a consistent expectation, it leaves much subject to wild guesses based on little to know information. Trying to get in front of sources which could generate & spread misconceptions is key... especially knowing there are some who intentionally create misinformation. With lockdown and the industry basically at a stop, along with the market in China showing signs of slowing, its difficult to find anything solid to work with. So, a good chance of speculation growing is likely. Ugh. Oh well, all you can do is address problems as they are detected:

Nissan's pack essentially didn't have any cooling at all. It only employed a radiant approach, simply allowing the heat to pass through the case to the outside. It was a sealed battery, so even just passive air circulating through it wasn't possible. That's why just pushing cabin-air through the pack for Prius Prime has proven worthy of longevity. The next step up is A/C cooled air being directly funneled along the entire casing to draw out heat. That's aggressive by comparison. So, the generous warranty seems reasonable.

As for the maintenance program, that may be more of a throwing-a-bone-to-the-dealer situation. They need to provide service in place of no longer maintaining a combustion-engine. They still need to make money. Bringing in your vehicle from time to time for a measure, inspect, and cleaning of the battery system shouldn't be that big of a deal. In fact, it could just become part of the routine when you bring in the vehicle for tire-rotation. After all, services like inspecting brakes & shocks, changing the cabin-air filter and wiper-blades will continue. You'll need to replace tires at some point too. And how exactly is that an "*unnecessary*" expense if you are guaranteed 70% capacity throughout 612,371 miles of ownership? It's like paying for insurance but never having to file a claim. Isn't the goal of a BEV to bring an end to the surprises that come about from maintaining a traditional vehicle? Think about what the confidence of a that guarantee does for resale value too.

5-09-2020 **One Week Later.** Not a single person responded to my software upgrade post. There were so many people angered about my response before, with many different ways of telling me I was wrong. None of them said so much as a peep this time. They were all passionate about a topic they had no background in. Their posts 9 months ago have proven to be hasty & anecdotal, the same nonsense I have to deal with in other disciplines related to the rollout & spread of technology. Those assumptions are costly at times. In this case, the belief was opportunity had already slipped away and there would be no way to make up for such a tragic loss. They truly didn't understand. That's typical. Being a software engineer for 3 decades now, I'm familiar with that behavioral pattern. Knowing what it takes to build, deploy, and support is a complete mystery to most people. Keeping up with the ever-changing technology makes it difficult even when you do have the background. So, this was no surprise at all. I waited for the validation. Unfortunately, no one wants to address next steps. They all abandoned ship when the challenge became far more than they had anticipated. Sound familiar?

5-09-2020 **Spreading FUD.** Right out of the classic handbook for spreading Fear, Uncertainty, and Doubt came this:

- Lose sight of the big picture.
- Divide & Conquer.
- Lie & Distort.
- Conjure up conspiracies.
- Accuse the accusers.

That list of tactics for misleading & manipulating was used to describe what the president has been doing. It matches exactly what I dealt with from the past with vehicle technology. From a wide array of antagonists, the same old nonsense had to be dealt with. Nothing in that list is constructive. So, none of that should be present in what we face. Yet, the frequency is abundant to an extreme... to the point when tolerating it becomes impossible. You either choose to ignore or confront. I'm distressed by the number who ignore. They just pretend there isn't a problem and nothing said is inappropriate. That is the goal, to get people to become disenfranchised, making they enablers. It's a sad reality when critical thinking doesn't happen anymore.

5-10-2020 **Supposed Facts.** People just make up stuff, not citing source or scope. They just post what they feel is right: *"To match Toyota/Lexus, Tesla just have to dial back the charge rate to 50 kW - but that would slow the transition to EV's as no-one really wants to double a journey just for charging stops."* Nothing provided to support such a claim gives me the opportunity to ask how that conclusion was drawn. That irritates some, calling me out as a troublemaker... and some not so polite labels. I turn it around with facts. In this case, I was armed with data: According to a survey of 8,500 consumers and industry experts conducted back in March by J.D. Powers, that is not correct. In fact, rate didn't even make the top 3 barriers listed. They were charging station availability, driving range and purchase price. A charging rate of 50 kW would likely do the opposite, since it would satisfy the availability concern. Think about it. 50 kW will deliver a rate of 167 miles/hour for charging. It requires 480 volts on a 75-amp line. That is a reasonable balance of cost & performance. Faster is much, much more expensive to setup & maintain. For that matter, who pays for the equipment and who pays for the electricity? Like it or not, overcoming the availability barriers by providing lots of chargers with lower rates will accelerate transition. It is counter-productive to believe that faster is necessary.

5-10-2020 **Priorities.** There are some who spread misinformation instead of FUD. Their hope is the same, to undermine progress. It's what happens when you don't like the direction a solution takes you. When you make a hypothesis, then discover you were incorrect, you are supposed to learn from the experience... not deny the outcome. Ugh. Fighting it makes no sense. We see it regardless: *"Why is Toyota selling this only in Chinese and European Markets and still saddling us North Americans with Hybrids and FOOLCELLS, do they take us for FOOLS?!!!!"* I had this to say in response: We have overwhelmingly demonstrated how our priorities are all screwed up. It is the outcome many feared would come about at a result of GM pushing its desire for range & power over the goal striving for a balance. Volt made it all too clear how that obsession sacrificed our original intent to change the status quo. A decade later, dealer lots look worse. Sedans are vanishing, replaced by traditional guzzlers. Think about covid will do to infrastructure investment. People here will be arguing for a supposed need to have ultra-high-speed DC chargers. Why sacrifice so much money for a few of those when you can instead get a bank of 50 kW chargers? That type of tradeoff makes no sense, especially when buyers at this stage will almost certainly have a second vehicle for long-range travel anyway. It never ceases to amaze me how the desire for more blinds so many to what is really important. Thankfully, Toyota knows their audience and simply ignores what just ends up as enthusiast rhetoric. After all, we have been acting foolish. Having to wait until the after markets with better priorities get rollouts is a sensible approach.

5-10-2020 **Barriers.** It is quite eye-opening to witness the contribution to barriers. Most have no idea they are doing it. A few notice though, asking: "What is not correct? Believe me, having driven a 2014 Nissan LEAF, doing a 0-100% charge to get to the next available charging station is a bummer." Having constructive questions come up is great. That's exactly what we should be getting as new rollouts take place. In this case, it was about the new EV in China from Toyota: Know your audience. Toyota/Lexus isn't targeting the long-distance traveler. They are well aware that most households will have multiple vehicles, that the BEV will be used for daily commute, running errands, visiting friends, etc. When travel out of that range is required, the other vehicle will simply be used instead. This requires us to recognizing priorities. Remember in the 80's when a truck was a truck? It was only used when necessary, parked on the side of the garage otherwise. Most of the time, you were using the car. Now, that older vehicle will become the "truck" and the BEV used for everything else. Think about how long those old trucks lasted as a result of the limited use and how little it took to maintain them. We're getting back to our roots. A daily driver does not need to fulfill every possible scenario. The narrative that is must is counter-productive, causing harm to BEV adoption. Don't contribute to the barriers.

5-12-2020 **New Crossover.** Hearing about something new coming from Toyota, while in the depth of a pandemic, seems counter-intuitive. The analogy given was: *"Isn't this like launching a cruise ship during a Hurricane? Seems like pretty bad timing to be launching two new hybrids... Then you had the seeming abandonment of that concept, with the birth of... Now it seems Toyota is gravitating back to..."* Coming from someone who has a reputation for stirring controversy and not open to criticism, I wasn't sure how this would be taken. It didn't stop me from posting it though:

That's called rhetoric and it "*seems*" you are happy to pass it along. Ugh. Stepping back to look at the big picture, we can confirm Toyota has stayed true to their overall effort to phase-out traditional vehicles and now is the ideal time to make that commitment clear.

Why wouldn't an automaker take a next step at a time when the entire world is forced to re-evaluate anyway? Change is necessary. That should be obvious. It would be bizarre not to take advantage of the opportunity.

With regard to this upcoming reveal. Think about where the market was heading before the pandemic. Sedans were falling out of favor and the industry required platforms which could easily accommodate a decent size battery-pack. Seeing a new vehicle emerge that fits in between Camry and RAV4 makes a lot of sense. It would start out as a hybrid while offering a very easy path to plug-in hybrid. That's sensible business. In other words, Toyota has weathered many hurricanes already. This is what being prepared for the big one looks like. What other automaker is so well positioned to shed their old traditional vehicles?

5-12-2020 **Diversification.** The basics of business are absent with many. It's much like what we are discovering from the pandemic. There are many who are science illiterate. Not having any background, yet drawing conclusions anyway is quite dangerous... as we are witnessing, with horrifying consequence. Thankfully, the situation with vehicle technology isn't that drastic: *"It seems that Toyota is all over the place and trying to see what will actually take hold in the market."* When you don't have any basis to gauge observations upon, it is easy to see how mistakes can be made. They have no idea why certain decisions came about, so understanding the next step becomes nearly impossible. I chimed in again: That is another "*seems*" example of rhetoric. Antagonists pass along the "*take hold in the market*" as a red herring, hoping you'll follow it without question. They don't want you to discover BEV will co-exist. Reality is, the need for fleet & commercial vehicles with fuel-cells is already there and the oil industry embracing it inevitable. Our cargo transport must shift away from diesel. So, there will be high-volume production of hydrogen anyway. Toyota is simply diversifying its business, seeing that obvious opportunity to share EV-related technology. Using the Mirai platform to help refine that technology is a sensible approach.

5-13-2020 **Continuous Improvement.** The effort to cut cost is often confusing and difficult to identify. The on-going discussion made that all too clear: "*The question to me, is with the death of the Prius family, should we ever expect a NEW from the ground up built hybrid or will the future for Toyota be continued introduction of Hybrids that are Hybrid versions of existing ICE models? I tend to think, the Prius model line alone will be the only truly from the ground up built Hybrid. But I could be wrong.*" Knowing whether or not what I post makes any difference to him will be slim, but at least it gives others information to consider:

You are forcing a perspective that doesn't make sense for bottom-up design. It's a challenge for those who have only known top-down. They want to see something to check a box on their checklist, even though that approach isn't the better choice. This is why the KNOW YOUR AUDIENCE comes up so often. Understanding the market you are targeting is key.

A great example of this is the "*waterfall*" methodology most software developers used for decades. It worked great. Why would you want to change something so well proven? That question is easier to answer now that we have many "*agile*" success stories. In other words, Toyota is demonstrating flexibility by making lots of adjustments along the way. That's a huge benefit from having a platform with that intent... especially when trying to adapt to a dramatically changing market.

To be specific, this is how TNGA came about. That is an architecture designed from the start to be a hybrid, but rolled out as a traditional vehicle. You see an existing ICE model without any realization that it is actually a hybrid with backward compatibility.

We have seen that flexibility for a long time, well hidden to those who don't look for it. Way back in 2003, the system in the second-generation Prius had an oversized traction motor and a PSD capable of delivering 100 km/h using only electricity. Although that opportunity to support EV was available, it was never exploited... and therefore assumed, impossible. The "*ground up*" wasn't acknowledged.

The same should be obvious now with TNGA-e intent. How much of that necessary design is already in place, already providing real-world data? Again, this is how the KNOW YOUR AUDIENCE comes into play. Toyota customers in general don't want a "*ground up*" vehicle. They want their own familiar vehicle to now offer a plug.

Put another way, Toyota can play the discreet game exceptionally well. After all, most people have no idea how a vehicle is designed anyway.

- 5-13-2020** **Basic Advice.** It's nice getting back to sharing knowledge. In this case, it was in an thread very actively discussing charge options for a new owner's Prius Prime. I jumped into the mix with: As already stated, NEMA 14-50 is by far the most common 240-volt outlet, an option heavily favored for level-2 charger sellers. Keep that in mind when shopping. Something else to keep in mind is getting a charger with Wi-Fi support. The very first no-meter-required program in the entire country available for all customers in the provider's district was just started by Xcel here in Minnesota. It takes advantage of Wi-Fi connectivity, which enables time-of-use discount on a non-dedicated circuit. In other words, you can get reduced electricity rates when charging your vehicle, yet share the same 240-volt line. The billing distinction is automatic due to the charger, not a stand-alone meter you would have to install. That means if you have other devices that can plug into a 14-50 outlet, there's no need for any separate wiring. For example, you may have a heater or compressor that also uses 240 volts. That same line can be used. It's a no-brainer advancement in EV support at home... if you have a Wi-Fi enabled charger.
- 5-14-2020** **OMG!** It's hard to believe stuff like this even gets posted: *"Tesla increased its production rate on average power of two within the last 12 years. Even with a slight slow down you get to a few million. My estimate is: 2019=365000; 2020=500000; 2021=900000; 2022=1.5 million; 2023=2.5 million; 2024=3.5 million; 2025=5 million; 2026=6 million."* Fortunately, a bunch of people voted dislike and started sounding off about how thoughtless that was. No automaker could ever grow to that scale with a single vehicle. Expanding to offer a wide variety at that speed isn't possible either. Of course, imagine if that could be. Many enthusiasts make the incorrect assumption that they represent mainstream consumers. That's why so many argue with me and I always repeat the same mantra... know your audience. Expansion beyond niche can be painfully difficult. They don't understand how different it will be, as was clear from this post. In fact, appealing to early-adopters seeking opportunity has very little in common with someone shopping the showroom floor. It's quite remarkable how what I dealt with from Volt hype translates so well with the EV crowd as well. They really don't have any idea how the business aspect works. That blindness from focusing entirely on the engineering is a serious pitiful. Almost all of them fall into that same trap. Ugh.

- 5-14-2020** **Dinosaur.** It took 3 weeks to finally get a reply. The post was nothing but attitude, more ignoring what was posted to continue on with a narrative. This time, it simply ended with: *"Sorry to bust your bubble, Toyota is a dinosaur."* He just plain did not care what was being said. It's that same old nonsense. Within the pointless rant, there was this: *"Toyota is traveling on well paved roads not blazing new trails or leading anything other than the adoption of twenty year old technology."* That's the familiar song & dance. Only focus on the spotlight. We watching that disaster play out so many times with GM, it boggles the mind. They engineer by press-release and enablers gobble it up. That hype they generate is dangerous... but they don't care. I fired back with: That's called a "feel good" speech, used as an excuse to turn a blind-eye toward the real problem. Attempts to validate emphasis on efforts that fail to address what really needs to be done is what we have all seen for the past 20 years. Some people clearly never learn what the lack of balance truly costs. Ironically, the reply of *"bury our head in the sand"* is a perfect describe for the situation. In other words, leadership must include changing the masses. Simply blazing a trail that only a few follow doesn't accomplish that. Put another way, look beyond the early-adopter stage. Reaching the mainstream audience requires a very different approach than just appealing to niche buyers.
- 5-14-2020** **Continuous Improvement.** So many people make anecdotal assessments, pointing out the bigger picture is quite a challenge. They know what they saw. That's the end of it. Not taking the time then, to see if more was really at play, solidifies their belief. Carried forward many years, it becomes almost impossible for them to let go of what had essentially become a narrative. To make matters worse, they have no way of confirming their oversight later. You're basically stuck with an *"agree to disagree"* situation... which I find absurd, since cherry-picking facts isn't objective. Anywho, this happened today with approach: *"Yeah, I'm not talking about kaizen."* He didn't want to widen perspective, despite the obvious need to when discussing overall goals. I was disappointed... which is better than being annoyed... but nonetheless, still a barrier. This was my reply: It is how Toyota's big picture comes together though. So, you must address it. That is a fundamental of how they operate. Set long-term milestones and use that continuous improvement process to help reach it. The beauty of that process is all along the journey there are rewards. In other words, if there is a pause for some reason (a block), it doesn't matter since much has already been delivered. Put another way, Toyota doesn't strive for a big-bang rollout. In fact, most improvements are so subtle they go unnoticed. Their focus on incremental upgrades is how they are able to invest in new platforms. TNGA and TNGA-e are simply steps to note, as were THS and HSD. Each contributes in its own way to get to achieve overall goals. People focus on the milestones though, not even noticing that detail... hence the misinterpretation of purpose or the perception of a course change... especially when they feel compelled to check a box. It's what keeps a forum lively. It doesn't change anything. The milestones still get achieved even if intent or direction is unclear.

- 5-15-2020 Battery Day.** Speculation about rollouts in China is what has been filling discussions lately. Everyone feels it necessary to post an opinion. My comments try to interject facts. In fact, I posted specifications for VW battery choices today. That quickly ended some speculation; however, the upcoming "*battery day*" for Tesla has lots of die-hard fans. So, it will be challenging to squeeze in detail. For example, a fundamental continues to get brushed aside. Tesla will begin including prismatic battery cells in their offering. That's a major departure from the cylindrical type; yet, it is basically ignoring as a contributing factor to performance & longevity. Why? Needless to say, I had a post of my own: Although the technology has indeed improved and more can be reasonably expected, something on that scale screams tradeoff. What did the engineers/chemists give up to achieve that? The first thing that comes to minds is charging speed. We already know that limiting rates for current lithium batteries to 50kW will contribute to longevity. Having lower tolerances would likely result in a cost reduction as well. In other words, the devil is in the detail. Perhaps the long-life packs are limited to tier-1 charging. Interestingly, a limitation of rate would prevent the Osborne Effect. Diversification of product is the next step in reaching out to a wider audience anyway. In fact, that is a fundamental of business growth. The idea of a one-size-fits-all solution is very much an early-adopter perspective. Seeing variation of offerings should not be a surprise to anyone.
- 5-15-2020 Tradeoff, Always.** There is a long-time member on the big Prius forum who refuses to acknowledge change. He has held onto the past and continues to push that perspective as a narrative. It's very frustrating... since the comments made are facts. Problem is, those facts are outdated and for a different audience. Recognition of that has been impossible. He just plain doesn't care. I got a glimpse into the reason why today when the "*balance of priorities*" was brought up. He was absolutely convinced that tradeoffs don't happen with great engineering. A few of us had to do a double-take on that one. Of course, the Volt enthusiasts were that close-minded too. By simply dismissing cost as a factor, the problem goes away. It becomes a issue of pure mechanics, with no influence of business whatsoever. My example caught him off guard. He had absolutely no idea what "*tier-1*" charging was, despite 15 years of participation adding up to over 16,000 posts. His complaints about Toyota and favoritism toward Tesla should have made that a central part of some arguments. That's a SuperCharger option. Tier-1 is slower (max 60 kW), but costs have the price-per-kilowatt than Tier-2. It's a tradeoff decision consumers must make each time they plug-in for a rapid recharge. You make the choice by weighing factors involved. What is more important, time or money? With such a simple example of a tradeoff, I'm hoping our flurry of "*What!?!'*" replies finally gets him to recognize he had been making comments based on incomplete information. Discovering you were poorly informed can be a great teaching moment taken advantage of.

5-16-2020 Rethink, audience. The idea of something for the masses is starting to come around. It's the effort from VW helping to push the industry beyond the niche. That challenge is far more complex than enthusiasts realize. In fact, most are still unaware of what the loss of tax-credits for some actually means. So naturally, confusion related to how that will impact everyone else results in wild guessing. That's unfortunate. You'd think that group would be the best informed. They are not. Know your audience. Anywho, I injected some sense into a discussion today when "rethink" was brought up in a thread about VW not bringing their smallest PHEV to the United State. Of course, focus had already shifted over to Toyota and its possible reaction to tax-credit phase-out:

When Toyota enters phase-out, it will be an onslaught to the industry making up claims about cost & market for PHEV. By then, Toyota will have a strong foothold in the market, being able to take advantage of the switch to unlimited quantity... just like Tesla did. This is the payoff for taking the time to do it right. Look at how disastrous the rush was from GM. Rather than focus on their core consumer (the SUV buyers), they squandered the opportunity by catering to enthusiasts. In others words, they provided an exceptional example of what not to do.

Watch what happens as the RAV4 production in Kentucky pushes a paradigm shift, one that is even more difficult to deny with the rethink our lockdown is stirring. It is a design targeted directly at an audience with very strong potential. VW is well aware of this, hence not even bothering to bring Golf PHEV here. They will rollout a Tiguan instead, but won't compete against RAV4 Prime. Its 13kWh pack and 1.4l engine will be less range & power.

The point is that we are starting to see a recognition of mainstream buyers. The focus on early-adopters was helpful initially with proving out the technology, but we are now well past that phase. It is more important to address other aspects of plug-in ownership now. The obsession with speed & power is becoming an anchor, souring the appeal by ignoring everything else. Again, this is what GM did. Just imagine if the tech from Volt had been spread to a vehicle like Equinox.

5-16-2020 Rethink, warranty. When you mention plug-in vehicles, the response back is almost always with regard to battery replacement. People express concern to such a degree, you really don't have an opportunity to mention anything else. They have already made up their mind. That's why I got a "*gasp!*" type reaction last Fall at the town meeting when bringing up the topic of Toyota pushing their hybrid warranties out further... proof of concerns being addressed. Today, it was online with more of the rethink posting: More evidence of rethink need beyond range & power can be found by looking at Toyota's exploration of warranty. The introduction of Lexus UX300e comes with 10-year/1,000,000km coverage. To get a guarantee that the battery-pack will deliver at least 70% of new capacity after so much time & distance is what ordinary consumers have higher on their priority list. True, the ability to go farther and recharge faster is important, but it most definitely is not what mainstream audiences voice concern about. Recognition of that reality is quite a challenge for early-adopters. They became so obsessed with the engineering, the business aspect of selling vehicles was neglected. The stage of appealing to a wider audience means addressing different priorities. That rethink is inevitable. Watch what happens with regard to such long warranties being offered.

- 5-16-2020** **Rethink, distraction.** Seeing our president now in a state of panic reminds me of the enthusiasts getting caught intentionally misleading. They do everything possible to change the topic. Distraction is their objective. Just like a troll, they throw out random bait hoping someone will bite. For Toyota, it's the same old thing... mentioned something about hydrogen. Enthusiasts tend to be enablers, so that tended to work quite well with the online discussion, especially general audience. We're starting to see evidence of that failing now. It's hard to tell why. Several factors have changed. The biggest is the economy taking a permanent turn. Days of plentiful disposable income are gone, as is the predictability of the oil industry. Just like our restaurants, anything struggling to survive before the pandemic will either close forever or find some new approach to survive. In other words, the rethink is obvious already. It will be necessary. That is exactly why our top executive is in serious trouble. He has no clue what to do. His only approach is failing. And since critical thinking is absent from his qualification, it's clear some type of end is near. Question is, who will do that rethink? With so much of the economy tied into the auto & oil industry, the overall of disciplines and knowledge to share is quite remarkable. I had no idea how much insight my past would contribute to planning for this new future. Having learned to deal with distractions is really paying off.
- 5-17-2020** **Explorer PHEV.** At a starting price (with taxes) of \$82,250 in Germany, it is clearly not a product for the masses. Heck, it doesn't even need a rethink. That's far too expensive to be taken as anything beyond a niche effort. Some will argue this is how you reach the larger audiences faster, by working your way from the top down. We know that doesn't actually work. There's simply no incentive. Thankfully, there is an Escape PHEV on the way already for the United States. So, any of the bad press from this beast shouldn't carry over. Looking at a range of 26 miles on the WLTP scale (European rating), it's difficult to see how the promotion will play out. What will be emphasized? The draw is not obvious. That was the same problem Two-Mode faced. You couldn't figure out who GM was targeting. Perhaps Ford will have better messaging. Looking at the online promotional flyer, it states "*Four EV Modes*". They are Now, Later, Charge and Auto. Explanations for each imply focus will simply be on the fact that you get advantages of having a plug. The degree to which it provides a benefit are absent. It will be interesting to see how that differs when Ford begins selling their next-gen PHEV offerings here.

5-17-2020 Both Worlds. You know I cannot resist spin like this: *"VW wants to switch to electric cars they don't like hybrids, as they have the worst of both worlds, it's a crappy EV combined with an overly complicated ICE."* It has to be addressed. Letting such an opportunity to provide exposition should not be wasted... and, it wasn't:

Once RAV4 Prime rollout begins, convincing the typical consumer that 302 hp delivering 0-60 in 5.8 seconds with a 39-mile EV range is the "worst" will fall on deaf ears. Toyota has over 20 years of well-proven hybrid technology. So, claiming "complicated" really doesn't equate to anything. They already considered very reliable. So, there's nothing to be concerned about. In fact, getting to enjoy EV driving with full confidence of an engine backup is the best of both worlds.

Put another way, how are you going to promote BEV purchases? Are you really going to mislead/misrepresent about what a PHEV has to offer for the sake of pushing electric-only purity? That doesn't make any sense. It is likely quite counter-productive, since the purchase of a PHEV often leads to charging upgrades at home and an interest in a BEV for the next new vehicle purchase.

This is why no legacy automaker is going all-out with BEV plans... though, GM (who has proven to be all bark and no bite) claims to be following that path. It's not good business yet. VW knows that. BEV still have many challenges to address, which early-adopters of ID.3 and ID.4 owners will help to overcome. People don't have the confidence yet. So, bridging to that end-state with PHEV in the meantime is a great solution. It dramatically reduces consumption & emissions right away, no wait for next-gen batteries.

As for the claim of *"selling hybrids would be detrimental as they create confusion in some buyers"*, where's the evidence to support that? Toyota is phasing out traditional vehicles, making hybrids their new base and plug-in hybrids the stage-setters for electric-only. Consumers see a benefit, not a detriment.