

# Charged Up



## ELECTRIC VEHICLE ASSOCIATION OF SAN DIEGO (EVAOSD)

An affiliate of the Electric Auto Association (EAA)

2755 Dos Arons Way, Suite A, Vista, CA 92081

Ph: (760) 670-3388 Fax: (760) 266-9505 Email: [EVAOSD.Newsletter@DriveGasFree.com](mailto:EVAOSD.Newsletter@DriveGasFree.com)

Website: [www.evaosd.com](http://www.evaosd.com)

And we're on Facebook (<https://www.facebook.com/EVAofSanDiego>)

### Officers:

- President: Joseph S. Gottlieb
- Vice President: Lloyd Rose
- Treasurer: Richard Rodriguez
- Secretary: David Crow
- Program Chairman: Staff
- Newsletter Editor: David Crow
- Webmaster: Russ Lemon
- Librarian & AV: Lloyd Rose

Monthly Meetings: During the 4<sup>th</sup> week of the month, day depends on venue.  
(No Meeting in December).

### Meeting Location, Date and Time:

**Coleman University, Hopper Hall**  
**8888 Balboa Ave**  
**San Diego, CA 92123**  
**Wednesday, 27 April 2016, 7:00 P.M.**

Program: News, Projects and Coleman meet

### Inside this issue:

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### Newsletter Topics:

#### Chevy Bolt's Better



#### Volvo Going to Voltage



#### Acronym Soup



## Message from the President

Hi All,

As the roller coaster of the EV world continues, I am fascinated that Tesla has apparently captured that “Apple” allure. They have over 400K deposits for the Tesla Model 3. At \$1,000 per pop, that is over \$400 Million Dollars! Surely that proves the EV revolution is moving forward at an incredible pace.

If only the others like GM and the Bolt can catch some of that mystique. People are really putting money where their mouths are and giving us (EVAOSD) the cannon fodder we need to keep blasting down any negativity and nay sayers. See you at the meeting!

-Joseph



**Tesla Reasonably Priced Model 3 Sedan  
(reservations now, available late 2017)**

## Five Advantages the Chevy Bolt Has Over the Tesla Model 3

by Jeff Cobb April 7, 2016. HybridCars.com

These are unusual times in this new electric car era with second-generation EVs threatening to offer conventional car price-for-performance.

First up will be the 2017 Chevy Bolt meeting the new benchmark of somewhere over 200 miles range and sticker price of around \$37,500 before incentives. Of course anyone who's not been hibernating has also heard of the similarly specified and sleeker designed \$35,000 Tesla Model 3 now with more than 325,000 pre-orders at \$1,000 apiece paid by eager intenders.

Somewhere also, Nissan has a new Leaf believed to be competitive and being readied. This follow-up to the world's best-selling plug-in car will be leveraged by Nissan when it's good and ready to spool up the media circus presently dotting over the two EVs in the limelight. Among these cars, the Bolt has a few advantages, but to balance this a bit, let's get a couple of its perceptive disadvantages out of the way.



One is the design. A perfectly fine looking car, the Bolt nevertheless does not hope to put on the air of the Model 3, and here is one alluded-to rather odd state of affairs. The Bolt, frankly, is along the lines of an electric Chevy Sonic with some extra frills whereas the Model 3 is along the lines of an electric BMW 3-Series competitor. Since when was a BMW 3-Series priced \$2,500 less than a compact crossover from America's Bow Tie brand? But such is life at this stage of the game for the only two players in town.

Another perceived issue is the Bolt, while offering DC fast charging, has no nationwide network of Superchargers to offer. GM says it can replenish up to 90 miles range in 30 minutes, or fully charge its 60-kWh pack in nine hours on 240-volt level 2. Whether these will be serious issues, however, is open to debate. Regarding the looks and design, beauty is subjective – as is brand loyalty and other intangibles involved with buying from GM instead of Tesla – and some will like the Bolt just fine, thank you very much.

Meanwhile, Bolt owners can charge at home and 200-plus miles range means average daily drives may involve little or no range anxiety. You can't fill your gas car at home, and that much stands to be an advantage. For local driving, the lack of a network of quicker DC charging stations such as Tesla offers will at least be less of an impediment than presently faced by owners of sub-100 mile EVs.

That said, let's look at a few advantages for the 2017 Bolt.

### Available Sooner

GM, that maker of so many conventional and profitable cars and trucks, fast tracked the Bolt's development from concept to production ready with 55 test mules and 1,000 engineers. As such, it took Tesla's bait a few years ago, and beat it to market with the spec sheet Tesla has wanted for over a decade – if not the exact design and vision Tesla also brings to the table.



The Bolt has been pre-produced already at GM's Orion facility, and will be green lighted for sales and production later this year, at least a year ahead of the Model 3, assuming Tesla breaks its streak of missing production deadlines, and makes its Q4 2017 projection. Buyers determined to get a Model 3 may still plan to do so, but could consider leasing a Bolt in the interim. GM in turn will have the advantage of a head start and can get to work, assuming it's not already, on its next electrified vehicles, as well as the second-generation Bolt.

### Well Sorted

The practice run at the factory and massive pool of engineers mentioned speaks to GM's long years of product development and manufacturing processes. In the plug-in field, GM has established itself with more than 100,000 plug-in electrified vehicles sold over the past five years and all with a stellar track record. Lessons learned are being applied to the Bolt, GM has said. This week in a tech dissertation at the Global Battery Systems Lab in the GM Technical Center in Warren, Michigan, its engineers in understated tones were brimming with pride over their EV.



The LG Chem cells in the in-floor battery are the best GM has brought to this application. And, the proprietary 200-horsepower motor attached to the in-house-developed drive unit (electric transaxle) has as high as 97-percent efficiency. All other systems and design elements were incorporated into a holistically designed car conceived from the ground up as an EV.

## Good Utility

The roomy five-passenger Bolt with flat floor and tall ceiling has been touted as making such good use of interior space that it's like a vehicle two size grades up from what it is on the outside. Not quite Dr. Who's Tardis, the vehicle does cater to a desire for crossovers and while not a fashion statement, it is brimming with technology, including a 10.2-inch touch screen with the latest Chevy MyLink, a surround view monitor system, and more.

While the Model 3 will have a frunk and trunk, and Musk said a seven-foot surfboard can be squeezed in, the utilitarian value of a hatchback with seats that fold down to make a larger cargo space may work better for people who place an emphasis on hauling stuff.

## Front Wheel Drive

An arguable, if not unequivocal advantage the Bolt has over a base Model 3 is it follows the path many vehicles have with all-around capable front-wheel drive. All things being equal, this is often considered preferable in very slippery conditions. This is mainly because pulling a vehicle with the front wheels maintains direction of travel and control on snow and ice better than pushing it with the rear wheels.

Musk has tweeted the rear-wheel-drive Model 3 "will have great traction on ice due to fast torque response of Tesla drivetrain." Unstated is whether this assumes with winter tires installed which always help, and the rear-wheel-drive Model 3 won't perform as well in those conditions as all-wheel-drive versions, which will cost more. This said, some of this comes down to driver preference, and to be sure, the two cars are dissimilar in intent.



**Tesla Model 3 Sedan**

Further, the Model 3 may be a better driver's car, but GM also has said the Bolt will be no slouch. With a low center of gravity, GM said it built the Bolt to offer a fun-to-drive quotient of its own. Its torquey single-speed motor drive is good for 0-30 mph in 2.9 seconds, and says GM, 0-60 is to be less than 7 seconds, with exact number to be announced. That's slower than the Model 3 which will run sub-six seconds or better to 60 mph, but the Bolt ought to be engaging enough to entertain within legal limits and then some.

Unique features like regen braking paddle, and one-pedal driving also may make it novel, while GM promises it to be a well-balance package.

## Better Odds To Collect Federal Tax Credit

Unless the U.S. Congress grants an extension, the three biggest plug-in electrified vehicle (PEV) sellers in the U.S. – GM, Nissan, and Tesla – are approaching a 200,000 unit cap per manufacturer in the next couple of years or so. After that, the \$7,500 potential benefit starts to fade, being cut to \$3,750 for two quarters, then \$1,875 for two quarters, then zero.

Between Tesla and GM, the Bolt will benefit by being first on sale.

By the beginning of 2017 when Bolt sales are beginning, it's estimated GM may have used about 123,000-130,000 federal credits, based on PEV sales projections by analyst Alan Baum plus known sales to date.

This could mean GM – splitting sales with Volt and Bolt and possibly other PEVs – may be able to sell only 30,000-50,000 Bolts eligible for the full \$7,500 federal credit, depending on how things actually go – but Tesla buyers may be no better off.

Through March, Tesla has sold an estimated 71,610 units out of its 200,000. With Tesla's 2016 guidance seeing an aggressive stretch goal of Model X and Model S sales, the company wants to increase global deliveries from under 52,000 last year to 80,000-90,000 or so this year.

If Tesla's U.S. sales this year grow commensurately, that could mean somewhere in the low 40,000 range give or take a few thousand. Assuming continued growth for 2017, by end of that year when the Model 3 is projected, Tesla could have 40,000 more or less credits to split between the Model S, X and Model 3. Assuming Tesla is not late to production, odds are that fewer than 25,000 Model 3 buyers will get the full \$7,500 credit before it tapers to half and half again for four quarters after the 200,000 is hit.

## Summation

We've seen no headlines of GM's "Tesla killer" as were written prior to the Model 3 reveal, and odds are slim anyone would call it one at this stage, as the Model 3 offers much. Be this as it may, the Bolt has noteworthy advantages, and is on track to take its place in history.



## Volvo to electrify its entire fleet, will release battery-electric vehicle in 2019

Andrew Krok, April 2016, [www.CNET.com/roadshow/](http://www.CNET.com/roadshow/)

Gas is nice and cheap right now, but it's not going to stay that way forever. That's why, despite the continuation of strong truck and SUV sales, automakers are still working to add electricity into the mix. Volvo's just announced a very ambitious goal of selling one million electrified cars by 2025.

Now, "electrified" doesn't infer that every vehicle will be a full-on, battery-electric cruiser. That term can expand to cover anything from mild hybrids, to plug-ins, to hydrogen fuel-cell vehicles. Hybrids will likely play a huge part of Volvo's plan, especially since the automaker claims it will eventually offer "at least" two hybrid variants of every car in its lineup.



### Volvo XC-90 Plug-in Hybrid (EPA 14 mile electric range)

Volvo also said that it plans on releasing its first battery-electric vehicle in 2019. Between now and then, the company will be unveiling a new range of 40-series cars (e.g., V40, S40), which will have electrified versions alongside battery-packing variants of its 90-series and 60-series vehicles. Considering Volvo already has a plug-in XC90, with a PHEV S90 on the way, the group is already starting to ramp up its electrification.

The company's goals go beyond electric cars. Volvo has also stated that it hopes to achieve "climate neutral operations" by 2025, and it's hoping that no one will be injured or killed in a new Volvo by 2020. Autonomy will likely play a large part in the latter objective.

## Sweet Bliss, Another EV Acronym To Remember: PHEVLER – Long Range Plug-In Hybrid

Jay Cole, 22 April 2016, [www.INSIDEEVS.com](http://www.INSIDEEVS.com)

For years now, electric vehicle enthusiasts have lamented how the current acronym situation for different types of electric vehicles is just too basic, too easy to remember.

Now with terminologies such as BEV, PHEV, EREV, FCV, FCEV, NEV, PEV, REX, ZEV, SULEV, TZEV, Enhanced ATPZEV all practically rolling off the common man's tongue, a new player is in the game to bring further clarity!

Enter the PHEVLER!

Or the "Plug-in Hybrid Electric Vehicle with Long Electric Range" if you will.

Yes, now the plug-in elitist in all of us can really show off when describing what our new 2017 Chevrolet Volt kinda is to Nana at this year's Christmas party! Ok, so now that we have sufficiently poked a little fun at the new terminology, introduced by Professor Andrew Alfonso Frank (CTO Efficient Drivetrains Inc. and UC-Davis Emeritus) and Bruce R. Thomas (marketing savant) – here are the bullet points for qualification:

"Abstract. The Plug-in Hybrid Electric Vehicle with Long Electric Range (PHEVLER – pronounced "fevler") is a new category emerging in the electric vehicle marketplace. PHEVLERs are defined as PHEVs with sufficient battery capacity for all electric driving of twice the average daily distance. The average daily driving distance in the USA is 30 miles (48 km), so PHEVLERs are vehicles with at least 60 miles (97 km) of electric range. The 2016 Chevrolet Volt with an electric range of 53 miles is the first commercial car that almost qualifies as a PHEVLER.

PHEVLERs are a disruptive technology that will help revolutionize both the clean transportation and the clean stationary energy sectors of our economy. These vehicles are the green machines that will provide a critical part of the renewable and sustainable society that we need for the future."



**2016 GM Volt – Almost a PHEVLER**

For further details, check out the 17-point synopsis of what it is to be a "PHEVLER" via Green Car Congress [here](http://www.greencarcongress.com/2016/04/20160422-phevler.html) (<http://www.greencarcongress.com/2016/04/20160422-phevler.html>).



FOR SALE: 1998 VW Golf EV Conversion  
Range: 50-60 miles, driver dependent  
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Fill out this form, attach a check, money order or use PayPal, in US funds only, payable to 'Electric Auto Association'. CE = Current EVents newsletter

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\$120 (supporting level-1)  \$240 (supporting level-2)  \$500 or more (high voltage)\_\_\_\_\_  do not list my name

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You can fold this form as indicated and mail it with your payment enclosed. Use tape to seal the form, **on the sides** , before you mail it or send an e-version of this form, through PayPal using <http://electricauto.org/eamembership.html>

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Please, use the EEA Website ([www.electricauto.org](http://www.electricauto.org)) to Join our San Diego Chapter of EEA at:

[https://electricauto.site-ym.com/general/register\\_member\\_type.asp](https://electricauto.site-ym.com/general/register_member_type.asp)

And specifically mention San Diego as your chapter.

The EEA website is a great general resource for EV information.

membership dues include a percentage goes to the EAA Chapter you support for public Electric Vehicle promotion Events like rallies, shows and EV rides.

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2755 Dos Aarons Way, Suite A  
Vista, CA 92081

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