

Electric Auto Association



# CURRENT EVENTS

June 2018 Promoting the use of electric vehicles since 1967 Vol. 50 No. 6

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IN ITS OWN RIGHT  
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*Associate Editor:* Guy Hall  
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*Web Site:* [electricauto.org](http://electricauto.org)  
*Mailing:* 3401 Adams Avenue, Suite A160  
 San Diego, CA 92116 USA

## Membership/Address Changes:

*E-mail:* [membership@electricauto.org](mailto:membership@electricauto.org)  
*Mailing:* EAA Membership  
 323 Los Altos Drive  
 Aptos, CA 95003-5248 USA

If you have comments, please send them to [ceeditor@electricauto.org](mailto:ceeditor@electricauto.org).

## Current Events Back Issues

The EAA has put most of its issues from 2001 to 2018 on its website.

## Please visit

<http://electricauto.org/> and from the home page, click on "Documents" in the top navigation bar.

The resulting page has a listing of years (in a folder), which, when selected, will list the issues for each month. In that folder you will be able to download the pdf that contains the issue you choose.



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# A Mindset for National Drive Electric Week (NDEW)

National Drive Electric Week™



With *National Drive Electric Week*

[<https://driveelectricweek.org/>]

just two months away, we look to prepare for another record-breaking public outreach, topping our records of 2017 that included events in all 50 states.

As we prepare, let us consider four notable ideas from the thought leaders at the June 19 - 21, 2018 Portland, Oregon FORTH Roadmap Conference, the largest and most advanced conference on electric and smart mobility.

## 1. Biggest Obstacle – Variety and Geography

**When asked “If you could wave a magic wand to remove the biggest obstacle to EV adoption in the U.S., what would that be?”**

Chelsea Sexton, longtime EV advocate and star of “*Who Killed the Electric Car?*” answered, “We need a greater variety of vehicles offered across the country. These diverse offerings need to be equally available in all states.”

In California, **there are over 40 types of EVs available.**

For less fortunate states, all is not lost!

While it requires more dedication, you can buy a new car in another state and ship it to your state. In fact, this is the only way that car buyers can own a Tesla in several states, including Michigan. We hear that enterprising used car dealers are buying used California EVs and shipping them to their states, expanding the range of EVs available to meet demand in states like Washington.

EAA members throughout the U.S. can promote the full range of EVs that are currently available. A good work-around includes talking up the transportation of available used EVs. Transporting an EV from state to state can be accomplished for as little as \$500. Especially important is communicating new EV offerings as they roll out state by state. Local EAA chapters have the scoop on this information. Encourage EAA membership, starting at just \$35/year. Join EAA!

[<http://electricauto.org/>]



Raejean Fellows



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# NDEW & EV News

*continued from page 3*

## 2. What do we know about the latest desires of the car buying public?

We must remember this fact.

### U.S. Car buyers are still very much in love with their SUV/AWDs.

Acquaint yourselves with the offerings, especially the new plug-in hybrid (PHEV) SUV/AWD entrants.

- Mitsubishi Outlander (25 miles electric) starting at \$35,000.  
~ <https://www.mitsubishicars.com/outlander-phev/2018>
- Volvo XC60 T8 eAWD, PHEV, 31 Miles electric, Starting at \$41,500  
~ <https://www.volvocars.com/us/build/suv>
- BMW's 2019 Mini Cooper S E Countryman All4 (PHEV), starting at approximately \$36,900  
~ <https://www.miniusa.com/model/hybrid/CooperSECountryman.html>

Luxury Class BEV SUV offerings include:

- Tesla Model X – BEV 295 Range, starting at approximately \$80,000  
~ <https://www.tesla.com/modelx>
- New All Electric Jaguar I PACE S EV-400 AWD, 240 mile range, starting at approximately \$70,000  
~ [http://buildyour.jaguar.com/jag2/r/model/\\_/en\\_us/i-pace/](http://buildyour.jaguar.com/jag2/r/model/_/en_us/i-pace/)

## 3. What did Roadmap speakers tell us about “best practice messaging”? EVs — not a new product. It is still a CAR.

We know cars. We are familiar with cars. The new element is the fuel source. Best practice messaging example: *“It’s just like when you changed from a landline to a cell phone, same product, only a better technology.”*

### Charging Questions? Keep it simple.

Describe how you charge your car. EV drivers generally charge while they are doing something else. Sleeping, Work, School. You plug in your cell – so plug in your Car. Simple! More and more charging options are being installed by cities, counties, states and grants like VW grants through Electrify America <http://electrifyamerica.com/>

## 4. New Technologies Best Sold by Word of Mouth

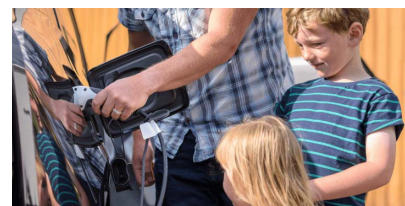
With EVs still representing a small percentage of cars on the road, what is the best way to influence car choice towards the new, cleaner technology of EVs? Roadmap speakers confirmed that:

***New technologies are best sold through word of mouth.***

Word of mouth? That sounds like EAA members! We are proud to inform:

The **Electric Auto Association** <http://electricauto.org/> is the oldest and largest volunteer electric vehicle association. Thousands of like-minded EV enthusiasts meet in 80 + chapters across the country.

*And around the globe.*



*continued next page*

## PRESIDENT'S MESSAGE

### EAA has been educating and advocating for EVs since 1967

EAA members put a personal face on EVs every time we simply describe to someone our own experience of driving electric. The power in this “word of mouth” interaction reinforces the importance of EAA members volunteering at NDEW and other events.

### A final word about NDEW planning.

Good planning is key to hosting successful events. Check out Plug In America’s webinar:

<http://Pluginamerica.org> called “**Organizing a great NDEW event?**”

Their video: <https://youtu.be/QGTv5rPbs8g> and their slides:

<https://driveelectricweek.org/resources/2018-NDEW-Webinar-OrganizingAGreatEvent.pdf>

EAA and PIA volunteers work together closely. This is especially true at **NDEW**. City Captains, who may or may not be attached to an EAA chapter, will find a warm welcome when reaching out to EAA local leadership. City Captains can go to <http://electricauto.org>. Find a local EAA chapter on our Chapter Map. Once connected, volunteer efforts can be easily coordinated.

Stay tuned for other PIA webinars to help with **NDEW** planning.

**NDEW** is not simply an enjoyable day spent chatting about and displaying EVs. EAA members’ “word of mouth” public engagement is powerful in fighting for the hearts and minds of the car buying public. In fact, new technologies are BEST sold this way. Let’s get our mindset focused NOW to achieve the most impactful **NDEW** ever.



*Thank you for all you do for electric vehicles!*

National Drive Electric Week™



## Thank you to our Supporting Members.

**Your generous donations are vital to supporting our activities.**

### **Charged Up - \$60**

Todd Flax  
Patrick Gilles  
Phil Haupt  
Michael Heaney  
Mark Hughes  
Sam Knight  
Heggie Kutz  
Jen Ray  
Gary Miller  
Jared Terpak

### **Supercharged - \$120**

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### **High Voltage - \$500**

Jason France



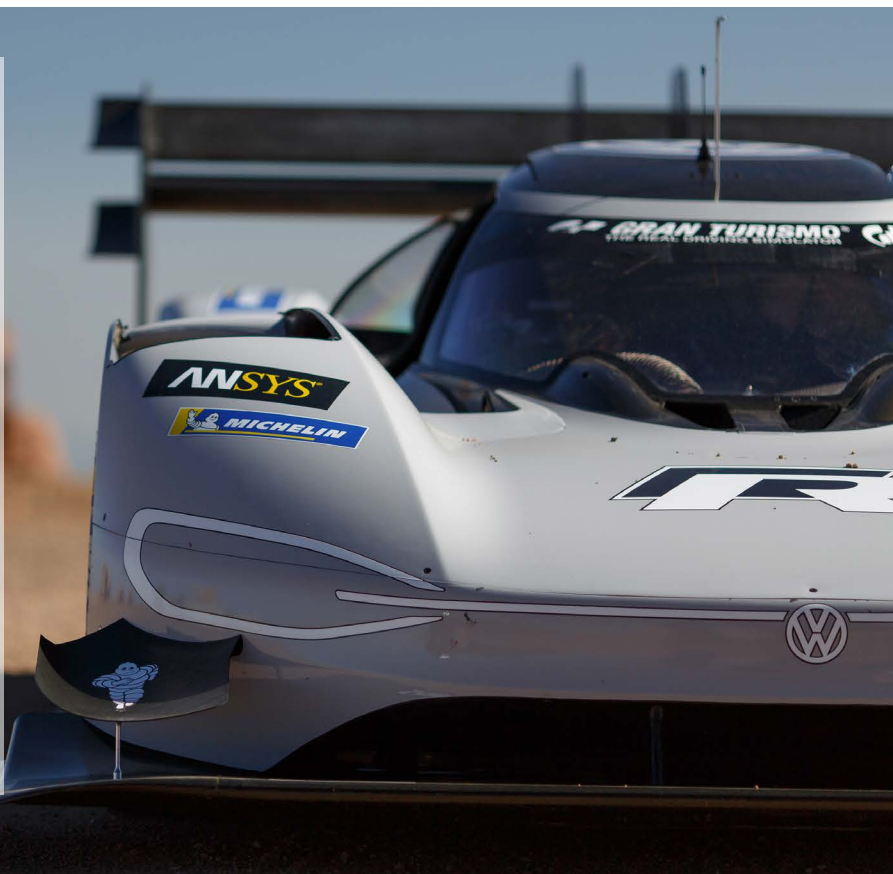


# The battery in the I.D. R Pikes Peak must be charged within 20 minutes, according to the Regulations

*continued from page 1*

*Sophisticated strategy for rapid charging protects the battery from overheating  
Glycerol is used to generate charging current in environmentally-friendly manner*

The paragraph in the regulations for the Pikes Peak International Hill Climb is clear: Should a participant in the most famous hill climb in the world be forced to suspend their run for safety reasons—for example, should it suddenly start to hail or another car require recovering—they have exactly 20 minutes in which to prepare for their second attempt and to return to the start line. “This time frame was a crucial factor when configuring the battery for the I.D. R Pikes Peak,” says François-Xavier Demaison, Technical Director at Volkswagen Motorsport. “Furthermore, the charging strategy and independent mobile power supply are also important aspects of the rapid-charging system.”



Under the leadership of Marc-Christian Bertram, Head of Electrics and Electronics at Volkswagen Motorsport, the team developed the electric drivetrain for the I.D. R Pikes Peak, which generates a total output of 500 kW (670 horsepower). When the Volkswagen Motorsport team attempts to break the existing record for the electric car class on 24 June, it must be ready for countless contingencies. These include a possible interruption. “When determining the charging strategy, we had to bear in mind a possible re-start,” says Bertram. “With that in mind, there were two main

challenges that had to be overcome: To avoid overheating the battery during the charging process, and to ensure that all the battery cells are charged equally.”

When developing the battery for Volkswagen’s first fully-electric racing car, the team benefitted from the expertise in the specialist departments for E-mobility at Volkswagen in Wolfsburg. For example, the fundamental research into the battery for the I.D. R Pikes Peak was carried out in the same laboratories that are being used to develop the battery technology for the future I.D. family of production cars. “We first tested various

chemical compositions of the individual battery cells, then expanded the tests to modular level,” explains Bertram.

The best results came with a lithium-ion battery, which is split and located in two blocks next to and behind the cockpit. The battery has a particularly high power density. “In the case of a racing car, you are not looking for maximum range, but the highest possible power output,” says Bertram, explaining the differences between the race and production cars. The I.D. R Pikes Peak is capable of accelerating from 0 to

*continued next page*

## CHARGING CHALLENGE AT THE I.D. R PIKES PEAK



Photos and text: media.vw.com

62 mph in 2.25 seconds— faster than a Formula 1 car. The 12.4-mile route includes 156 corners, which means that the battery must be capable of nearly that many acceleration events.

During development, particular attention was paid to the way the battery behaves during the charging process at the racetrack. This process requires a sophisticated strategy. Volkswagen Motorsport works with two rapid-charging systems at the same time in the start area on Pikes Peak, each of which supplies the battery in the I.D. R Pikes Peak with fresh energy at a relatively low total output of 90 kW. “The low charging current limits heat development,” says Bertram.

The great unknown is the air temperature in the paddock. Even in June,

temperatures on Pikes Peak can dip to just above freezing point. However, the teams can also be faced with sweltering mid-summer heat. “The ideal temperature for the battery is about 86 degrees Fahrenheit,” says Bertram. If necessary, air can be supplied to cool the internal battery system in the I.D. R Pikes Peak. However, cooling must not be too dramatic during the rapid-charging process, in order to avoid the build-up of condensation.

Volkswagen Motorsport is also using innovative methods to generate the energy required to charge the battery. Because the temporary paddock, located at more than 9,000 feet above sea level, does not have a suitable power supply, a conventional looking generator is used to produce the electricity required by Volkswagen Motorsport. However,

unlike conventional generators, this one runs on Glycerol, rather than diesel.

Glycerol is a sugar alcohol that is a by-product from bio-diesel, for example, and combusts with virtually no harmful exhaust fumes or residues. The liquid itself is non-toxic and is even permitted as an additive (E422) in the food and cosmetics industries. “The Glycerol-powered generator not only supplies the I.D. R Pikes Peak with environmentally-friendly electricity before the practice sessions and the race,” explains Marc-Christian Bertram, “but also all the electrical devices in our pit area during the race, from the engineers’ laptops to the coffee machine.”



<https://www.media.vw.com>



## Chapter Highlight



This new monthly report will feature short activity summaries from our various chapters to foster knowledge transfer. Such sharing can be powerful for planning new startup activities, special meetings, or just reinvigorating established groups as we grow into our second 50 years of pioneering e-mobility.

### Metro Richmond, Virginia's community of EV owners and enthusiasts

A chapter of the Electric Auto Association, Drive Electric RVA consists of people who promote EVs as a fun, practical transportation alternative that also reduces energy consumption and air pollution.



Stephenie Harrington, Model S owner and chapter member of Drive Electric RVA, giving a ride to Joshua Cole, chief of staff of Del. Kelly Convirs Fowler, at Drive Electric Day at the Capitol.  
(Photo by Drive Electric RVA)

Drive Electric RVA had a very productive start to 2018. We continued our usual educational and outreach efforts, bringing a variety of electric vehicles to round-ups at various farmers markets as well as to several public events, including the RVA Environmental Film Festival and Chesterfield STEM Expo.

In addition, we expanded our educational mission by debuting our

EV Experience infographic exhibit and video kiosk. The exhibit and kiosk were featured at our booth at the Virginia Motor Trend International Auto show (a first for us) and displayed at a fundraiser for Virginia Clean Cities, a Green Drinks mixer, and an energy fair sponsored by Henrico County.

We also ventured into advocacy work for the first time with an event called

“Drive Electric at the Capitol.” Working with the Virginia Sierra Club and Virginia Clean Cities, we offered rides in EVs to state lawmakers and their staff to educate them about the technology. We also provided information on two bills that were proposed (but ultimately did not pass) to provide a tax credit on EV purchases and encourage the construction of charging stations by state agencies.





# Nebraska Organization Proposes Offering \$4,000 to Boost EV Ownership

*By CE Staff*

Nebraska Clean Energy advocates will test whether a \$4,000 grant for purchasing a new electric vehicle and a \$500 grant for installing a specific home charging station are incentive enough to get people into electric vehicles. Omaha (NE) Public Power District and the Nebraska Community Energy Alliance are launching a pilot program to educate OPPD's 374,000 customers about the benefits of electric vehicles, and provide incentives for their purchase and use.



Credit: 123rf.com

The experiment is aimed at Douglas County, Nebraska residents because more than half of the state's 600 registered electric vehicles are in the Omaha metro area. One goal is to increase the percentage of EVs registered in the state from the present four hundredths of one percent. If the program attracts more users to electric vehicles, the Energy Alliance plans to push state lawmakers in Lincoln for state incentives, with data showing that they work, said the alliance's director.

In addition to a \$500 rebate for customers installing a Chargepoint Home charging station purchased through OPPD's website, Nissan has agreed to take \$3,000 off the purchase of a new Nissan Leaf in OPPD's 5,000-square-mile service territory, which includes Omaha and 13 counties in eastern Nebraska. Add to that the

\$4,000 rebate OPPD will administer with the Nebraska Community Energy Alliance, if customers purchase and register an EV in Douglas County, the home county of Omaha. That rebate can be for any manufacturer's new electric vehicle.

The pilot program's grants are drawn from about \$275,000 in funds from the Nebraska Environmental Trust, and should make it possible to grant \$4,000 to about 50 people and, with support by the Omaha Public Power District funds, up to \$500 each, to give hundreds the help for charging station purchase.

OPPD officials say they want to study power use patterns and load strains. They hope to distribute the first-come, first-served grants to provide the utility information about demand at the neighborhood level from specifically networked electric vehicle charging stations; adding an electric vehicle

is roughly equivalent to adding the usage of about a third of a home or a new air conditioning unit.

OPPD assumes that 150,000 EVs eventually will be located in its service area, representing 9% of total vehicles. If that happens, OPPD would expect a corresponding rise in electric load of about 50 MW. In recent years, the utility has incorporated nearly 50 EVs and hybrids into its vehicle fleet, along

with several EV chargers and continuously evaluates their performance on a number of levels.

Omaha resident Gregory Burnett bought his 2018 Nissan Leaf in April. He said he was swayed, in part, by federal tax incentives of up to \$7,500, and there are incentives from individual manufacturers that can reach into the thousands.

Burnett thinks what really sells electric vehicles is the experience of driving one. They are quiet, low-maintenance, and surprisingly quick. He charges his Leaf from regular outlets, which takes longer than a higher-voltage charging station. He doesn't miss gas stations.

A daily commute of less than half the car's range (for his Leaf that's 150 miles) means that the car can be charged at night from the slower standard outlet.



# CPUC Approval of Utility Projects Keeps California at Forefront of Transportation Electrification

The California Public Utilities Commission (CPUC) has continued its work to help ensure California meets its clean air and greenhouse gas reduction goals for 2030 and beyond by approving \$738 million in transportation electrification projects for the state's electric utilities. This decision keeps California at the forefront of the nation in investment in transportation electrification infrastructure.

In order to help speed the transition to electrified transportation for consumers, reduce greenhouse gas emissions, and meet clean air goals, the CPUC authorized the state's utilities to implement the following over approximately five-years:

- San Diego Gas & Electric's (SDG&E) Residential Charging Program (\$137 million): SDG&E will provide rebates to residential customers to install up to 60,000 Level 2 charging stations at home.
- SDG&E's Residential Grid Integrated Rate (no incremental costs): SDG&E will offer customers participating in the Residential Charging Program the option to enroll in an EV-only rate that varies hourly based on day-ahead forecasts of grid conditions.
- Pacific Gas and Electric Company's (PG&E) Direct Current Fast Charging Make-Ready Program (\$22 million): PG&E will install the make-ready infrastructure at approximately 52 sites that will support approximately 234 fast charging stations.
- PG&E's FleetReady Program (\$236 million): PG&E will install the make-ready infrastructure at a minimum of 700 sites to support the electrification of at least 6,500 medium- or heavy-duty vehicles.
- Southern California Edison's (SCE) Medium- and Heavy-Duty Infrastructure Program (\$343 million): SCE will install the make-ready infrastructure at a minimum of 870 sites to support the electrification of at least 8,490 medium- or heavy-duty vehicles.
- SCE's Commercial Electric Vehicle Rate Design (no incremental costs): SCE will establish three new time-of-use rates for commercial customers with electric vehicles.

"The only way to get to a largely carbon-free California is by substantially electrifying the state's vast transportation system," said Commissioner Carla J. Peterman, who is

assigned to the transportation electrification proceeding. "The decision made today aims to balance costs with benefits for all ratepayers, considers impacts on competition, and directs significant portions of the utility programs to disadvantaged communities often hit hardest by traffic and air pollution. If we're successful with this and other electrification efforts already underway, much of the nation will likely follow California's lead, and together we will make a difference in the fight against climate change."

The budget for these projects is approximately \$738 million, with a further \$29.5 million for program evaluation. Each of the four investment programs has a requirement to target a certain percentage of its investment in disadvantaged communities.

Said Commissioner Martha Guzman Aceves, "We will work hard to ensure that the \$738 million in ratepayer investments benefit California's most polluted communities and energizes the transformation of our transportation systems."

"This action by the CPUC makes California's investor-owned utilities full partners in accelerating the drive to a zero emission transportation future," said California Air Resources Board Chair Mary D. Nichols. "As the network of residential, workplace, and public electric vehicle charging stations expands, more communities will be able to enjoy the pleasures of driving plug-in electric vehicles."

In 2016, the CPUC directed the investor-owned utilities to submit applications proposing projects aimed at accelerating transportation electrification across all sectors, from light-duty passenger cars to medium- and heavy-duty fleet, transit, and freight vehicles. PG&E, SCE, and SDG&E proposed the large-scale programs approved today, initially requesting approximately \$1 billion to implement. Today's decision modifies some aspects of each approved program, including the budgets. The decision was based on robust public process that included 11 days of Evidentiary Hearings and four Commissioner-led community workshops throughout the state.

Senate Bill 350 sets forth 2030 greenhouse gas reduction targets to be achieved through a variety of measures, including widespread transportation electrification.



The proposal voted on is available at: [docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K937/201937852.PDF](https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K937/201937852.PDF)



# World's Largest Battery and Rapid-Charge Network Launches to Accelerate EV Adoption

By Lorraine Chow

London-based Pivot Power unveiled plans to build the world's first national network of grid-scale batteries and rapid-charge stations across the UK to accelerate electric vehicle (EV) adoption and to usher in low-carbon transport.

The ambitious £1.6 billion (\$2.1 billion) initiative consists of 50-megawatt batteries constructed at 45 sites around the country and located near towns and major roads. The hubs will be installed at electricity sub-stations to help National Grid manage supply and demand.

Pivot Power aims to address the three major barriers to EV adoption identified by the country's Department for Transport: Availability of chargers, range of a charge, and cost. The company says it will offer mass charging at competitive rates, which will also help lower the costs of EV ownership.

Britain intends to ban all new gasoline- and diesel-fueled vehicles by 2040, so it must ramp up its charging infrastructure to keep pace with electric car adoption. More EVs on the road will also bring more strain on the nation's power grid.

"We expect the use of electric vehicles to grow rapidly," said Graeme Cooper, National Grid project director for electric vehicles, in a statement. "This innovative solution will help accelerate adoption by providing a network of rapid charging stations across the country enabling cars to charge quickly, efficiently and as cost-effectively as possible."



"It will also give the system operator more choice and flexibility for managing the demands in the day to day running of the network, and also help mass EV charging," Cooper added.

The 2-gigawatt battery network will also be the world's largest. The total capacity can store enough electricity to supply 235,000 average homes for a day, or about two thirds the power of the planned Hinkley C nuclear power plant, the company touted in a press release.

Pivot Power plans to have operational batteries at 10 sites in the next 18 months. A site on the south coast, pending planning approval, could be operational by the middle of 2019. These hubs can support various infrastructure, including public rapid charging stations, electric bus depots and bases for large transport fleets.

"We want to future-proof the UK's energy system and accelerate the electric vehicle revolution, helping the UK to clean up its air and meet climate targets," Pivot Power CEO Matt Allen said in a statement. "Big problems require big solutions, and we are moving fast to put in place a unique network to support a clean, affordable, secure energy system and embrace the low-carbon economy."

Michael Liebreich, the founder of Bloomberg New Energy Finance, is an advisor and early investor in Pivot Power.

"Renewables, batteries and electric vehicles are going to completely transform our power system, not just because they help clean up our horrible air quality and meet our climate targets, but because their costs are falling far faster than people realize," he stated.

<https://www.ecowatch.com/renewable-energy-network-london-2571350395.html>

# Tapping the Tesla Charging Network

By Don Christian, Silicon Valley EAA

Two interesting new products have appeared recently – the JDapter [1] (\$239) and the TeslaTap [2] (\$239.95). Functionally identical, these allow a non-Tesla EV to charge through Tesla *destination chargers*, Tesla travel chargers and HPWCs (High Power Wall Chargers). The adapters work as advertised. Their capability opens up new capabilities for non- Tesla EV drivers. It represents a bridge between the Tesla ‘island’ and the non- Tesla world of plug-in hybrids and ‘standard’ EVs.

We purchased both products and tried them out on the road. They generally work as advertised, with some limitations.

## First, some background:

Teslas are versatile cars. They can plug into just about any electrical power source to recharge. Tesla’s worldwide network of chargers and superchargers\* is impressive, and for the three original Tesla cars, charging is 100% free. For the Model 3, the latest, it is not.

But Tesla cars don’t require this network – they can also plug-in to any ordinary “standard” non-Tesla EV charger. In the USA the standard current is 240 volt RMS AC, supplied through a SAE J1772 plug. The plug merely allows the vehicle to safely connect, without dangling wire pigtails.

The SAE ‘standard’ plug is used by more than 30 EVs, and it’s different from the Tesla plug. The two are physically NOT compatible. However, Tesla supplies an adapter that allows Tesla cars to plug into ordinary US chargers. That opens up many more charging options for Tesla drivers. What about non-Tesla EVs – they cannot use Tesla chargers, because the plug doesn’t fit.

This protection mechanism prevents non-Tesla EVs from plugging in. This means that if you drive a Nissan Leaf or a Chevy Volt, all Tesla-branded chargers are off-limits to you. They are not usable at all.

Now this compatibility problem has been solved by the new adapters that bridge the compatibility gap for AC charging (120VAC and 240VAC), **but not for DC Fast Charging\***.

We’ve been testing the adapters across California at Tesla ‘destination’ sites. We’ve tried various EVs and hybrid vehicles including Nissan Leaf EV, Chevy Volt hybrid, Coda EV, and Karma hybrid. The adapters worked well in most cases. We found some new HPWCs refuse to work with Nissan Leaf. The charger stops and displays a red error light. The manufacturers are aware of this problem and say they are working on a solution.

Some Tesla destination charger handles are locked inside a safe-box — presumably to keep freeloading EV drivers from “stealing” power. But most that we found are still unlocked, free and open.

Tesla “Destination” chargers are supported by the business that owns the parking space, the utility ratepayer. They are the real “boss” of the HPWC – not Tesla corporate.

The units are advertised to work with nearly 40 EV models. The only plug-in vehicle that it is not compatible with is the newest Chrysler Pacifica Plug-in Hybrid, and also the Nissan Leaf, as noted. Work on that continues, however. Both units claim compatibility with the following cars:

1. Audi A3 E-Tron
2. BMW i3
3. BMW i8
4. BMW 330e
5. BMW X5 xdrive40e
6. Cadillac ELR
7. Chevrolet Bolt
8. Chevrolet Volt
9. Chevrolet Spark EV
10. Fiat 500e
11. Focus EV
12. Ford C-max Energi
13. Ford Focus Electric
14. Ford Fusion Energi
15. Honda Accord Plug-in Hybrid
16. Hyundai Sonata Plug-In Hybrid
17. Hyundai Ioniq
18. Kia Soul EV
19. Mitsubishi i-MiEV
20. Mercedes B250e
21. Mercedes C350 Plug-in Hybrid
22. Mercedes S550 Plug-in Hybrid
23. Mercedes-Benz GLE550e
24. Mercedes B-Class Electric Drive
25. Nissan LEAF \*\*
26. Porsche Panamera S e-Hybrid
27. Porsche Cayenne S E-Hybrid
28. Porsche 918 Spyder
29. Smart ForTwo Electric Drive
30. Toyota Prius Plug-in
31. Toyota Prius Plug-in Hybrid
32. Toyota RAV4 EV (Gen 2)
33. Toyota Prius
34. Toyota Prius Prime (Plug-in Hybrid)
35. Volkswagen e-Golf
36. Volvo XC90 T8

\* One final note: **these adapters are NOT COMPATIBLE and are not to be used with the Tesla DC Super Charger Network.**

## Product Links:

[1] JDapter  
<http://bit.ly/QcJdapter>

[2] TeslaTap  
<http://bit.ly/TeslaTap>

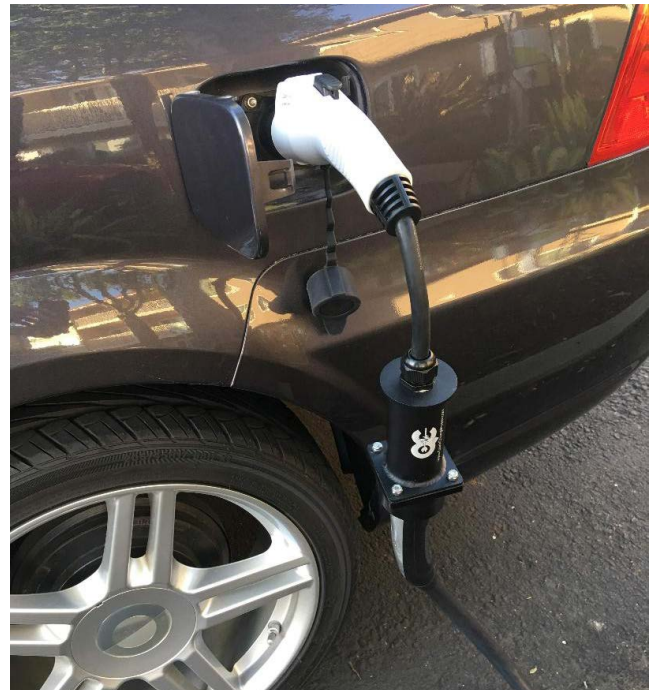




## TESLA ADAPTERS



Here's a photo of the error indicator. Red lamp on Tesla unit.



QuickCharge Power adapter plugging into a Tesla 'wand' seen at the bottom of this cylindrical canister here. This allows any J-1772 equipped EV to use a Tesla Destination Charger (EVSE).  
*continued on page 14*



# Charging

Continued from page 13



This represents a sight not previously seen with a non-Tesla EV charging on a Tesla Destination charging station (in this case a 2013 Coda EV).



## *Truly disruptive technology!*

**With Tesla's massive charging network buildup of "Destination Chargers" at Hotels, motels, B&B's nationwide you now can plug-in to their connectors everywhere using only this adapter.**

Driving a conversion, or other non-Tesla is now easier than ever! This unit will convert the Tesla High Power Wall Connection (HPWC) to your standard J-1772 inlet and give you a boosted charge. Available in 32, 40, 50 and 80 Amp flavors (top image) with varying length cables. Using one of these — plan your next trip with ease!

**Visit <http://www.umc-j1772.com> or call Dave at 1 805 886-5213**



## Tesla Model S, Model X will feature smartphone keys soon, says Musk



In a recent Twitter update, Tesla CEO Elon Musk stated that Model S and Model X owners could soon access their electric cars through Bluetooth-enabled smartphone keys.

The feature was addressed on Twitter by Josh Cunningham, a Tesla enthusiast who recently purchased a Model S. In his tweet, John noted that it would be great if Tesla could roll out an update that would allow the Model S to be accessed through a phone key, just like the Model 3.

Responding to the Tesla enthusiast, Musk stated that the company would indeed be adding the Model 3-esque feature to the luxury sedan and SUV. According to Musk, all Model S and Model X, regardless of the date the vehicle was manufactured, could work without a key fob, provided that owners have a smartphone that can pair with the vehicles through Bluetooth. Musk noted, however, that signal strength must be optimal and owners must first activate the feature

before the Model S/X phone key could work.

Tesla opted to forgo its iconic car-shaped key fobs for the Model 3, with the compact electric car using an authenticated phone key and an NFC-enabled key card instead. The Model 3 Owner's manual describes the electric car's smartphone key as such:

"Using your phone is the most convenient way to access your Model 3. As you approach, your phone's Bluetooth signal is detected, and doors unlock when you press a door handle. Likewise, when you exit and walk away with the phone, doors automatically lock (provided the Walk Away Lock feature is turned on.)"

Several other new features for Tesla's vehicles are revealed in this article:

<https://www.teslarati.com/tesla-model-s-model-x-bluetooth-smartphone-keys-says-elon-musk/>



## Did You Know?

As deliveries of EVs continue to climb (not just in California), some readers might be surprised to learn these thought provoking factoids.

- In Henderson, Kentucky — a city of 30,000 people with its own coal plant — officials can't sell the power because it now costs 33 times more than electricity on the open market. Check this link: <http://wfpl.org/the-decline-of-u-s-coal-power-looks-a-lot-like-henderson-kentucky/>
- Clean energy (renewables) is cheaper than coal and fracked gas. A recent report out from the Rocky Mountain Institute (RMI.org) shows that: Power producers [nationwide] are rushing to build natural gas plants and pipelines to replace retiring coal, but in less than 10 years much of that infrastructure will be more expensive to operate than the cost to build new renewables....That would leave investors and ratepayers saddled with billions in stranded assets.

Forbes provides great depth on this issue here: <https://www.forbes.com/sites/jeffmcmahon/2018/05/21/the-rush-to-gas-will-cost-billions-in-stranded-assets-as-renewables-get-cheaper-institute-says/>



# 2018 Nissan Leaf: Get Your Tesla Model 3 Antidote Right Here

*The following is an excerpt of an article written by Eric Schaal for Cheat Sheet online. The url pointing to the entire article follows at the end.*

*By Eric Schaal*

Has 2018 been a good year for electric vehicles? Well, there are a few ways to look at it.

- On one hand, a breakthrough model like the Honda Clarity Plug-in Hybrid emerged, along with a national ad campaign during the NBA Finals. That was a big step forward.

- On the other hand, the landmark, affordable Tesla still hasn't appeared. The Model 3s that did make it out of the factory have been troublesome, to say the least.

Meanwhile, the Nissan Leaf got a major facelift and much more range for the 2018 model year without going above \$30,000 for the base model. Over five days at the end of May, we got an idea what it's like to live with Nissan's new EV. **Here's what we learned driving the 2018 Leaf, which in many ways is the antidote to the Model 3.**



The 2018 Nissan Leaf is a major upgrade over the previous model. | Photo from: Eric Schaal/The Cheat Sheet



Charge your Leaf at the local Whole Foods, if you happen to shop there. (This one is in Brooklyn.)

| Photo from: Eric Schaal/The Cheat Sheet

## 1. Leaf performance got a significant upgrade.

- You notice every one of the extra 40 horses.



Gone is the old Leaf's frumpy look. | Nissan

## 2. Its styling lost its awkwardness

- The 2018 Leaf is no longer a distraction at the curb.

## 3. Range anxiety is mostly gone.

- The EPA-estimated range of 151 miles is a lowball number for city driving.



Even with the added power, Leaf energy consumption remains solid. | Nissan

## 4. 'Fuel' economy remains unchanged.

- At 125 MPGe in the city, the 2018 Leaf actually improved slightly.

*continued next page*





Gone is the old Leaf's frumpy look. | Nissan

- 5. The infotainment system is solid.**  
• Even Bluetooth worked on the first try.



A few areas in the cabin could use work. | Nissan

- 7. You might not love the interior quality.**  
• We expected more from the \$38,500 model.



Buttons where the gear shifter sits in most cars handle ECO and regenerative braking modes. | Nissan



You don't have to listen to excuses from a CEO. Leaf's ready to drive now. | Nissan

- 8. Leaf is again the market's most practical EV.**  
• With its low base price, range, and performance, Leaf is back to doing what it does best.

The 2018 Leaf is affordable, user-friendly, and available right now.

[Be sure to read the entire article as Eric elaborates on each point. See the url below.]



The ECO button sits on the top left of the small control panel, with e-pedal switch on its right. | Nissan

- 6. Going the ECO route requires no effort.**

In accordance with Title 17 U.S.C. Section 107, this material is distributed without profit to those who have expressed a prior interest in receiving the included information for research and educational purposes.

<https://www.cheatsheet.com/money-career/2018-nissan-leaf-get-your-tesla-model-3-antidote-right-here.html/7/>

# Tesla Model 3 Gets CR Recommendation After Braking Update



By Simon Alvarez

The Tesla Model 3 has managed to earn a “Recommended” rating from *Consumer Reports* after a recent firmware update improved the vehicle’s braking distance by nearly 20 feet.

In a recently published update on its official website, *Consumer Reports* confirmed that its new test results for the Model 3 revealed that Tesla had reduced the braking distance of the compact electric car by nearly 20 feet through a recent OTA update [Ed: OTA means Over The Air]. During the magazine’s retest of the vehicle, the Model 3 managed to hit a full stop from 60 mph in 133 feet, a 19-foot, or roughly 13%, improvement over its previous braking distance of 152 feet.

According to CR, the Model 3’s updated 133-foot braking distance now stands among typical compact luxury cars. The numbers also match Tesla’s own figures. Ultimately, the Model 3 firmware update pushed out this past weekend was enough to raise the compact electric car’s Overall Score enough to warrant a “Recommended” rating.

*Consumer Reports* Auto Test Director Jake Fisher noted that this is the first time he has seen a carmaker improve a vehicle’s braking system through an OTA software update.

“I’ve been at CR for 19 years and tested more than 1,000 cars, and I’ve never seen a car that could improve its track performance with an over-the-air update,” he said.

*Consumer Reports* noted in its updated score for the Model 3 that several points of concern still were evident in the vehicle. Among these are wind noise, a stiff ride, and an uncomfortable rear seat. As we noted in a previous report, some of these were addressed by Elon Musk during a phone conversation with CR’s Jake Fisher.

According to Musk, some of these concerns had been addressed in the Model 3 production line over the past few months. With this in mind, *Consumer Reports* stated in its updated results that it would be renting another vehicle to validate Musk’s statements about the more recent improvements to the Model 3. Nevertheless, Musk has posted a few tips to improve the Model 3’s wind noise and ride quality.

[This article is an excerpt of a piece that appeared online. Read the rest of it at the url below.]



Improvements to the touch panel and further automated features for the vehicle were discussed by Musk during his conversation with the CR Auto Test Director.

<https://www.teslarati.com/tesla-model-3-gets-cr-recommendation-update-reduces-braking-distance/>



# More electric cars get charged at work than at public chargers

By Eric C. Evarts

Electric-car charging is going through a growth spurt.

Volkswagen is spending big money through Electrify America to set up high-speed charging stations, as a result of the settlement terms of the Dieselgate emissions cheating scandal.

Northeastern states are banding together to coordinate a rollout of electric car chargers. New York and Maryland have passed new charging initiatives, and California has passed a record incentive for utilities to expand charging infrastructure.

And yet, statistics still show that 80 percent of all charging for electric cars is done at home.

Last week in our Twitter poll, Green Car Reports asked our own Twitter followers, many of whom already own electric cars, where they charge them.

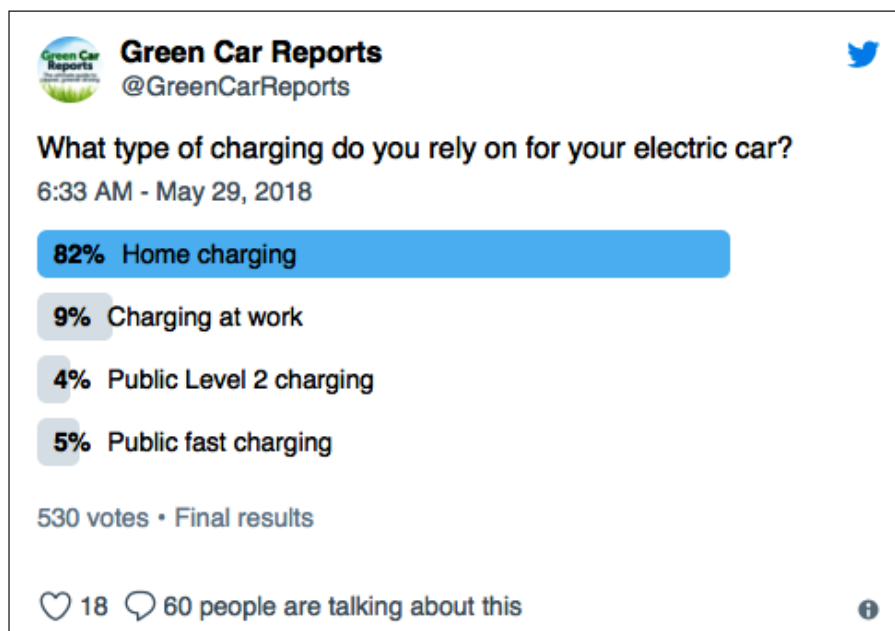
Not surprisingly, 82 percent of our respondents also said they rely on home charging for their cars.

Only five percent said they considered themselves dependent on public DC fast charging of the kind that Electrify America, California, and other states are working to build. That small number is less surprising, since public DC fast charging is not yet prevalent in public places.

Among our Twitter followers, only four percent rely on public Level 2 chargers. Perhaps that's because many public Level 2 chargers have not been



Electrify America 350 kw chargers at Home Depot in Chicopee, MA



reliable, frequently are out of order or have their parking spaces occupied by non-electric cars.

As always remember that our Twitter polls are not scientific and may not

reflect wider national trends among electric-car drivers (or otherwise), because of their low sample size and the fact that the audience is self-selected from our audience of early electric-car drivers.

[https://www.greencarreports.com/news/1117053\\_twitter-poll-results-more-electric-cars-get-charged-at-work-than-at-public-chargers/](https://www.greencarreports.com/news/1117053_twitter-poll-results-more-electric-cars-get-charged-at-work-than-at-public-chargers/)

# Nissan takes camper vans fully electric with new e-NV200 pop-top

By C.C. Weiss

Electric camper vans have so far existed only as concepts, one-offs or limited edition conversions, but now one of the biggest authorities in electric vehicles is stepping into the game with its own electric camper van. At the recent Madrid Motor Show, Nissan showed a new pair of NV camper vans and announced an e-NV200 camper van to go along with them. Whether you fill up with gas or juice up with electricity, Nissan's new camper vans are a smart, compact way of touring country and continent.

Nissan announced the first deliveries of its new extended-range 40-kWh e-NV200 van in Madrid, the same day it showed the new camper vans. It would seem Nissan sees the boosted 124-mile (200-km) combined range (WLTP) as sufficient to experiment with a camper van version. The new e-NV200s are built in Barcelona, and the camper van version is being launched in the Spanish market.

The e-NV200 is clearly the most interesting in Nissan's new camper van lineup, but Nissan shows gas NV200 and NV300 models in its photos while stating that the modifications will also be available for the e-NV200.

Nissan has revealed the most information about the larger NV300 model, which features a compact but efficient layout that includes a pop-up sleeper roof, standing height interior, kitchen block with stove, sink and refrigerator, removable table that attaches to the kitchen block, swivel front seats, interior heating, and gas



Offering Automakers, Station Owners, Unparalleled Integration Options and Flexibility



Nissan showed the vans at the Madrid Motor Show with included awnings and storage

and water systems. There are also floor rails for more flexibility in positioning the rear bench.

Of the e-NV200/NV200, Nissan mentions only that it offers a folding-

seat bed, cabin heating and window shades.

Nissan does say that Spain's Bram Technologies is its conversion partner

*continued next page*



## EV CAMPER VAN IN SPAIN

in creating the vans. Bram offers both a “Weekender” sleeper package and a “Pacific” full camper (includes kitchen) for the e-NV200.

Available equipment and specs may vary between Bram’s packages and the official Nissan campers, but for reference, Bram’s Pacific kit includes folding rear bench and pop-up roof beds, an electrical system with AGM battery, 12V outlets and USB ports, a 40L fridge/2L freezer, an optional Webasto heater and an optional 140-W solar panel.

Nissan isn’t the first to have an e-NV200 camper van, as British conversion shop Hillside Leisure developed its Dalbury E several years ago. It will be interesting to see if the broader reach of Nissan’s name and dealership network helps to popularize the idea of an all-electric camper van or if electrics remain a forgotten fraction of a sliver of the camper market. We imagine we’ll still have to wait for the production Volkswagen I.D. Buzz to really see electric camper vans take off.

The Nissan e-NV200, NV200 and NV300 camper vans are launching only in Spain for now and will be available with a variety of customization options at Nissan dealerships there.

Source of article and photos: Nissan



Designed by Bram Technologies, the interiors are compact but functional, providing all you need at camp



The kitchen block includes a stove, sink and small fridge/freezer



Both models come with a folding-seat bed, and the NV300 also has a pop-up roof bed

<https://newatlas.com/nissan-nv-electric-camper-van/54957/>



# Ordering through Delivery of a Tesla Model 3 *A Personal Journey*



By Lee Gasper-Galvin, WIEVA

It all began on March 31, 2016. Sure, I could have simply signed up for my Model 3 online—but I wanted to be part of all the excitement and hoopla! I drove a little over two hours to stand in line with more than a hundred other electric vehicle (EV) enthusiasts at the Highland Park, IL Tesla Store to celebrate the first offering of Tesla's EV for the masses. (Wisconsin is one of the states that does not allow direct sale of goods by the manufacturer to the consumer, which is the Tesla Store model—but we're trying to change all of that!)

For the next couple of years, I eagerly read anything I could get my hands on, concerning the greatly anticipated Model 3. Finally, on March 22, the long-awaited announcement came by email: "Your Model 3 is Ready to Order". On March 23, I placed my order and Tesla confirmed it by email: Deep Blue Metallic exterior, long-range battery pack, premium upgrades, 19" sport wheels, and rear-wheel drive. The image of the future "machine of my dreams" popped up on my computer screen—and it was beautiful!



No Model 3 to be seen at the Store on 03/31/16—only a Model S to tantalize us

The agony of having to await the arrival of my cherished ride was mitigated by keeping busy with several useful activities:

*continued next page*



## MODEL 3 PURCHASE NARRATIVE



The sign-up process at the Design Studio

- Called my State Farm agent to give him a “heads up” about the new addition to the family
- Ordered my Tesla Wall Mount Charger from Amazon
- Set a date for a Tesla-approved electrician from my area to install the charger in my garage
- Cleaned out my basement and garage to give the electrician the access he needed
- Shopped around for the lowest interest rate, and secured a loan with a local credit union
- Downloaded the Tesla Model 3 Owner’s Manual from the Internet and started reading it

In early April, I was assigned an “Inside Sales Advisor” from Nevada to assist me with the remaining paperwork. The credit union required a “certificate of authorization” and payment of Wisconsin state sales tax on the vehicle, in order to complete the loan process.

On April 10, Tesla called and left a message that my Model 3 was at the Highland Park, IL Tesla Store ready to be picked up! (Once you are notified that your vehicle has arrived at the store, it is expected that you will pick it up within one week, or risk having your vehicle sold to someone else.)



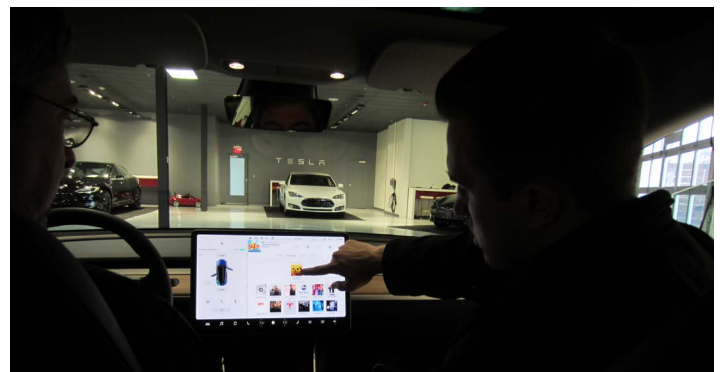
The Model 3—love at first sight

Saturday, April 14: Finally, the BIG DAY ARRIVED! My husband and I drove down to Highland Park in the afternoon to pick up my very own, brand new Model 3! The car was so gorgeous, so high-tech looking, I could hardly believe it! The “Customer Experience Specialist” was very patient, and spent a little over two hours thoroughly going over the special features.



Ah—the first touch (Lee with her Model 3)

Around 5:00 pm, I drove my Model 3 off the lot, for the very first time behind the wheel of my long-awaited EV! After having driven my 1999 Saturn conversion during the past six years, the lightyear leap in technology made the experience feel OTHERWORLDLY. I felt as if the car could drive me right up into heaven. I LOVED the Slacker Radio with the capability of pressing the microphone on the control screen and saying something like “Play ‘Piano Man’ by Billy Joel”, and most of the time, it would actually play the requested song.



Instructions on Slacker Radio by Customer Experience Specialist PJ Wolfe

### White Knuckles into the Night

After a little over an hour of driving, we stopped for a quick dinner at McDonald’s in Geneva, WI. When we came out to continue our journey homeward, it was RAINING ICE!

*continued on page 24*

# Model 3 Journey

*continued from page 23*

Needless to say, I was terrified that I might crash my new, \$51,500 car. To avoid the toll roads, I followed my husband in his 2017 Buick Enclave through back roads, frequently trailing far behind, as I started to slide a few times, requiring me to drive 30 – 45 mph.

It became dark. The snow and ice mounted on the roads to the point I could no longer see either where the edge of the road was, nor the location of the center line. Suddenly, I came upon a fork in the road at a place where both sides of the “Y” curved to the right, and my husband was so far ahead of me that I could not tell which side of the “Y” he had taken. At the last moment, I veered right, and the sudden change of direction resulted in the back of my beloved Tesla swaying back and forth wildly. I started screaming “Help me!” and somehow by the Good Graces of God, Elon Musk, and traction control, the swaying finally stopped. I shuddered as I looked up to the left of my vehicle toward the other side of the “Y,” and saw a sign that said WRONG WAY.

It was with humble gratitude that, two hours later, we pulled into our driveway in Sun Prairie. Like a mother protecting her precious child after an unexpected scare, I left my Model 3 in the driveway until all the snow and ice had melted.

## The Model 3 Creates a Sensation in Wisconsin

Since I was among the first in Wisconsin to own a Model 3, it was a real trip to see people’s reactions to it. One youth walked by in front of it, with a big smile on his face, and an expression of “ooo—cool car!”. Another came running out of his restaurant in full work uniform, to get a better look. One man actually tried to get us to pull over and stop so he could take a picture. One of my colleagues came up to the vehicle and gave the gestures of worshipping the Tesla Goddess. I had a Wisconsin solar philanthropist test drive it—I told him to try punching the accelerator down a bit while going onto a merging ramp, and when it took off, he said “oh-oh—BMW, Porsche, Mercedes-Benz—they’re ALL



Preparing for the send-off by Customer Experience Specialist Paul Aldrine Ocampo and PJ Wolfe

in trouble! NOW I UNDERSTAND!” And my daughter—from the first time she drove it, said “I’m going to buy one of these for myself!”

## A Bit of Advice for Elon Musk

Hearty congratulations to Elon Musk and the entire Tesla team. This is an amazing feat of engineering, especially when one considers that Tesla has not been in business for decades, as most other car manufacturers have been. When anyone tries to start a car company from scratch, it’s as if the very jaws of hell open up to swallow them and keep them from succeeding. I know, because I’ve tried! And I’m grateful that Tesla prevailed.

I do recommend that Elon put a PG (parental guidance) warning on all Model 3s. Seriously, you really don’t want to loan one of these beauties out to your teenager. You need to accompany your young driver, because these cars are WAY...TOO...MUCH...FUN!!!

*[Gratitude to Lee Gasper-Galvin for contributing the photos to go with her article.]*



According to the Alliance of Automobile Manufacturers (Alliance), automakers have invested substantially in zero emission vehicles, including plug-in electric and hydrogen-powered vehicles, and have a big stake in selling them in large numbers.

**In 2017, ZEVs represented 1.15% of total sales nationwide, or about 190,000 vehicles out of 17.1 million new vehicles sold. By 2025, under the CA mandate, sales of ZEVs are required to be 15.4% of total sales.**

**As of June 11, there are now 58 ZEV models on sale, including 34 plug-in hybrids, 21 battery electric, and 3 hydrogen fuel cells, according to the Department of Energy’s [www.FuelEconomy.gov](http://www.FuelEconomy.gov) website.**

Reference: <https://autoalliance.org/2018/06/11/automakers-urge-governors-invest-zero-emission-vehicles/>



# Flying car startup backed by Google founder offers test flights



Google founder Larry Page's startup Kitty Hawk, testing flying taxis such as this model in New Zealand, is moving a step closer to marketing its personal flying machines by offering test rides to US customers.

A flying car project backed by Google co-founder Larry Page was closer to take-off recently, with a model for test flights by aspiring buyers.

Kitty Hawk, funded by Page, unveiled a "Flyer" model it described as "an exciting first step to sharing the freedom of flight."

The company was created last year in Google's home town of Mountain View, California, and has been testing a prototype in New Zealand.

Images and details were available at a freshly launched website at [flyer.aero](http://flyer.aero), and CNN posted coverage of a reporter taking to the air in a Flyer over a lake at a test site near Las Vegas.

Kitty Hawk chief executive Sebastian Thrun, who founded the Google X lab devoted to "moonshots" such as self-driving cars and internet-synched eyewear, was quoted by CNN as saying

piloting Flyer was as easy playing the video game "Minecraft."

"Making Flyer accessible, which is what we do at our Lake Las Vegas training facility, helps more people experience the freedom and possibilities of vehicles of the future," a Kitty Hawk spokeswoman told AFP.

"Our immediate priority is to invite small groups of people—customers, influencers, media and community members - to experience the freedom of flight here in our newly opened training facility."

People interested in buying Flyers were invited at the website to apply for an invitation to do so, with no price specified.

An early version of Flyer was shown off last year.

The electric aircraft had 10 small lift

rotors on its wings, making it capable of vertical take-off and landing like a helicopter.

Kitty Hawk said that at 15 meters (50 feet) away, it sounded about as loud as a lawn mower, while from 250 feet away the volume was on par with a loud conversation.

Test flights by first-timers were over water, with the top speed limited to 32 kilometers per hour (20 mph) and the altitude to no more than three meters.

The uncovered cockpit appeared big enough for one person, with their head poking out as it might from a go-kart.

"Flyer is designed to be easy to fly and flown for recreational purposes over water and uncongested areas," the website said.

[Read more about the testing in the rest of the article at the url below.]

<https://phys.org/news/2018-06-car-startup-google-founder-flights.html#jCp>

# Using EVs to Save Billions on Energy Storage



Image credit: MikesPhotos via pixabay.com, CC0 Creative Commons.

A recent study conducted at the Lawrence Berkeley National Laboratory (Berkeley Lab) in California suggests using electric vehicles (EVs) as mobile devices for storing energy from renewable sources, thereby eliminating the need for building expensive stationary facilities.

Specifically, the study looked at the consequences of deploying renewables across the energy grid on a large scale in the state of California, as well as the associated problems of variability and using EVs to mitigate them.

According to lead author Jonathan Coignard, “California has ambitious targets to decarbonise transportation, mandating the introduction of 1.5 million zero-emission vehicles (or

ZEVs) by 2025, most of which will be EVs. It also has a renewable energy policy requiring 33 percent of grid energy to come from renewables by 2020, and 50 percent by 2030”.

Using electric vehicles from the ZEV Mandate as energy storage units could prove beneficial in efforts to integrate renewable energy into the grid by lowering capital costs.

Needless to say, employing EVs in this manner could also go a long way in decarbonising transportation not only in California, but also around the world – at least once the generation of renewables gains enough traction.

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<https://www.technology.org/2018/05/22/using-electric-vehicles-to-save-billions-on-energy-storage/>



# Tesla opens its 10,000th Supercharger

It shows how far Tesla has come, but also how far it has left to go.



By Jon Fingas

Tesla's Supercharger network has come a long, long way since it was available in a handful of California towns in late 2012. The automaker has opened its 10,000th Supercharger in Belleville, Ontario, Canada as part of a rapid expansion that (as of late May, 2018) included roughly 1,000 chargers either in construction or at the permit phase. For context, it took roughly a year and a half for Tesla just to have enough EV charging stations for one coast-to-coast route in the US — now, Superchargers blanket North America as well as significant stretches of Asia, Australia, Europe and the Middle East.

There's no question that Tesla's success

as an EV brand (production problems notwithstanding) played a part in the expansion, but it also stems partly from the company's initial willingness to throw caution to the wind. Remember, Supercharger use was completely free for owners until 2017 — Tesla was willing to take a financial hit to both create the infrastructure needed for long-distance trips and offer a strong incentive to use that framework. Rivals have typically had to worry more about profit, especially those that aren't attached to a car manufacturer.

As large as the network has become, though, it also underscores those gaps that are left. It's still impractical to cross

some regions using Superchargers alone (most notably Canada and significant parts of China), and availability within cities is still thin. And then there's the competition. While their growth is currently slow, they're a clear reminder that Tesla isn't the only game in town. It just has advantages in performance and sheer ubiquity that may take a long time to beat.

[Ed: A Supercharger station is a single charging port, like a EVSE at home. There are approximately 1,100 locations some of which feature 40 such ports. For a map, see <http://supercharge.info> ]



<https://www.engadget.com/2018/06/10/tesla-opens-10000th-supercharger-station/>

# AAA: 1-in-5 U.S. Drivers Want an Electric Vehicle



*By Ellen Edmonds*

American appetite for electric vehicles is heating up. A new AAA survey shows that 20 percent or 50 million Americans will likely go electric for their next vehicle purchase, up from 15 percent in 2017. With lower-than-average ownership costs, increased driving ranges and the latest advanced safety features, AAA sees a strong future for electric vehicles. To help “green” car shoppers make an informed choice, AAA conducts independent, rigorous test-track evaluations of plug-in hybrids, hybrid and fuel-efficient, gas-powered vehicles.

“Today, electric vehicles have mainstream appeal,” said Greg Brannon, AAA’s director of Automotive Engineering. “While concern for the environment is still a major motivator, AAA found U.S. drivers are also attracted to the lower long-term costs and advanced technology features that many of these vehicles offer.”

Perhaps fueling American’s desire for electric vehicles, AAA’s survey found that “range anxiety” is beginning to ease. Among those unsure or unwilling to choose an electric vehicle for their next car, 63 percent (down 9 percent from 2017) cited not enough places to charge as a detractor while 58 percent (down 15 percent from 2017) expressed concern over running out of charge while driving. Not surprisingly, range anxiety is less of a concern for millennials (48 percent) than Generation X or Baby Boomers (64 percent and 66 percent, respectively).

While range is important to most (87 percent) electric and hybrid vehicle shoppers, it is not the only consideration. Reliability is king with nine-in-ten (92 percent) of those likely to buy an electric or hybrid vehicle stating it is important when evaluating which car to buy. Electric and hybrid car shoppers are also prioritizing crash ratings (77 percent), cost (71 percent),

acceleration and handling (69 percent) and advanced safety technology such as automatic emergency braking and lane keeping assistance (60 percent). Fewer drivers are concerned with style, color, or design of the vehicle (34 percent) or brand of the vehicle (33 percent).

To help drivers looking to making the switch or find their next green vehicle, Automobile Club of Southern California’s Automotive Research Center conducts extensive and thorough testing of high fuel efficiency, hybrid, plug-in hybrid and electric vehicles each year, and assigns ratings based on criteria important to buyers such as ride quality, safety and performance.

“A first-time buyer may feel overwhelmed or confused by the differences between gas-powered, hybrid, plug-in hybrid or electric,” said Megan McKernan, manager of Automotive Research Center. “Our evaluations are designed

*continued next page*



## AAA POLL RESULTS

to help drivers select a safe, comfortable and reliable vehicle – not just the most efficient one.”

In 2018, the following vehicles earned AAA’s Top Green Vehicle award:

Category	Vehicle
Overall	Tesla Model X 75D
Subcompact Car	Chevrolet Bolt EV Premier
Compact Car	Nissan Leaf SL
Midsized Car	BMW 530e i-Performance
Large Car	Tesla Model S 75
Pickup	Ford F-150 4X4 XLT Sport
SUV/Minivan	Tesla Model X 75D
Best Under \$30K	Kia Niro LX
Best \$30K – \$50K	Chevrolet Bolt EV Premier
Best Over \$50K	Tesla Model X 75D

Winners, detailed evaluation criteria, vehicle reviews and an in-depth analysis of the green vehicle industry can be found at [AAA.com/greencar](http://AAA.com/greencar).

Although Americans may be more eager to buy an electric vehicle, having the right infrastructure will be critical to its widespread adoption. In 2018, the availability of charging stations had grown to more than 16,000 in the United States and, although anxiety over range has reduced, AAA’s survey found consumer expectation for charging time while on the road may not align with reality. Seven-in-ten (68 percent) Americans feel that while out driving, a charging time of no more than 30 minutes is a reasonable amount of time to wait.

“Today’s drivers are accustomed to a quick fill up at the corner gas station, but electric vehicle charging can sometimes take several hours,” said Brannon. “With a little planning,

electric vehicle owners can avoid a roadside inconvenience and, as technology improves, charging times will too.”

Drivers can access charging station locations through AAA’s Mobile app or TripTik Planner. Additional survey data, study methodology, graphics, photos and video can be found at [NewsRoom.AAA.com](http://NewsRoom.AAA.com).

AAA provides more than 58 million members with automotive, travel, insurance and financial services through its federation of 36 motor clubs and nearly 1,100 branch offices across North America. Since 1902, the not-for-profit, fully tax-paying AAA has been a leader and advocate for safe mobility. Drivers can request roadside assistance, identify nearby gas prices, locate discounts, book a hotel or map a route via the AAA Mobile app. To join, visit [AAA.com](http://AAA.com).



Top Green Vehicle Award 2017: Overall Tesla Model S 75D

<https://newsroom.aaa.com/2018/05/1-in-5-us-drivers-want-electric-vehicle/>

# Porsche buys 10-percent stake in electric supercar maker Rimac



Rimac C\_Two

By Sean Szymkowski

Porsche has big plans to be a leader in the electric-car segment, and it has just inked a new partnership with a familiar company to bolster its position. The German sports car and luxury vehicle maker announced on Wednesday that it's purchased a 10-percent stake in the Croatian firm Rimac Automobili.

"We feel that Rimac's ideas and approaches are extremely promising, which is why we hope to enter into close collaboration with the company in the form of a development partnership," said Lutz Meschke, deputy chairman of the executive board and member of the executive board for finance and IT at Porsche.

Rimac is best known for its battery-electric supercars, the Concept\_One and C\_Two, but the firm also produces numerous electric-car components. Porsche's main focus with the investment will be on high-voltage battery technology and electric powertrains.

Rimac envisions a future in which the Croatian company supplies essential parts for future electric cars. "This partnership now is an important step for Rimac on our way to become a component and system supplier of choice for the industry in electrification, connectivity and the exciting field of Advanced Driver Assistance Systems", said Rimac's CEO Mate Rimac, in a statement.

Rimac's C\_Two, the follow-up to the Concept\_One, which Richard Hammond famously crashed, features

the company's latest technology. A 120-kwh battery pack provides enough juice to power four electric motors. In turn, 1,914 horsepower and 1,700 pound-feet of torque are on tap. The motors also provide all-wheel drive and torque vectoring.

The specs are enough to take the electric supercar from 0-60 mph in 1.85 seconds and the quarter-mile comes and goes in 9.1 seconds. When drivers aren't mashing the throttle, the C\_Two will go 400 miles on a charge, per the New European Driving Cycle (NEDC).

At Porsche, the Taycan, formerly the Mission E, will be the first vehicle to usher in the brand's electric-car portfolio. The sedan will duke it out directly with the Tesla Model S and should boast a range of around 300 miles on the NEDC, or about 240 miles in the U.S. Performance specs aren't available, but Porsche has said the car should sprint to 60 mph in well under 3.5 seconds.

In the future, perhaps Rimac will have something to say about future electric Porsches.



[https://www.motorauthority.com/news/1117323\\_porsche-buys-10-percent-stake-in-electric-supercar-maker-rimac](https://www.motorauthority.com/news/1117323_porsche-buys-10-percent-stake-in-electric-supercar-maker-rimac)



# New technology could wean the Li battery world off cobalt

*University of California - Berkeley*

Lithium-based batteries use more than 50 percent of all cobalt produced in the world. These batteries are in your cell phone, laptop and maybe even your car. About 50 percent of the world's cobalt comes from the Congo, where it's largely mined by hand, in some instances by children. But now, a research team led by scientists at the University of California, Berkeley, has opened the door to using other metals in lithium-based batteries, and have built cathodes with 50 percent more lithium-storage capacity than conventional materials.

"We've opened up a new chemical space for battery technology," said senior author Gerbrand Ceder, professor in the Department of Materials Science and Engineering at Berkeley. "For the first time we have a really cheap element that can do a lot of electron exchange in batteries."

The study has been published in the April 12 edition of the journal *Nature*. The work was a collaboration between scientists at UC Berkeley, Berkeley Lab, Argonne National Lab, MIT and UC Santa Cruz.

In today's lithium-based batteries, lithium ions are stored in cathodes (the negatively charged electrode), which are layered structures. Cobalt is crucial to maintaining this layered structure. When a battery is charged, lithium ions are pulled from the cathode into the other side of the battery cell, the anode. The absence of lithium in the cathode leaves a lot of space. Most metal ions would flock into that space, which would cause the cathode to lose its structure. But cobalt is one of the few elements that won't move around, making it critical to the battery industry.



Credit: CC0 Public Domain

In 2014, Ceder's lab discovered a way that cathodes can maintain a high energy density without these layers, a concept called disordered rock salts. The new study shows how manganese can work within this concept, which is a promising step away from cobalt dependence because manganese is found in dirt, making it a cheap element.

"To deal with the resource issue of cobalt, you have to go away from this layeredness in cathodes," Ceder said. "Disordering cathodes has allowed us to play with a lot more of the periodic table."

In the new study, Ceder's lab shows how new technologies can be used to get a lot of capacity from a cathode. Using a process called fluorine doping, the scientists incorporated a large amount of manganese in the cathode. Having more manganese ions with the proper charge allows the cathodes to hold more lithium ions, thus increasing the battery's capacity.

Other research groups have attempted to fluorine dope cathodes but have not been successful. Ceder says his lab's work on disordered structures was a big key to their success.

Cathode performance is measured in energy per unit weight, called watt-hours per kilogram. The disordered manganese cathodes approached 1,000 watt-hours per kilogram. Typical lithium-ion cathodes are in the range of 500-700 watt-hours per kilogram.

"In the world of batteries, this is a huge improvement over conventional cathodes," said lead author Jinhyuk Lee, who was a postdoctoral fellow at Ceder's lab during the study, and is now a postdoctoral fellow at MIT.

The technology needs to be scaled up and tested more to see if it can be used in applications like laptops or electric vehicles. But Ceder says whether or not this technology actually makes it inside a battery is beside the point; the researchers have opened new possibilities for the design of cathodes, which is even more important.

"You can pretty much use any element in the periodic table now because we've shown that cathodes don't have to be layered," Ceder said. "Suddenly we have a lot more chemical freedom, and I think that's where the real excitement is because now we can do exploration of new cathodes."



<https://techxplore.com/news/2018-04-technology-wean-battery-world-cobalt.html>

# NREL Research Overcomes Major Technical Obstacles in Magnesium-Metal Batteries

“Being scientists, we’re always thinking: what’s next?” said Chunmei Ban, a scientist in NREL’s Materials Science department and corresponding author of the paper, *An Artificial Interphase Enables Reversible Magnesium Chemistry in Carbonate Electrolytes*.

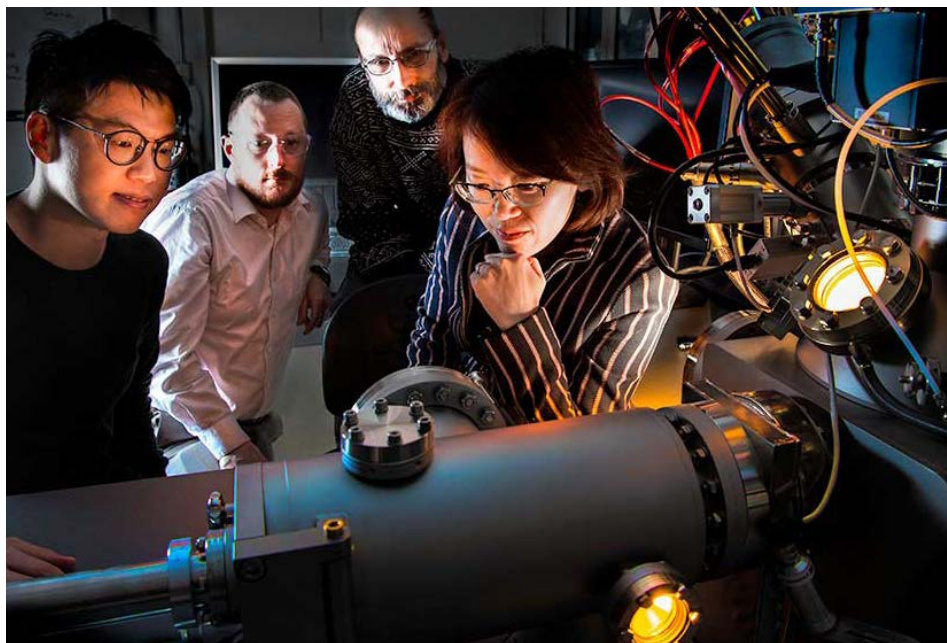
<https://www.nature.com/articles/s41557-018-0019-6>

The dominant lithium-ion battery technology is approaching the maximum amount of energy that can be stored per volume, she said, so “there is an urgent need to explore new battery chemistries” that can provide more energy at a lower cost.

“This finding will provide a new avenue for magnesium battery design,” said Seoung-Bum Son, a former NREL postdoc and scientist at NREL and first author of the paper. Other co-authors from NREL are Steve Harvey, Adam Stokes, and Andrew Norman.

An electrochemical reaction powers a battery as ions flow through a liquid (electrolyte) from the negative electrode (cathode) to the positive electrode (anode). For batteries using lithium, the electrolyte is a salt solution containing lithium ions. What’s also important, is the chemical reaction must be reversible so that the battery can be recharged.

Magnesium (Mg) batteries theoretically contain almost twice as much energy per volume as lithium-ion batteries. But previous research encountered an obstacle: chemical reactions of the conventional carbonate electrolyte created a barrier on the surface of magnesium that prevented the battery from recharging. The magnesium ions could flow in a reverse direction through a



NREL researchers (from left) Seoung-Bum Son, Steve Harvey, Andrew Norman and Chunmei Ban are co-authors of the Nature Chemistry white paper, “An Artificial Interphase Enables Reversible Magnesium Chemistry in Carbonate Electrolytes” working with a Time-of-flight secondary ion mass spectrometry. The device allows them to investigate material degradation and failure mechanisms at the micro- to nano-scale. (Photo by Dennis Schroeder / NREL)

highly corrosive liquid electrolyte, but that barred the possibility of a successful high-voltage magnesium battery.

In seeking to overcome these roadblocks, the researchers developed an artificial solid-electrolyte interphase from polyacrylonitrile and magnesium-ion salt that protected the surface of the magnesium anode. This protected anode demonstrated markedly improved performance.

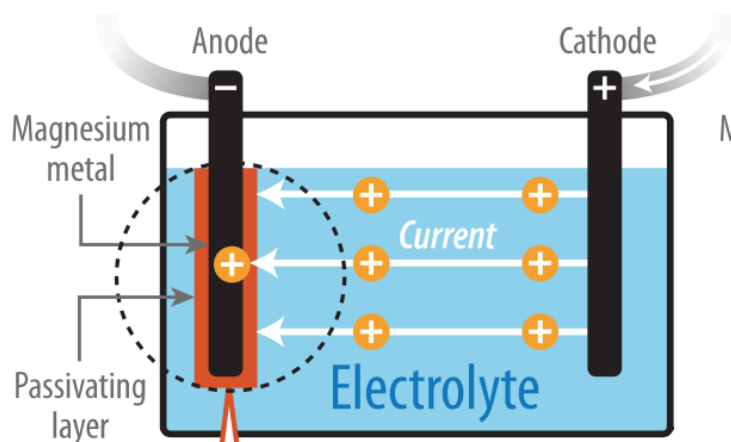
The scientists assembled prototype cells to prove the robustness of the artificial interphase and found promising results: the cell with the protected anode enabled reversible Mg chemistry in carbonate electrolyte, which has never been demonstrated

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Scientists at the Department of Energy’s National Renewable Energy Laboratory (NREL) have discovered a new approach for developing a rechargeable non-aqueous magnesium-metal battery.

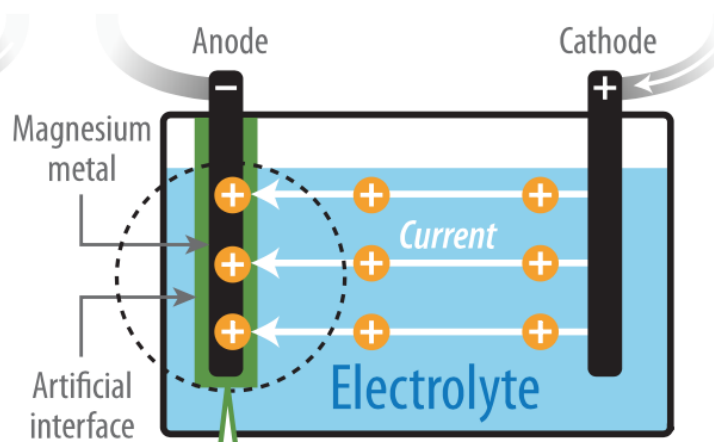


## Problems with Magnesium Battery Recharging



Electrolyte causes the formation of a passivation layer that prevents the recharging process.

## Magnesium Battery Recharging with Artificial Interface



Artificial layer allows the magnesium ions to move in both directions, allowing the battery to recharge.

Illustration shows how NREL researchers have addressed the problem with making a rechargeable magnesium battery. (Illustration by John Frenzl / NREL)

before. The cell with this protected Mg anode also delivered more energy than the prototype without the protection and continued to do so during repeated cycles. Furthermore, the group has demonstrated the rechargeability of the magnesium-metal battery, which provides an unprecedented avenue for simultaneously addressing the anode/electrolyte incompatibility and the limitations on ions leaving the cathode.

In addition to being more readily available than lithium, magnesium has other potential advantages over the more established battery technology. First, magnesium releases two electrons to

lithium's one, thus giving it the potential to deliver nearly twice as much energy as lithium. And second, magnesium-metal batteries do not experience the growth of dendrites, which are crystals that can cause short circuits and consequently dangerous overheating and even fire, making potential magnesium batteries much safer than lithium-ion batteries.

Other researchers involved with the project were Tao Gao and Chunsheng Wang of the University of Maryland; K. Xerxes Steirer of Colorado School of Mines; and Arthur Cresce and Kang Xu of the U.S. Army Research Laboratory.

Funding for the research came from the Laboratory Directed Research and Development Program at NREL.

NREL is the U.S. Department of Energy's primary national laboratory for renewable energy and energy efficiency research and development. NREL is operated for the Energy Department by The Alliance for Sustainable Energy, LLC.

In accordance with Title 17 U.S.C. Section 107, this material is distributed without profit to those who have expressed a prior interest in receiving the included information for research and educational purposes.

<https://www.nrel.gov/news/press/2018/nrel-research-overcomes-major-technical-obstacles-in-magnesium-metal-batteries.html>

# A stunning new all-electric catamaran with massive battery pack goes into operation



*By Fred Lambert*

Earlier, we reported on the Norwegian Parliament acting to halt emissions from cruise ships and ferries in the Norwegian world heritage fjords.

Now we've learned of a new all-electric ship that could be perfect to take over the traffic in the fjords without polluting the air and it's going into operation in Norway by the end of the month.

The new all-electric catamaran was unveiled by Brødrene Aa last month and it has now been delivered to the operator, The Fjords, which will use the boat to make 700 emission-free round trips per year between Flåm and Gudvangen.

Named 'The Future of the Fjords', the 42-meter long carbon fibre catamaran has a 400-passenger capacity.

We like big battery packs at Electrek and Brødrene Aa delivered on a big one with 'The Future of the Fjords'.

It's equipped with a massive 1,800 kWh battery pack and two 450-kW electric motors, which they claim can enable

the boat to sustain a speed of 16 knots for 30 nautical miles.

Here are the specs that Brødrene Aa released for 'The Future of the Fjords':

- Length: 42 m
- Width: 15 m
- Materials: Carbon fibre sandwich
- Seats: 400
- Class: DNV GL light craft
- El-motor: 2 x450kW
- Propeller: CPP propeller
- Battery pack: 1800 kWh
- 

They originally built the same boat with a plug-in diesel hybrid powertrain for the same operation, but now they feel confident enough in the battery system to go all-electric.

Rolf Sandvik, CEO of The Fjords, who will be operating the electric ship, commented on the unveiling:

*It is our mission to safeguard the vulnerable*

*continued next page*





*environment we give access to, while providing the absolute optimal experience for our passengers. Vision of The Fjords was an important development for us, but we had the ambition to take it one step further and replace the diesel electric propulsion with all-electric – thus eradicating all noise and emissions to air for the entire route. Future of The Fjords does just that, minimising its impact on the environment while maximising the experience of passengers who can now glide silently over the water and come closer to nature than ever before. Taking this delivery is a very proud day for us, and for our progressive owners Fjord1 and Flåm AS. The Future has arrived!*

And if you think that 1.8 MWh battery pack is cool, you'll love the 2.4 MWh battery pack that they are building into a custom-made dock for the boat:

The 40m long, 5m wide floating glass fibre dock with the giant battery pack built-in will sit in the water at Gudvangen.

It will enable The Fjords to recharge the boat in just 20 minutes during loading and unloading, while the dock's battery pack can gradually charge while the boat is at sea.

The dock is also equipped with a black water storage system, which will enable the boat to release its sewage into the system instead of into the fjord.

'The Future of the Fjords' is expected to start operating in the fjord in the coming weeks and they hope to make it a benchmark for future ships being deployed in the region.

[Photos and article courtesy of Electrek.]



Fred is the Editor in Chief and Main Writer at Electrek. He mainly covers electric vehicles, autonomous cars and ride-sharing platforms. You can read his work on Electrek, 9to5mac.com and 9to5google.com

<https://electrek.co/2018/05/04/all-electric-catamaran-battery-pack-future-of-the-fjords/>

## EVENTS

# Keep Up on all Auto Shows & EV Related Conferences US and International Events

**ITEC 2018 CONVENTION CENTER**  
LONG BEACH, CA  
6/13/2018 - 6/15/2018

**CLEAN TRANSPORTATION SHOW**  
CUSTER, WI  
6/15/2018 - 6/17/2018

**CONCOURS D' ELEGANCE**  
RODEO DRIVE, LOS ANGELES  
06/17/18 - 06/18/18

**22ND WORLD HYDROGEN ENERGY  
CONFERENCE 2018, RIO DE JANEIRO**  
6/17/2018 - 6/22/2018

**2018 REFUEL CLEAN POWER  
MOTORSPORTS EVENT**  
MAZDA RACEWAY LAGUNA SECA  
SALINAS, CA 7/1/2018

**GENEVA, SWITZERLAND**  
WORLD FLYING ELECTRIC VEHICLE  
SUMMIT 7/2/2018

**GRID EVOLUTION SUMMIT NATIONAL  
TOWN MEETING WASHINGTON DC**  
7/9/2018 - 7/12/2018

**PEBBLE BEACH CONCOURS  
D'ELEGANCE, CARMEL, CA**  
08/26/18 - 08/27/18

**EVS 31 & EVTEC 2018**  
KOBE CONVENTION CENTER JAPAN  
9/30/2018 - 10/3/2018

**ANAHEIM, CA**  
ORANGE COUNTY AUTO SHOW  
10/4/2018 - 10/7/2018

**SACRAMENTO INTERNATIONAL**  
AUTO SHOW 10/19/18 - 10/21/18

**SAN FRANCISCO INTERNATIONAL**  
AUTO SHOW 11/21/18 - 11/25/18

**PHOENIX AUTO SHOW**  
PHOENIX, ARIZONA  
THANKSGIVING WEEKEND 11-22-25

**LOS ANGELES AUTO SHOW**  
11/30/18 - 12/09/18

**SAN DIEGO INTERNATIONAL**  
AUTO SHOW  
12/27/18 - 12/30/18



**AEC**  
2018  
AVERE E-Mobility Conference  
17-18 October 2018  
Square Brussels Meeting Cent  
Belgium

<https://aec-conference.eu>



**ARIZONA INT'L AUTO SHOW**  
**THANKSGIVING WEEKEND**  
PHOENIX CONVENTION CENTER · NOV. 22-25  
November 22-25  
<http://autoshowphoenix.com>

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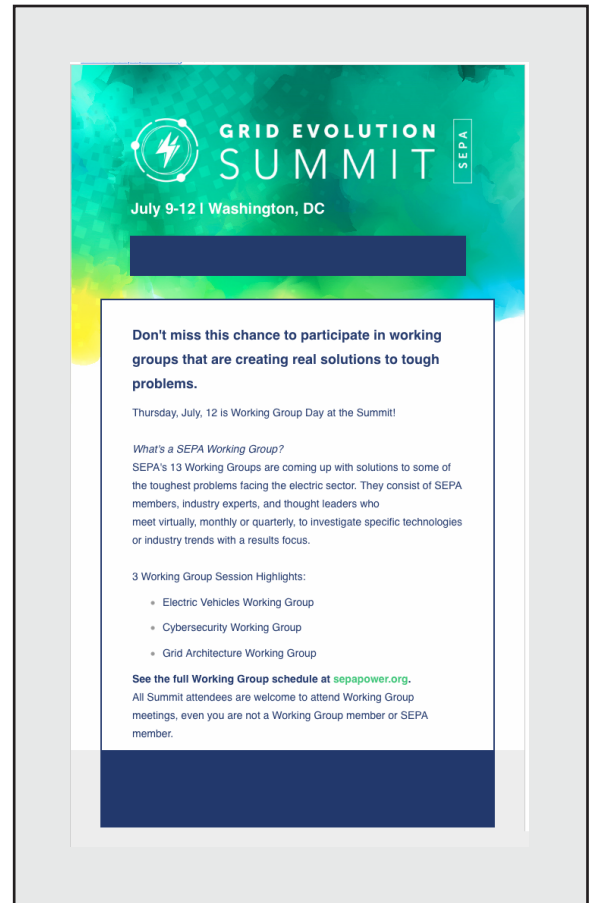
## Save the Date...



## EVS 31 & EVTeC 2018

The 31st International Electric Vehicle Symposium & Exhibition & International Electric Vehicle Technology Conference 2018

<http://www.evs31.org>



<https://sepapower.org/event-complex/grid-evolution-summit-national-town-meeting/>



<http://www.sfauto show.com>



# Don't Miss These...

From time to time there are articles and videos we would like to bring to your attention but are not able to reproduce in this newsletter. The Electric Vehicle is continuing to be newsworthy on many different levels so when we find interesting items we will share them with you.

## Videos & Articles of Interest

### Jaguar I-Pace, off road and on track I Fully Charged



Note: You can turn the artificial sound in the I-PACE off. This is a rough and ready episode, some wobble on the camera and wibbly driving by Robert, but first impressions on a long drive around Portugal in the Jaguar I-PACE are very encouraging.  
[https://www.youtube.com/watch?v=3jj\\_wIPfSgk](https://www.youtube.com/watch?v=3jj_wIPfSgk)



### 2018 Hyundai Kona EV: What You Need To Know

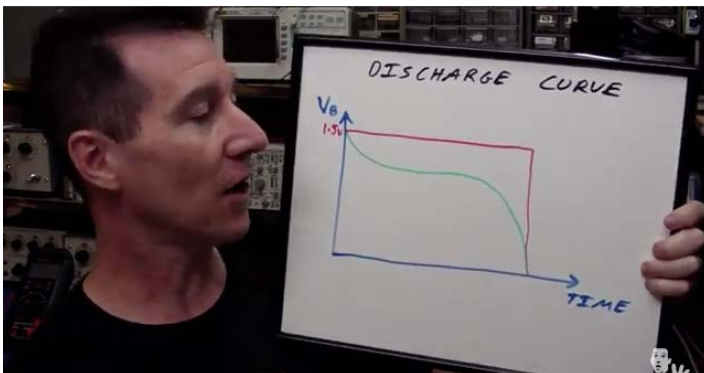


Hyundai, who has officially unveiled the Kona EV via an online reveal event. And so we couldn't resist scrutinizing the car's on-paper specifications.

[https://youtu.be/N27vrB2\\_MHI](https://youtu.be/N27vrB2_MHI)



### EEVblog #140 — Battery Capacity Tutorial



This video accurately explains in technical terms the basis of measuring battery capacity. How long will it last? It begins to delve into why creating an accurate fuel gauge for EVs is difficult. Modern electronics is often powered by batteries and just how long operation can be sustained is paramount. The other video on the next page (Pipistrel test flight) makes knowing that information is precisely a clear matter of survival!

<https://youtu.be/R8hTQXqURB4>



### New Graphene Batteries & Titanium Niobium for EVs – They Charge In Six Minutes



Toshiba presents a revolutionary battery for the electric car with 320 km of autonomy that needs six minutes to charge. They promise to put an end to one of the main problems of the expansion of the electric car: the long recharge time they need. Thanks to its ultra-fast charging capacity, the new battery, which is still in the testing phase, is able to acquire enough energy to travel 320 km after only six minutes connected to the current, three times more than lithium-ion batteries. <https://youtu.be/DZ90P2SSX7o>





## More Videos of Interest (cont.)

### Hyundai Kona Electric, details and features in Video



In today's Autogefühl's episode, Brian presents you the Hyundai Kona Electric. They cover exterior, interior, engines. Promised range of the bigger battery: 300 miles / 470 km. Price has not been determined for the North American market.

<https://www.youtube.com/watch?v=S0YXIRR8530&t=682s>



### Test Ride in Pipistrel Electric Plane

### Pipistrel Alpha Electro Fully Electric Airplane



To underscore the significant revolution we are witnessing today in the electrification of transportation or as some would call it, the de-carbonization of transportation as we have known it — here is a fun video on a short range two seat trainer plane. Note the comparison of energy consumed to maintain airspeed of over 100 knots per hour as compared to a Tesla Model X! Can you guess who uses more energy? <https://youtu.be/R8hTQXqURB4>



The following video clip provides a background on the plane with Bjorn asking questions to compare gas vs electric airplanes. **Some data points:** Battery Capacity is 10.5 kWh times two – driving a 60kW motor. The electric plane matches gas version but weighs less. Maintenance costs are compared as well.

<https://youtu.be/gxhBI6KC-O8>



## SPEED VENTURES

### REFUEL Clean Power Performance Driving Event and Time Trial

*The 10th Annual REFUEL Clean Power Motorsports Event welcomes Electric Cars and Motorcycles to world famous MAZDA Raceway Laguna Seca to celebrate the evolution of EV technology in a motorsports setting.*

Sunday, July 1, 2018  
All experience levels welcome to  
MAZDA Raceway Laguna Seca (Salinas, CA)

Full Course CCW on Sunday  
AMB Timing & Transponders are available.  
See the url below for all details.

**2018 REFUEL Clean Power Motorsports Event at Mazda Raceway Laguna Seca.**

<http://www.speedventures.com/events/eventdetail.aspx?id=680>





## Welcome to Membership in The Electric Auto Association!

*Educating and Advocating for EVs since 1967*

Electric Auto Association (EAA) is *the* oldest and largest electric vehicle non-profit. EAA has a network of chapters across the United States and the globe. Our members promote and support electric vehicle acquisition and ownership to create a better future.

### **Membership Dues:**

Regular Member: \$35

### **Supporting Members:**

Charged Up: \$60

Supercharged: \$120

Supercharged Plus: \$240

High Voltage: \$500

### **Benefits and Bonuses**

12 months of full color, 40+page E-Magazine "Current EVents"(CE)  
Chapter meetings, speakers, meet EV owners,.  
Help increase public awareness by volunteering.

### **In addition to the above:**

"Current EVents" Personal Listing, "Electric Car Insider Guide"

EAA Polo Shirt, "Current EVents", Supercharged Personal or  
Business Supporter listing (one issue)

EAA Polo Shirt, "Current EVents" , Supercharged plus Personal or  
Business Supporter listing two issues)

Polo Shirt, "Current EVents" listing as a High Voltage Personal or  
Business Supporter (three issues), "Who Killed the Electric Car"  
movie

*Electric Auto Association is a 501 3(c) non-profit organization.*

## **Join Today!**

[www.electrcauto.org](http://www.electrcauto.org)



# Curtiss breaks the motorcycle mold for all-electric Zeus



The Curtiss Zeus prototype made its debut at the Quail Motorcycle Gathering on May 5  
(Credit: Curtiss Motorcycles)

Alabama's Curtiss Motorcycles – previously high-end custom V-twin maker Confederate Motors—announced last year that it would kickstart a new “golden age of American motorcycling” by making only electric bikes going forward. That vision for the future of motorcycle design is based on sustainability, minimalism and fun and the first example – the Zeus – has been revealed at the Quail Motorcycle Gathering in Carmel, California.

First off, since the Zeus motorcycle is still in prototyping, Curtiss isn't giving too much away as far as specs and availability are concerned.

“Zeus introduces a fresh, all-new design DNA that will define every Curtiss motorcycle moving forward,” said the company's Design Director Jordan Cornille. “This minimalist, pure, organic brand language has been carefully developed over the last several years, and foreshadows an entire family of Curtiss products to come.”

“The all-mighty Zeus is the first concept prototype in a full range of hot rod gods to come,” echoed Curtiss CEO Matt Chambers.

Though it keeps much of the bulk common to earlier Curtiss motorcycles,

the Zeus electric signals something of a departure from the me-too design language of other manufacturers like Zero, Vanguard and Lightning.

“ICE motorcycles all have, more or less, the same components, so they have all grown to accommodate similar looks and proportions,” Cornille told The Vintagent. “Electric motorcycles have completely different components, so there's no need for them to look, or be packaged like, traditional ICE motorcycles. This is where we believe our industry is missing the mark.”

The design tweaks start with Curtiss ditching the false fuel tank altogether and arranging the layout of the electric components to best suit weight distribution and rider ergonomics. The Zeus is built around a clean-looking aluminum chassis, with rear turn indicators on the mono-shock mount, and running lights and turn indicators on the front mono-shock forks. The brake/rear light has been integrated into the seat platform.



*continued on page 43*

## International CANADA

### EV COUNCIL OF OTTAWA

Web Site: [www.evco.ca](http://www.evco.ca)  
Contact: Darryl McMahon  
[info@evco.ca](mailto:info@evco.ca)

### VANCOUVER EVA

Web Site: [www.veva.bc.ca](http://www.veva.bc.ca)  
Contact: Bruce Sharpe 604-897-9072

## MEXICO

### EVA of SONORA (AVES)

Web Site: [Diadelautoelectrico.org](http://Diadelautoelectrico.org)  
Contact: Oscar Vidal  
662-105-6551

## TAIWAN

### TEVA | Taiwan Electric Vehicles Association

Facebook: [www.facebook.com/TaiwanElectricVehiclesAssociation](http://www.facebook.com/TaiwanElectricVehiclesAssociation)  
Contact: Mr. David Lane  
Phone: 011 866 987 526 892

## United States

### NEDRA National Electric Drag Racing Association

Web Site: [www.nedra.com](http://www.nedra.com)  
Contact: John Metric, 979-665-5621

### PLUG IN AMERICA

Web Site: [www.pluginamerica.org](http://www.pluginamerica.org)  
Contact: Joel Levin  
[info@pluginamerica.org](mailto:info@pluginamerica.org)

## ALASKA

### JUNEAU EVA

Contact: Duff Mitchell, 907-723-2481

## ARIZONA

### PHOENIX EAA

Web Site: [www.phoenixeaa.com](http://www.phoenixeaa.com)  
Contact: Jim Stack, 480-659-5513

### TUCSON TEVA

Web Site: [tucsonelectricvehicle.org](http://tucsonelectricvehicle.org)  
Contact: David Gebert 520-881-8010  
[tevadave@cox.net](mailto:tevadave@cox.net)

## CALIFORNIA

### CENTRAL COAST (CCEAA)

Web Site: [eaacc.org](http://eaacc.org)  
Contact: Will Beckett, 831-688-8669

### CHICO EAA

Web Site: [www.chicoeaa.info](http://www.chicoeaa.info)  
Contact: Jerry Brandstatt  
530-343-0331

### EVA OF SAN DIEGO (EVAOSD)

Web Site: [www.evaosd.com](http://www.evaosd.com)  
Contact: Raejean Fellows  
619-228-9490

### EVA OF SOUTHERN CALIFORNIA (EVAOSC)

Web Site: [www.evaosc.org](http://www.evaosc.org)  
Contact: Leo Galcher, 949-492-8115

### GOLDEN GATE EVA

Web Site: [www.ggeva.org](http://www.ggeva.org)  
Contact: Dale Miller, 415-472-0378

### NORTH (SF) BAY EAA

Web Site: [www.nbeaa.org](http://www.nbeaa.org)  
Contact: Alan Soule, 707-477-1299

### SACRAMENTO EVA (SacEV)

Web Site: <http://www.saceva.org>  
Contact: Guy Hall, 916-717-9158

### SAN JOSE EAA

Web site: [rotordesign.com/sjeaa](http://rotordesign.com/sjeaa)  
Contact: George Stuckert  
408-377-5037

### SILICON VALLEY EAA

Web site: [www.eaasv.org](http://www.eaasv.org)  
Contact: Tom Sidle, 408-446-1538

## COLORADO

### DENVER ELECTRIC VEHICLE COUNCIL (DEVCC)

Web Site: [www.devcc.info](http://www.devcc.info)  
Contact: J David McNeil  
719-633-4924

## CONNECTICUT

### NEW ENGLAND EAA

Web Site: [www.neeaa.org](http://www.neeaa.org)  
Contact: David Oliveria  
860-526-1460

## DELAWARE

### COASTAL CAROLINA WILMINGTON

Contact: Blair E. Brown, 910-617-1643

## FLORIDA

### CENTRAL FLORIDA EVA (CFEVA)

Website: [www.centralfloridaeva.org](http://www.centralfloridaeva.org)  
Contact: Larry Wexler 407-256-6244

### GOLD COAST EAA (GCEAA)

Contact: David Kerzel , 954-785-2184

### NORTHWEST FLORIDA EAA

Contact: Nathan Kercher  
850-472-0341

### SUN COAST EAA

Web Site: [www.suneva.org](http://www.suneva.org)  
Contact: Don Bouquet  
941-739-2868

### TALLAHASSEE AREA EVA

Web Site: [www.taeva.org](http://www.taeva.org)  
Contact: Gillian Smith  
954-829-1125

## GEORGIA

### EV CLUB OF THE SOUTH

Web Site: [www.evclubsouth.org](http://www.evclubsouth.org)  
Contact: Anne Blair 404-849-7929

## HAWAII

### BIG ISLAND EVA

Web Site: [BigIslandEV.org](http://BigIslandEV.org)  
Contact: Noel Morin 808-987-7428  
[nmorin99@yahoo.com](mailto:nmorin99@yahoo.com)

## IOWA

### IOWA EVA

Web Site: [www.evohinc.com](http://www.evohinc.com)  
Contact: Jeff Hove 515-250-2966

## IDAHO

### PANHANDLE EV ASSOCIATION PEVA

Website: [www.panhandleev.org](http://www.panhandleev.org)  
Contact: Gordy Ormesher  
208-660-8539

## ILLINOIS

### FOX VALLEY EAA

Web Site: [www.fveaa.org](http://www.fveaa.org)  
Contact: Michael Willuweit  
[contactfveaa@fveaa.org](mailto:contactfveaa@fveaa.org)

## INDIANA

### HOOSIER EVA

Web Site: [HoosierEVA.org](http://HoosierEVA.org)  
Contact: Richard Steiner,  
317-987-4890

## KANSAS

### MID AMERICA CHAPTER

Contact: Al Pugsley Jr, 913-381-1091

## KENTUCKY

### EVolveKY

Web Site: [www.evolveky.org](http://www.evolveky.org)  
Contact: Jon Tyson, 502-644-1719

## MASSACHUSETTS

### DRIVE ELECTRIC CARS NEW ENGLAND EAA

Web Site: [neeaa.org](http://neeaa.org)  
Contact: Mark Scribner  
860-336-7295

### PIONEER VALLEY EAA

Web Site: [pveaa.org](http://pveaa.org)  
Contact: Karen Jones

## MICHIGAN

### MICHIGAN EAA

Web Site: [michiganEAA.org](http://michiganEAA.org)  
Contact: Larry Tuttle, 734-995-9904  
[eea.mich@gmail.com](mailto:eea.mich@gmail.com)

## MINNESOTA

### MINNESOTA EAA

Web Site: [www.mneaa.com](http://www.mneaa.com)  
Contact: Tom Helin, 651-246-5730

## MISSISSIPPI

### MISSISSIPPI EAA (MSEAA)

Contact: Luke Lundemo  
601-981-6925

## MISSOURI

### GATEWAY EV (GEVA)

Web Site: [gatewayev.org](http://gatewayev.org)  
Contact: Wayne Garver, 314-359-9626

## NEVADA

### EAA NORTHERN NEVADA

Web Site: [www.lveva.org](http://www.lveva.org)  
Contact: Chuck Swackhammer  
530-479-0269

### LAS VEGAS EVA

Web Site: [www.lveva.org](http://www.lveva.org)  
Contact: Lloyd Reece, 702-524-3233

## NEW JERSEY

### EASTERN ELECTRIC VEHICLE CLUB

Contact: Oliver H. Perry  
609-268-0944

### NEW JERSEY EAA (NJEEA)

Web Site: [njeaa.org](http://njeaa.org)  
Contact: Michael Thwaite  
908-405-8688

## NEW MEXICO

### NEW MEXICO EVA (NNMEV)

Contact: Richard Dunn, 505-672-1095

## NEW YORK

### GREATER HUDSON VALLEY EAA

Contact: Seth Leitman, 914-703-0311

### GREATER NY EAA

Web Site: [lieaa.org](http://lieaa.org)  
Contact: Carl Vogel, 516-443-1715

### POUGHKEEPSIE

Contact: TBD

## NORTH CAROLINA

### BLUE RIDGE EV CLUB

Contact: Joe Baum, 828-645-1412

### CHARLOTTE EAA

Contact: Jess Montgomery  
704-302-4156

### TRIAD EVA

Web Site: [www.tevaNC.org](http://www.tevaNC.org)  
Contact: Jack Martin, 336-213-5225

### TRIANGLE EAA

Web Site: [www.rtpnet.org/teaa](http://www.rtpnet.org/teaa)  
Contact: Deanne Mott, 919-783-8439

## OHIO

### CENTRAL OHIO EV ASSOCIATION (COEVA)

Contact: George Anderson  
614-487-9671

## EAA OF NORTHWEST OHIO

Contact: Michael Hall 419-691-1569

### GREATER DAYTON EV ASSOCIATION (GDEVA)

Contact: David Lyttle 937-837-2558

## OREGON

### OREGON EVA

Web Site: [soheva.net](http://soheva.net)  
Contact: John Christian 503-524-0873

### OREGON SOHEVA

Web Site: [oeva.org](http://oeva.org)  
Contact: James Stephens  
541-552-9393

## PENNSYLVANIA

### THREE RIVERS EVA

Web Site: [www.threeriverseva.org](http://www.threeriverseva.org)  
Contact: Jonathan Belak  
724-387-8210

## TENNESSEE

### CHATTANOOGA EVA

Contact: Randy Whorton  
423-822-1840

### KNOXVILLE EVA

Web Site: [www.knoxev.org](http://www.knoxev.org)  
Contact: Gary Bulmer  
[gpbulmer@gmail.com](mailto:gpbulmer@gmail.com)

## TEXAS

### ALAMO CITY EAA

Web Site: [www.aceaa.org](http://www.aceaa.org)  
Contact: Craig Egan, 210-542-7707

### AUSTIN AAEAA

Web Site: [www.austinev.org](http://www.austinev.org)  
Contact: Aaron Choate, 512-453-2710

### HOUSTON EAA

Web Site: [www.heaa.org](http://www.heaa.org)  
Contact: Kevin Douglass  
713-927-6997  
[houstontxeaa@gmail.com](mailto:houstontxeaa@gmail.com)

### NORTH TEXAS EAA

Web Site: [www.nteeaa.org](http://www.nteeaa.org)  
Contact: Ron Swanson 214-352-8180

## VIRGINIA

### DRIVE ELECTRIC RVA

Contact: Charles Gerena  
804-560-3471

### RENEWABLE ENERGY & EVA, DIY PROJECT CLUB

Web Site: [www.reevadiy.org](http://www.reevadiy.org)  
Contact: Mark Hanson  
540-473-1248

*continued on next page*



**WASHINGTON****MID-COLUMBIA EVA**

Contact: Garrett Brown, 509-713-0806

**NORTH SOUND EVA**Web Site: [www.northsoundeva.org](http://www.northsoundeva.org)

Contact: Jason Thompson

360-920-0287

**SAN JUAN ISLANDS EVA**

Contact: Bruce Nyden 707-494-6693

**SEATTLE EVA**Web Site: [www.seattleeva.org](http://www.seattleeva.org)

Contact: Stephen Lough 206-524-1351

**TACOMA EVA (TACEVA)**

Contact: Stanley J. Lee. 253-383-4371

**WENATCHEE EVA (WEVA)**Web Site: [www.pluginncw.com](http://www.pluginncw.com)

Contact: Jack Anderson 509-784-1747

**WASHINGTON D.C.****EVA OF WASHINGTON DC**Web Site: [evadc.org](http://evadc.org)

Contact: Ron Kaltenbaugh

240-586-0014

**WEST VIRGINIA****WEST VIRGINIA ELECTRIC  
AUTO ASSOCIATION (WVEA)**Web Site: [www.wveaa.org](http://www.wveaa.org)

Contact: Marty Weirick 304 610-1617

**WISCONSIN****WISCONSIN EAA**

Contact: Benjamin J. Nelson

262-567-9348



# Curtiss

*continued from page 41*

The chain on the right of the chunky rear wheel rises up at an angle to the drive unit positioned under the seat platform, between rider and pillion. And there's a tablet-like display behind the handlebar's center post presumably for displaying ride stats and remaining charge.

As for specs, we do know that the prototype features a 14.4 kWh Li-ion battery pack in a "T-Block" configuration. Curtiss has replaced its love of V-twins with the world's first E-Twin power unit that's built around two high-output electric motors driving one output shaft. And the company is estimating that this combination will result in 170 hp (127 kW) and 290 lb.ft (393 Nm) of torque.

The Zeus concept was declared "Most Innovative Motorcycle" at the Quail gathering on May 5. "Zeus is the result of years of hard work, so our team could not be more proud to be recognized for our achievement as we re-imagine what the American motorcycle can be," said Cornille when accepting the award.

The Curtiss Zeus is due to start rolling off the production line in 2020. While we wait for more specs and pricing, take a look at the images in the gallery and let us know your thoughts on the design in the comments.

Source: Curtiss Motorcycles

<https://newatlas.com/curtiss-zeus-quail-reveal/54585/>



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