

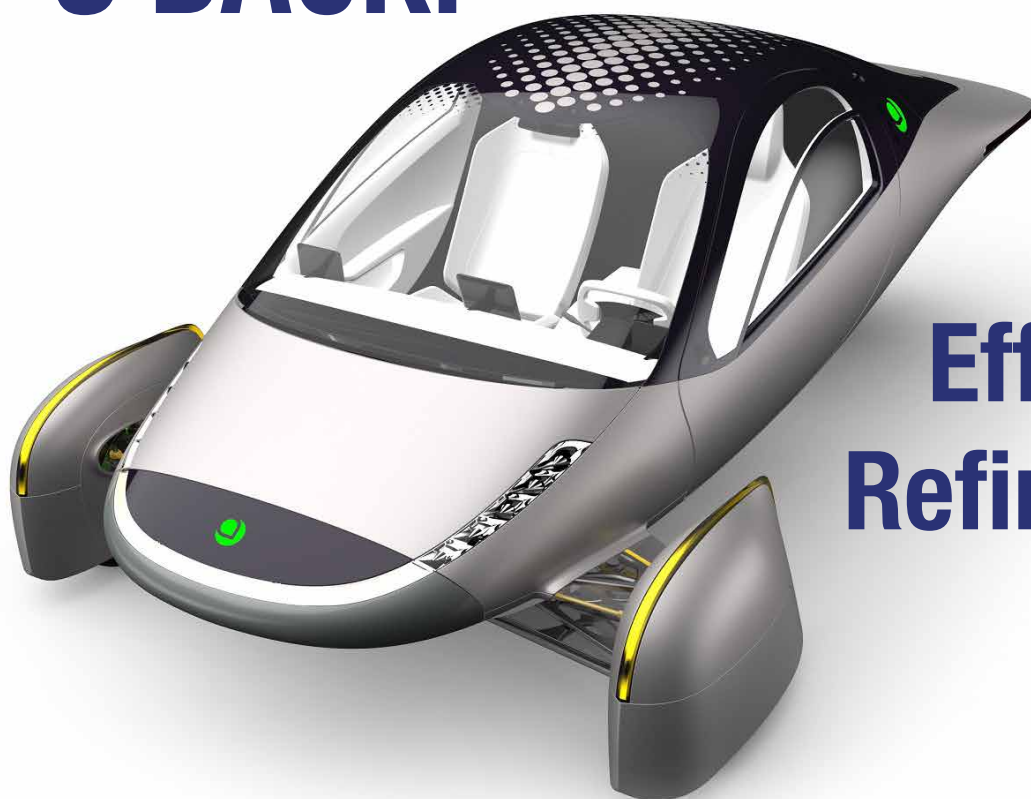
Electric Auto Association



Current **EV**ents

September 2019 Promoting the use of electric vehicles since 1967 Vol. 51 No. 9

IT'S BACK!



Energy Efficiency, Refining the Design

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Open October 1st**
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Current Events Back Issues

The EAA has put most of its issues from 2001 to 2019 on its website.

Please visit

<http://electricauto.org/> and from the home page, click on "Documents" in the top navigation bar. You will see the document library. Click on that to reveal 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.

Undoing No More! Local Players Step Up and DO.

We have heard much about backwards steps by the EPA, undoing environmental standards, undoing standards for car emissions, and Congress failing to act to extend much needed tax credits.

Here's some positive news from Franklin Township, New Jersey

SOMERSET, NJ – As a Sustainable Jersey Silver-Certified town, Franklin Township is dedicated to keeping Franklin green. The Township has added five Chevy Bolt electric vehicles to their overall fleet and is in the process of constructing six more ChargePoint class 2 stations.



New Jersey Department of the Environment Protection (DEP), the equivalent of the EPA for New Jersey, is stepping up. Stanislav Jaracz is an Environmental Commissioner for Franklin Township. After heading

up a Drive Electric Earth Day Event in April, Stan is back for more . . . running a great event in Plainfield, NJ, creating a high impact for EV public awareness and education.



Stan – heading up the EV Display at the Environmental Fair, Plainfield New Jersey hosted by the Municipal Utilities Authority

“Never doubt that a small group of thoughtful, committed, citizens can change the world. Indeed, it is the only thing that ever has.” – Margaret Mead.



Raejean Fellows



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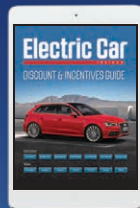
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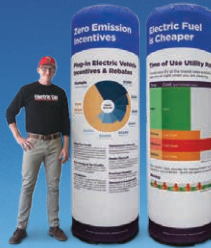
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ECI creates educational resources to promote EV adoption from awareness to advocacy. Email or call us for a complete catalog of products and current pricing.

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Nominations Open October 1st, 2019 Four EAA Board of Director Positions

We extend an invitation to all interested EAA members and especially to women, to people of color, to all ages, consider becoming a candidate for a Director position on the EAA Board. We currently have four open positions.

We are seeking candidates who have time to give, as the 11 Directors are solely responsible for all the operations of our association, with no paid staff. The talents we are seeking are in the areas of; Membership, Donations/Fund Raising, IT/Web development, Data Base Management and Communications. In this time of huge growth for EVs and for our association, we need your voices and talents now more than ever.

This year, we will be running our elections through an on-line elections company, True Ballot. All active members as of December 10th will be sent an email on December 15th with instructions how to access our custom elections web page. Elections will be open from December 15th – January 10th, with results announced January 15th and at our annual meeting on January 25th. Candidate statements will be accessed, after login, in the Members Only (far right tab) on www.electrcauto.org to review the candidates prior to voting.

We will again host a Candidate Forum with a conference call-in to help you get to know the candidates. Candidate Forum to be held December 17th. We are looking for a Moderator. If you are interested, email: President@ElectricAuto.org.

If you would like to be considered for a position on the board you need to be nominated. You can nominate



yourself, or anyone else. Nominations open October 1, 2019 and close November 10, 2019. In addition, you will need to submit a Candidate statement. Candidate statements must be submitted no later than November 10th when nominations close. Sample candidate statements are available.

To submit nominations, for questions and additional information on Director commitments, please contact, Nominee Coordinator, James Stephens, Director and Chapter President of Southern Oregon EVA, James Stephen's, email: soheva.president@soheva.net

We welcome your participation in our democratic electoral process. For those who step up to EAA leadership, the rewards you will receive, knowing what a difference you are making in the EV world, are electric!



SAVE THE DATE!
**Annual Awards, Board of Director Elections
and Meeting**

**Electric Auto Association Annual Meeting,
Saturday, January 25th, 2020**



PG&E Sponsors FIVE NDEW Events and FIVE New Electric Auto Association Chapters

**Richmond, CA, Cupertino, CA, Manteca, CA
San Luis Obispo, CA and Clovis (Fresno), CA**

**“New Chapters help us to continue the magic of NDEW all year long.”
EAA President Raejean Fellows**

In recognition of the impact created by EV Owners engaging the public in local events throughout the year, PG&E, in addition to sponsoring these NDEW events decided to “seed” five new chapters. New chapters are provided five annual memberships to EAA, a banner, a Chapter President’s Guide as well as on-going guidance and educational materials from EAA’s New Chapter Program. Connecting with local EV enthusiasts at these events will help to unite the first founding members of these chapters.

These five events were provided new 15-foot feather flags as well as support for volunteers. The hosts of NDEW are very appreciative of the PG&E funding that is essential in attracting public attention and especially in organizing grassroots EV Owner educators in order to accelerate EV adoption.



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EVE 30A Cord

- Black Jacket, UL Certified 105 deg C
- Use as EVSE cord or J1772 Extension
- 10AWG Power and Ground

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Feb 2019

Are States Overtaxing EV Drivers to Make Up for Lost Gas Taxes?



Some states are assessing additional fees on electric vehicle owners that end up being in excess of what the average car owner pays in gas taxes, consumer advocates said Wednesday.

Consumer Reports found that 26 states (up from 17 a little more than a year ago) have implemented policies mandating additional registration fees for owners of electric vehicles.

Of those 26, 11 charge more than would be paid by the owner of a similar gasoline-burning car, *CR* found. Three states charge more than double the average paid in gasoline taxes by the owner of an equivalent ICE-powered vehicle. And one state, Missouri, is considering a proposal that would increase its existing fee to three times the average paid in gasoline tax.

According to *CR*, there are 12 additional states currently considering proposals to implement EV registration fees. Of those 12, 10 would charge fees above the average gasoline tax paid by drivers. Consumer advocates argue that those fees do little to contribute to road maintenance and other transportation projects, which is ostensibly the reason for implementing them.


“People should be allowed to choose a vehicle that’s safe, reliable, and better for the environment without being punished,” said *CR*’s Shannon Baker-Branstetter.

One argument in favor for hedging high on EV registration fees is the fact that they tend to be heavier than gasoline-burning vehicles of the same size and passenger configuration, thus contributing more to roadway degradation. Robert Atkinson of the Information



Technology and Innovation Foundation says that’s a non-issue at the passenger vehicle level, and that additional fees should be assessed on heavy trucks, which do most of the damage and impact the environment in other ways that light-duty EVs do not.

The federal government assesses a heavy vehicle use tax on trucks with a gross taxable weight of 55,000 pounds or more. Since 1985, states have been responsible for collecting this tax, which is then redistributed by the federal government for the purposes of highway maintenance and construction.

The U.S. Chamber of Commerce has also publicly advocated for raising the federal gasoline tax, which has been set at 18.5 cents per gallon since 1993. The Chamber suggested a 25-cent increase, which would be 36 percent above the pace of inflation. 

https://www.greencarreports.com/news/1125006_are-states-overtaxing-ev-drivers-to-make-up-for-lost-gas-taxes

Plug In America Announces Winners of 2019 Drive Electric Awards

Leaders in the electric vehicle movement include students, advocates, event organizers and more

LOS ANGELES – The second annual Drive Electric Awards are being awarded to people and organizations that have led the electric vehicle movement. Awards will be presented at a private reception in Los Angeles on Tuesday, September 10.

The awards announcement is in advance of National Drive Electric Week, Sept. 14–22, 2019. During that week, hundreds of electric vehicle events will take place across the country. More info and a list of events is available at DriveElectricWeek.org.

Plug In America members submitted nominations and the winners were chosen by a committee comprised of Plug In America board members.

“We are thrilled to honor these outstanding individuals and organizations for their contributions to increasing electric vehicle adoption,” said Tonia Buell, awards committee chair. “We tripled the number of categories this year to recognize even more awardees who are promoting the capabilities and benefits of driving electric. The committee selected the best and brightest from the 50 nominations received.”

The 2019 Drive Electric Award winners are:

Lifetime Achievement Awards



Kenneth & Gabrielle Adelman have been driving EVs and driving the movement

since they first leased an EV1 in 1998. They have leased or owned 11 EVs, ranging from the EV1, two generations of RAV4 EVs, Tesla Roadster, Tesla Model S, Tesla Model X, and one of three zero vehicles.

Kenneth assisted director Chris Paine with getting footage and stills of the crushed remains of EV1s stacked in GM’s Arizona proving grounds, in one of the key moments in the documentary *Who Killed the Electric Car?*. Their philanthropy has supported Plug In America’s advocacy efforts since its inception and funded the first EV lobbyist. Much of the public policy that exists today would not have happened without their involvement.



Chelsea Sexton has been working to accelerate electric transportation since cutting her teeth in the mid-1990s on the General Motors EV1 program. Her diverse adventures since have included co-founding Plug In America, guiding VantagePoint Capital Partners’ early investment in Tesla Motors, and directing an automotive X PRIZE to encourage development of compelling, highly efficient vehicles.

Chelsea was featured in the Sony Pictures Classics documentary, *Who Killed the Electric Car?*, and she was a consulting producer on the follow-up, *Revenge of the Electric Car*. She continues to work

as an advisor, speaker, and friendly co-conspirator with companies, non-profits, and policy makers around the world to make the movement of people and goods cleaner, safer, and more accessible through electrification.

Individual Awards



Chuck Caisley is the chief customer officer and senior vice president of marketing and public affairs at KCP&L in Kansas City. He proposed and developed the Clean Charge Network, the first major EV charging network implemented by a public utility with more than 1,200 stations across its service area.



Andrea Pratt is the climate & transportation policy advisor for the City of Seattle. She has led the city’s efforts to become an EV-friendly city, including requiring all new buildings to be ready for EV charging,
continued next page

electrifying the city fleet, installing hundreds of charging stations in city buildings and working to electrify transit, freight and TNCs like Uber and Lyft.

Organization Award



Smart Columbus has been central to the growth of electric vehicles in Columbus, Ohio, where EVs went from just .37% of new sales in 2015 to over 2% in Q4 of 2018, shattering their original goal of 1.8% by 2020. Among their efforts, they provided more than 9,000 EV test drives to residents of Columbus.

Utility Award



Austin Energy created EVs for Schools, which pairs EV charging at local schools with EV curriculum for students. Austin Energy also offers Plug-In EVerywhere, which gives subscribers unlimited access to 800 charging ports powered by 100% renewable energy credits for \$4.17 per month. Their outreach campaigns, including the community favorite “StEVie the EV loving TRex,” have also contributed to growth in EV adoption.

City Captain Awards

Kitty Adams has organized six National Drive Electric Week events in Southern California, with a combined total attendance of nearly 4,000 people and more than 2,300 ride and drives. She is also the executive director of Adopt a Charger, which facilitates fee-free EV chargers through sponsorships.

Duff Mitchell is organizing his sixth Drive Electric event in Juneau, Alaska this year. Among his efforts, he involves the city government to have local officials express their support and he uses drone technology to demonstrate the growth of these events and of EV adoption in Juneau.

JD Taylor is organizing his seventh Drive Electric event in Poolesville, Maryland this year. His events are among the largest in the nation, with more than 10,000 attendees each year. He volunteers his time year-round promoting, organizing and participating in many events, including an EV showcase for high school students.

Advocate Award

Patty Monahan is currently a commissioner at the California Energy Commission. In this role and during her time as transportation program director at the Energy Foundation, she has been a critical leader in EV policy and strategy for over a decade. She has united EV advocates with combined strategies and was active in supporting the Transportation Electrification Accord.

Student Award

Samuel Bona developed an interest in EVs for environmental reasons and has worked part-time for a used EV dealer in Utah, using his great communication skills to influence consumers to purchase EVs. He will begin studies at Utah State University this fall and plans to pursue education connected with transportation electrification.

Russell Corbin, a first-year student at Pomona College, is a young EV activist that has been attending EV events since 2015. He coordinates other teen volunteers for National Drive Electric Week events, organized EV events at his high school, served as the environmental affairs coordinator for the Montgomery County Regional Student Government Association, and has advocated for electric school buses at the local and state level.

EV Marketing/Awareness Award

Nikki Gordon-Bloomfield is the founder and lead presenter of Transport Evolved, a website and YouTube channel that presents news and information about electric vehicles. Distinguished by her British accent and authentic voice, Nikki is respected for her objective, interesting content, with more than 1,100 videos and 95,000 subscribers.

EV City

Los Angeles, California, under Mayor Eric Garcetti, has the most ambitious EV goals of any city in the country and has developed several programs to achieve those goals, including rebates for used EVs and BlueLA, the first all-electric car-sharing program in the country, aimed at lower-income residents.

Photos of some winners were not available at the time of publication. Congratulations to all award winners!

<https://pluginamerica.org/press-release/plugin-in-america-announces-winners-of-2019-drive-electric-awards/>

Adelmans are Persons of Influence for Electric Vehicles

By Gabrielle Adelman

Kenneth and I both flew jets and helicopters in the late 90s. These are wonderful machines, but their fuel thirstiness can't be denied. In an effort to curtail our fuel usage in other areas of our life, we decided to test-drive the GM EV1 that had recently become available. Or rather, I enthusiastically made a test-drive appointment, and Ken was dragged along. Like most EV test drives of the era, it was designed to turn us off from electric cars, and in that sense was a complete failure.

"Great!" we said. "Sign us up!"

This was in 1998. We eventually ended up leasing three different ones (including one in the sought-after red color). EVs were so rare then that we got used to answering questions about them in parking lots. One question that bugged us was: "Haven't we just moved our pollution to the power plant?" (short answer: no) but that did get us thinking about home photovoltaic systems. We did some homework and found that there were solutions, but the existing 10kW limit on residential photovoltaic systems that qualified for net-metering made it uneconomic. The limit was one of regulations, not engineering. However, regulations can be changed, and we did know this really good lobbyist...

Ken testified in Sacramento, a lot of other people did a lot of hard work, and on April 19, 2001, Governor Davis signed into law AB1-29X, that raised the cap on the size of renewable energy systems that qualify for net-metering from 10kW to 1MW.

PG&E, as recent events have made clear, doesn't care much to alter their operations based on laws and safety and other such trivia, so it took over a year and many thousands in legal fees, but we finally went into full operation on July 4th, 2002, with



what was for a number of months the largest residential photovoltaic array in California.

July 4 wasn't always a good date for us. That was also the date that GM took back our last EV1 (for crushing, as Chris Paine showed the world. Incidentally, Ken, then an experienced aerial photographer after taking thousands of coastal photographs for our California Coastal Records Project website, took the stills of the crushed EV1s that made it into the "*Who Killed the Electric Car?*" movie).

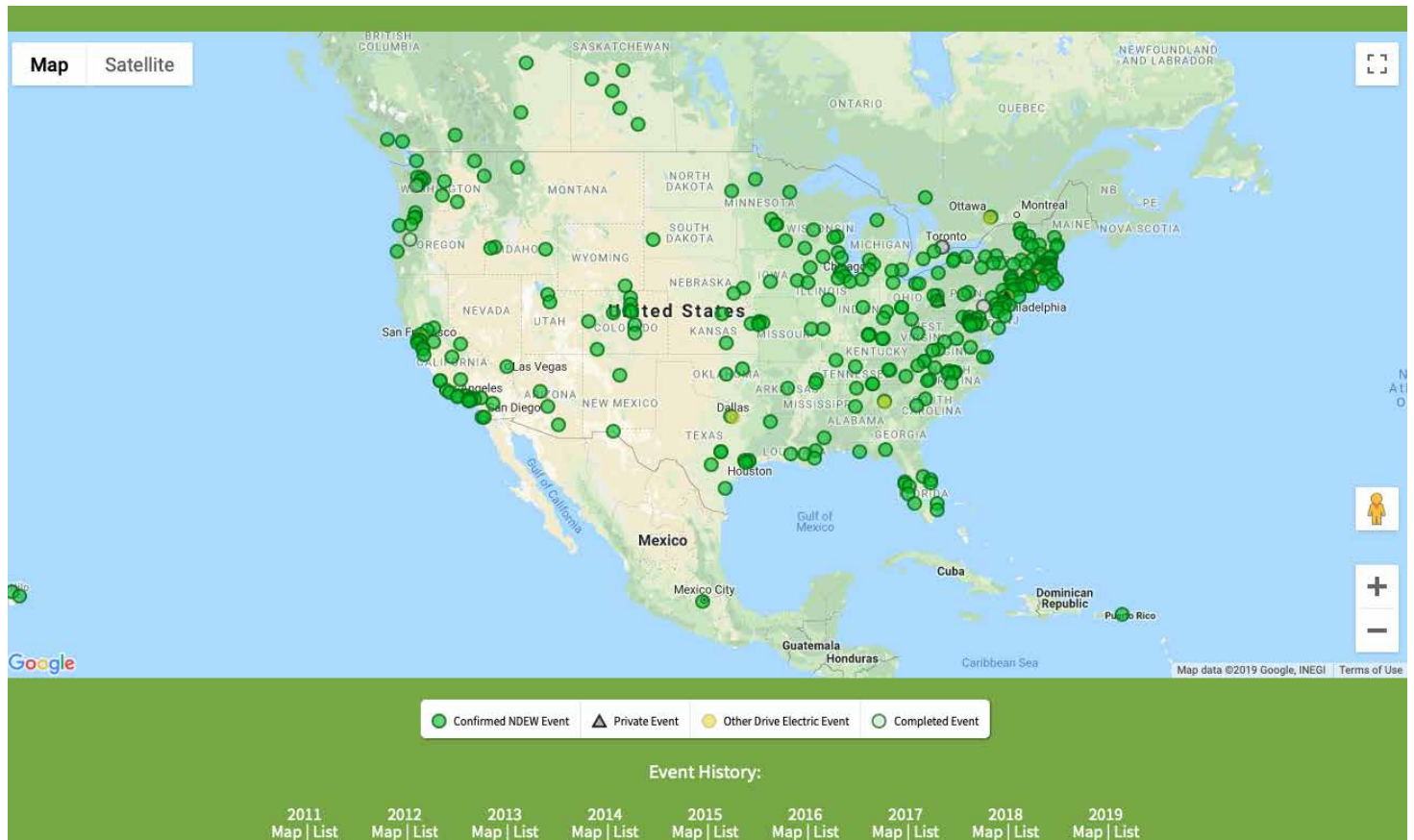
The anxiety of losing the best car that we had ever driven spurred us into acquiring other EVs: the only working AC Propulsion tZero, and four of the first generation Toyota Rav4 EVs. These cars were fantastic, but difficult to obtain and maintain. The tZero was exquisitely engineered (the heart of it powered the first Teslas), but hand-made and nearly unique. The Ravs were leased, and we actually had to form a shell California corporation and come up with a cover story to convince Toyota Leasing to let us have the cars.

With the newer cars, we would still be stopped in parking lots, and would still have to say, "Yes, these cars are great and we love them. Oh you'd like one too? Well, sorry, they're made of unobtainium." Lobbying efforts were making great strides, but they were pushing against a very entrenched industry. So when Tesla's Roadster came out, as soon as we could afford one (by selling a much-appreciated 1970 Plymouth Roadrunner Superbird, ironically) we put a deposit down, and soon enough were driving the second customer-delivered 2.0 Sport model (in red, in tribute to our favorite EV1). We were so pleased that we bought a signature Model S before they were publicly announced, and, thanks to Ken's quick typing, the first customer-delivered Model X.

These have been supplemented with two latest-generation Rav4s, bringing the total fleet to five (the earlier Rav4s were sold to three different people, all named Bill, oddly enough; the tZero was sold, and, very unfortunately, was destroyed in a charging-accident fire).

National Drive Electric Week 2019

National Drive Electric Week, September 14-22, 2019, is a nationwide celebration to heighten awareness of today's widespread availability of plug-in vehicles and highlight the benefits of all-electric and plug-in hybrid-electric cars, trucks, motorcycles, and more. They are fun to drive, are less expensive and more convenient to fuel than gasoline vehicles, are better for the environment, promote local jobs, and reduce our dependence on foreign oil. Are you considering going electric? Come talk to owners who have successfully done so. The map below on the website becomes interactive when you fill in your zip code.

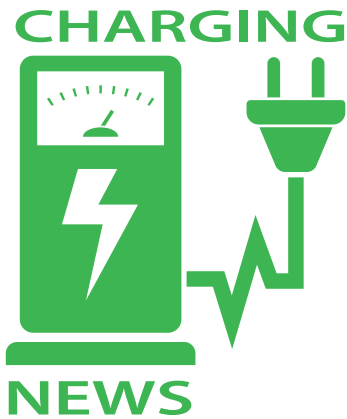


If you want to learn more about National Drive Electric Week, and you have questions about EVs, charging or incentives Contact Plug In America's EV Support Program: https://pluginamerica.org/why-go-plug-in/ev-support-program/?utm_source=ndew&utm_medium=link&utm_campaign=evsp

If you want to learn more about National Drive Electric Week, and you want to talk to a local EV owner/driver, you can Find a Chapter at Electric Auto Association: https://eaa-1967.clubexpress.com/content.aspx?page_id=225&club_id=222684



<https://driveelectricweek.org>



CA Issued “Stop Work” Orders Against Recargo on 22 State-Funded Charging Sites



The most popular EV “chargefinder” app.
Reviews, photos, and more.



Ultra-fast EV charging across the West Coast.
Travel without range anxiety.



Survey and qualitative research and analysis with
the largest panel of EV drivers in the world.



Data products for business and government.
Connected via our database API.

By Jeff Nisewanger

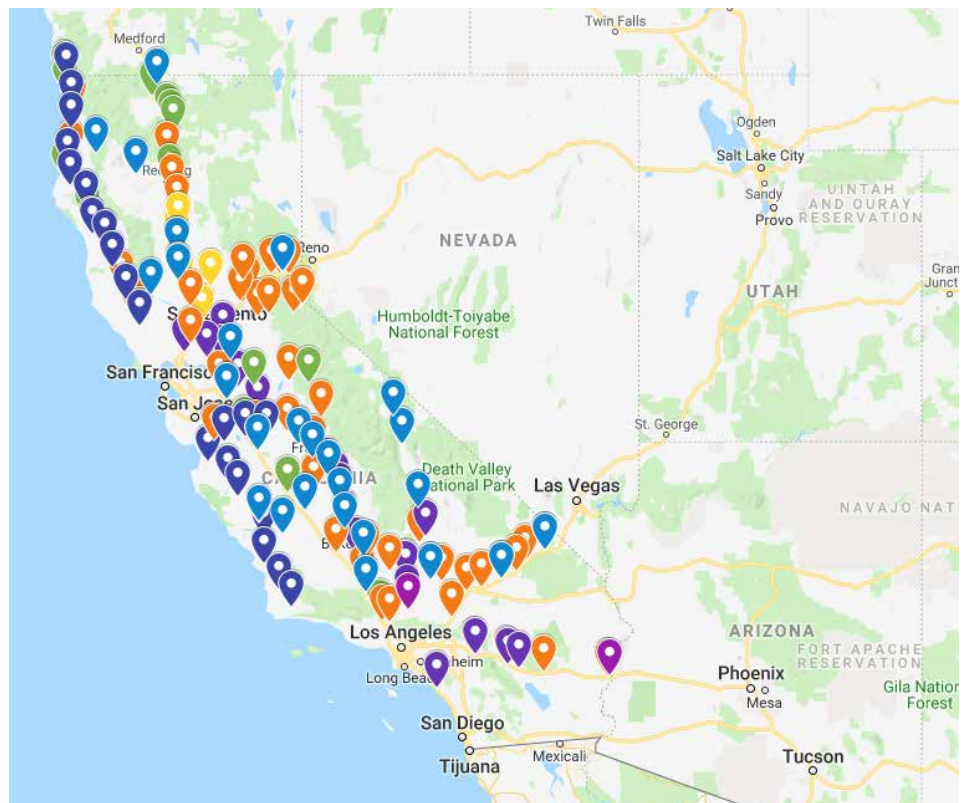
The California Energy Commission (CEC) issued “stop work” orders earlier this year against Recargo, the parent company of PlugShare, for non-performance on two major DC fast charging installation grants, according to commission staff. One of those grants has now effectively expired while the future of the other grant remains unclear.

The two grant programs, known as GFO-15-601 and GFO-15-603, help to cover the cost of installing fast DC charging for electric vehicles along highway corridors throughout California. The programs were intended to help complete California’s part of the so-called West Coast Electric Highway. After a competitive bidding process, grants were eventually awarded to four companies in 2016. Recargo’s grants covered 22 planned charging sites mostly along US 101 running north and south near the coast.

Eight planned, but never built, Recargo sites between San Jose and Buellton were covered by the “601” grant and are in a section of US 101 that has relatively poor charging coverage today. A 130-mile DC charging gap between Salinas and San Luis Obispo is covered by only a single, relatively slow, CCS-only 24 kW ChargePoint charger in Paso Robles and that site is about 100 miles from Salinas. Each of the proposed locations would have received at least one dual-cabled DC CHAdeMO and CCS charger along with an AC J1772 charging cable.

Under the “603” grant, another 11 sites are planned to be built by Recargo along US 101 north of San Francisco together with

three more sites tying together 101 with CA 99 mid-state between Gilroy, Los Banos, and Chowchilla.



This unofficial interactive map of the “601” and “603” CEC grant sites shows Recargo’s planned locations using blue markers running mostly along US 101 near the Pacific Ocean. The map was created by online automotive forum user “miimura” who posts at [TelsaMotorsClub.com](https://www.telsamotorsclub.com) and other sites. <https://www.google.com/maps/d/viewer?mid=1VEJLK0-wcAhWV8Q0MirTLULd5mG&ll=37.3243196884379%2C-115.27913273050132&z=6>

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Grantees can be paid incrementally for their work by filing status reports with the energy commission detailing their expenses and the progress they are making towards designing sites, purchasing equipment, and performing installation work. CEC staff say Recargo has filed no recent progress reports and has not been paid any of their total allotted grant funds worth nearly \$4 million.

However, Recargo did file changes to update the locations of their proposed charging sites as reflected in CEC grant program addendums published in late 2018 and early 2019.

Recargo has been undergoing corporate ownership changes during the past year. It was bought last October by Innogy, a German company involved in renewable power generation and electric vehicle charging at a time when Innogy itself was already in the process of being acquired by another German energy company named E.ON. It's not clear how much Recargo's ownership changes and corporate realignments might have contributed to the delay on implementing their CEC grant projects.

Last year, Recargo began promoting its plans for a "Recargo Network" which would begin with the CEC sites and a previously built site near Salinas constructed with grant money from the Monterey Bay Air Resources District. Future expansion plans were envisioned throughout other western US states. During the summer, the part of Recargo's website describing these plans was removed but the company insists it still hopes to build a major charging network [Map right above.]

At some point, apparently many months ago, the company filed to extend its originally proposed "601" project completion date of July 30, 2019. According to Carl Pancutt, Recargo's Director of EV Charging Infrastructure, by around July 2019 the CEC eventually agreed to allow the deadline to be extended. However, according to CEC



The red highlighted route to the left between San Jose and Buellton shows the section of US 101 where Recargo was awarded "601" grant funds to help build eight DC chargers.

staff, the underlying "601" grant program rules effectively mandate that all charging equipment must be installed no later than September 2019 so the deadline extension was never legally executed.

CEC staff say the "601" grant rules assume several months of operational time after equipment installation and that the filing of a final project completion report by the grantee should occur 60 days before March 31, 2020 after which any remaining funds can no longer be dispersed. [See photo next page.]

Despite the conflicts over the California grant money, Recargo CEO Brian Kariger told Electric Revs via email that the company is "still planning to have all of the sites built". According to Kariger, "We are engaged in active discussions with partners about all of our planned locations" but he declined to be more specific about the timeframe.

The company is believed to be still hoping to salvage its "603" CEC grant which carries later deadlines.

continued on page 16

Recargo

continued from page 15

Update: Recargo has released an additional statement from CEO Brian Kariger (below):

We have received nothing but support and encouragement from our parent company, Innogy, to complete the corridors and meet all the requirements of our grant agreements with the CEC. Unfortunately, during the pre-construction process we encountered numerous issues with sites that caused us to seek and acquire alternative locations and make extensive changes to our plans, and due to these issues and further delays in obtaining required approvals, we were unable to complete the southern corridor on the CEC's schedule.

Nobody is more disappointed than I am about this result. Nevertheless, we continue to work with partners on completing the US-101 corridor. These efforts are ongoing and confidential, and we hope to bring you positive news in the very near future. This has been a humbling experience, and has served only to deepen the profound respect we have for the Tesla Supercharger team, EVgo, Electrify America, and others building high-powered charging routes connecting distant communities.

According to commission staff, the company will need to provide convincing evidence of their intent and capability of completing the “603” grant sites before the CEC is likely to lift its “stop work” order and agree to extend Recargo’s original “603”



Recargo's only DC charging site, located behind a shopping mall in Prunedale, was built using grant money from the Monterey Air Resources District.

completion deadlines to March 2021 as Recargo has requested. A purpose of the “stop work” order is to avoid incrementally funding projects that appear unlikely to be completed by the grant deadline.

Some other grantees have been given extensions to their originally planned dates, mostly due to electric utility connection delays, but CEC staff says ChargePoint, EV Connect, and EVgo have been filing monthly status reports and are believed to be largely on track to meet their deadlines.

Recargo was the only CEC grantee installing chargers along the southern section of US 101 but the section north of San Francisco is also getting sites installed by ChargePoint under the same overall “603” grant program.

Separately from any CEC grant funding, Electrify America is independently

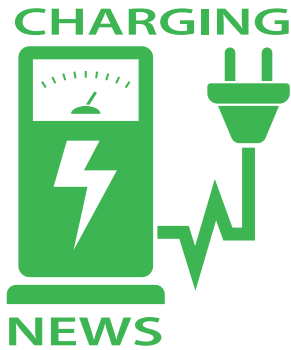
installing high-power DC charging sites all along US 101 in California that are planned for completion by the end of this year.

The delays in construction of the new DC charging has frustrated some electric vehicle advocates because charging coverage gaps on some highway routes can make traveling less convenient, result in slower charging times, or even make the routes unusable for vehicles with shorter battery driving ranges.

“These stations have been needed for years. The people of California counted on Recargo to build them. They didn’t get the job done. We’ve effectively lost five years of network development on those routes”, said Paul Gipe, an EV advocate who has been closely monitoring DC charging installation progress in southern California.



<https://electricrevs.com/2019/09/08/ca-issued-stop-work-orders-against-recargo-on-22-state-funded-charging-sites/>



When Slower is Faster, Or How I Learned to Skip Superchargers and Arrive Earlier

By Marc Geller

Kevin and I just drove cross-country. Again. The Tesla Supercharger network makes it not only possible, but quite easy. Superchargers generally exist every 70 to 170 miles along most major US highways, making the drive possible for our 2013 Model S 85, which now has a rated range of about 220 miles.

I know for some, a long-distance drive is simply about hopping from SuperCharger to SuperCharger. For us, however, Level 1 (L1) and Level 2 (L2) plays a meaningful role. Paying attention to opportunities to plug in at L1 and L2 can make your long-distance trip faster than simply looking for the next SuperCharger.

First, and most obviously, when we are visiting friends, they generally can provide access to 120V power. When we stay for a day or two, plugging in at 120V has often meant we could get right on the highway, passing by the nearest SuperCharger, saving ourselves twenty to fifty minutes of charging time. On this trip, our friends in Reno, Boise, Montreal, Somerville, MA, and the Catskills and our relatives in St. Louis all got a hands-on lesson in how easy charging up an electric car can be. And we often got to skip a SuperCharger.

Of course, we don't have friends and family every place we need to sleep on a five thousand plus mile trek, so we did need to spend a few nights at motels. We didn't plan ahead where we were going to stop, so a few hours before we'd need a place to stay, we'd begin our research. I've found PlugShare is the best way to search for L2 chargers at motels along the way. Twice on



our trip we found motels with L2 chargers, one in Nebraska and one in Wyoming. In both cases they were free. In each case, they permitted us to bypass one SuperCharger. A slower overnight full charge definitely beats time at a SuperCharger first thing in the morning.


The most interesting motel charging experience on this trip was in Indiana, between Louisville, KY and Mt Vernon, IL. The distance between these two superchargers is the longest I've encountered, 196 miles. Although I'm certain driving at modest speeds would allow me to complete the drive, one gets used to driving 75 to 85 mph.

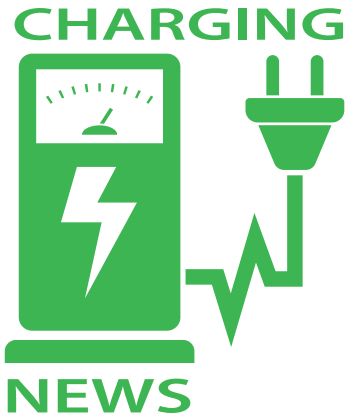
So, I began the search for a place to charge up a bit, midway to Mt Vernon, as the sun began to set. Quite surprisingly, I found a town called Santa Claus with four Tesla destination chargers, however that would involve a 25-mile detour. One hour of charging would be needed simply to cover the detour! And a Christmas themed tourist trap was not our idea of a good time.

Since we'd be soon looking for a place to

stay the night, I got on the phone to motels just off the freeway. One very friendly desk clerk at a Comfort Inn in Ferdinand, IN, said she'd take a look outside to see if there was an outlet that was accessible to a parked car. Sure enough, she reported when I called back, there are 120V outlets on a couple of light posts. When we arrived, we plugged in, thanked her profusely, and gave her a much-appreciated thorough look at our car and its features (her first view of a Tesla). In the morning we left with enough extra charge to allow us to forge on at 80MPH!

THE BIG TAKEAWAY:


Without SuperChargers driving across the country would be tedious and slow. However, relying solely on Superchargers might make your trip a bit slower than necessary. L1 and L2 have a role to play, and can often get you further down the road faster in the morning. What we know from our convenient routine of plugging in at home and waking up with a full battery, never to spend the ten or fifteen minutes required to get a "quick" fill up at the gas station, applies to road trips as well. Surprisingly "sipping" rather than "gulping" sometimes gets you there quicker. 



By Katie Sloan

Director | *emobility* at

Southern California Edison

Today we had the opportunity to share EV driver best practices with Panda Restaurant Group at their headquarters in Rosemead, CA. They installed 60 charge ports for their employees through Southern California Edison (CSE) #chargeready pilot. Thanks for being a great partner and we love your “Panda Power” branding. 



More info can be read at the URL below.

<https://www.evconnect.com/blog/5-questions-with-panda-restaurant-group-about-electric-vehicle-charging-stations/>

Electrify America’s Open Network of Ultra-Fast DC Chargers: First to Charge an 800-Volt EV Battery at 270 Kilowatts

Electrify America, LLC and Porsche Cars North America, Inc. (PCNA) celebrated the first time the Electrify America DC fast charging network was used nearly to its full potential.

On September 4, the day of the global launch event, a Porsche Taycan, with its 800-volt architecture, charged at Electrify America’s Bloomsburg, PA charging station. The vehicle charged at a maximum power level of 270 kilowatts, the fastest charging speed for passenger vehicles on the road today.


The vehicle, which drove approximately 250 miles directly from Niagara Falls, utilized

Electrify America’s 350 kW chargers to obtain a five percent to 80 percent charge in just 22.5 minutes. The feat is significant as it demonstrates the growing capability of electric vehicles, as well as the inherent design of DC fast charging that Electrify America charging sites provide across the U.S.

“When Electrify America was formed, the idea of ultra-fast public charging was still very theoretical, and no 350 kW chargers were available to electric vehicle drivers,” said Giovanni Palazzo, Chief Executive Officer, Electrify America. “Today we are proud to showcase our network’s diligent engineering capability through successful,

real world 270 kW DC fast charging examples, finally making ultra-fast public charging a true reality.”

Extensive testing between Electrify America and PCNA helped ensure the Taycan had a successful first ever ultra-fast charge on the network. This effort is paving the way for the many additional electric vehicles – from a variety of automakers – that will be capable of DC fast charging to take advantage of the company’s expansive, high power nationwide network in the future.

[A photo of the Taycan charging appears in the next article.] 

http://www.newspressusa.com/public/ViewPressRelease.aspx?pr=62742&pr_ref=6640

Porsche Cars North America Announces Three Years of Electrify America Charging for Taycan Owners

Porsche to provide coast-to-coast fast-charger coverage through public and dealer networks, plus home charging

Porsche Cars North America, Inc. (PCNA) today announced an agreement with Electrify America, LLC to provide the first all-electric Porsche, the Taycan, with three years of charging at Electrify America public stations across the country. This charging benefit will be included in the price of the Taycan. In addition, Porsche U.S. dealers will install their own fast-charge kiosks. Porsche will also offer home charging technology. Taken together, these three components will make up a comprehensive power network for the Taycan when it launches late this year.

Electrify America highway and metro stations, and many Porsche dealers, will offer DC fast charging at rates up to 350 kilowatts. Using 800 volt technology and the combined charging system (CCS) plug, the Taycan will be able to add more than 60 miles of range in four minutes – the fastest in today’s automotive market.

“Every Porsche is a sports car with soul, and the Taycan is soul electrified,” said Klaus Zellmer, President and CEO of PCNA. “Together, Electrify America and our Porsche dealer network will provide a national infrastructure for DC fast charging that frees future Taycan owners from range anxiety. And Porsche home charging technology will turn the customer’s garage into the equivalent of a personal gas station.”

Taycan buyers will receive three years of unlimited 30-minute charging at Electrify America locations, comprised of more than 300 highway stations in 42 states as well as more than 180 sites in 17 metro areas. Each location will have an average of five charging dispensers, with some having as many as ten.



Electrify America Providing Ultra-Fast Charge to Porsche Taycan

The Electrify America highway stations will have a minimum of two 350 kW chargers per site, with additional chargers delivering up to 150kW. The highway stations will be spaced along multiple routes and no more than 120 miles from each other. Nationally, the distance between highway stations will average 70 miles. Charging dispensers at metro locations will be able to charge at speeds up to 150 kW.

The first phase of Electrify America’s nationwide ultra-fast charging network will feature 484 locations with more than 2,000 charging dispensers installed or under construction by July 1, ahead of the Taycan’s arrival in late 2019. The company’s second phase of charger installations is expected to deploy hundreds of additional charging sites beginning July 2019.

To further expand power options, all 191 U.S. Porsche dealerships will install DC fast charging. More than 120 of these dealerships will feature Porsche Turbo Charging, which is the automaker’s own DC system that delivers up to 320 kW and also uses the CCS plug. The remaining dealerships will install 50 kW fast chargers.

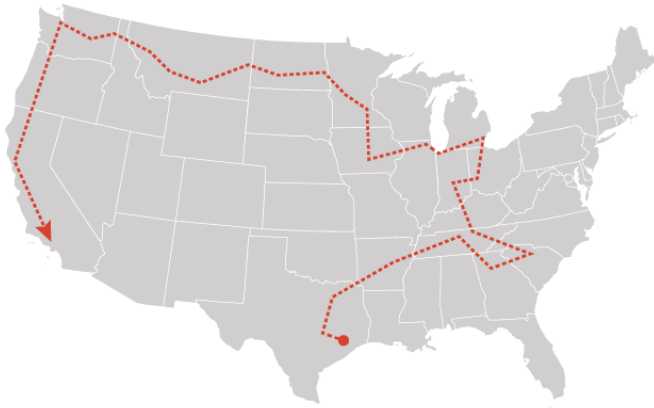
Together, the total investment by Porsche dealers in charging infrastructure will be about \$70 million.

The first Porsche Turbo Chargers are already installed at the Porsche Experience Center (PEC) in Atlanta and more are planned for the PEC Los Angeles.



<https://www.electrifyamerica.com/about-ev-charging>

Where Our 6,000-Mile Electric Road Trip Is Going (and Where It's Not)



Claudine Hellmuth/E&E News

By David Ferris, *E&E News* reporter

There's never been anything quite like our Electric Road Trip that starts this month. Until now, a squad of professional journalists haven't knocked around America for two months in an electric vehicle, investigating how electric transportation will change our lives.

Until now, doing such a thing would have been silly. Electric vehicles (EVs) have existed on the fringes and haven't been numerous enough to matter. But now that's changing: Every major auto maker has several all-electric models in the pipeline. Just a year or two from now, they'll be a burgeoning reality in the showroom and on the road.

We have a hunch this once-in-a-century transformation of the automobile will have a big impact. But where?

One answer is "everywhere," since cars are in the business of moving around. That's why we resolved to go to tons of places and log thousands and thousands of miles. What's it like to drive an electric car? We'll try out lots of models. What's it like to make an electric stop instead of a gas stop? We'll test every scenario.

Looking deeper, we realized that certain places augur the future more than others. Switching from gas-powered to electric-powered cars is a really big deal. The more we researched, the more we realized that the switch is going to alter our economy, our environment, the patterns of daily life in ways that few have gamed out. We're seeking to visit

these places and share them with you — in an electric car, of course.

So, after months of careful planning, dozens of interviews and some agonizing decisions, we can share where we're going. Take a gander at the map at the top of this post.

Over two months, for most of September and October, we will drive 6,000 miles and report from 17 states. In teams of two, we reporters will pass the car like a baton from region to region. We will visit mayors' offices and city streets, the manufacturing plants and the labs. We'll interview executives at the power companies, drop in on auto dealers, talk to gas station owners and the restaurateurs who host charging stations. We'll learn about the hopes and fears of entrepreneurs and factory workers. We'll find out what in the electric revolution stands to be gained and lost.

Some of you will have questions, like: How did you decide where to go? Why are you starting in Houston, but going nowhere near Boston? Why are you skipping Denver but going to Des Moines? And why are you trekking across North Dakota?

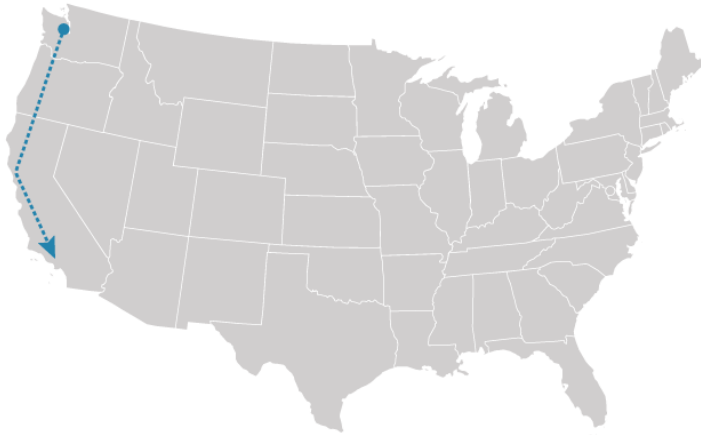
An important thing to know is that we are professional journalists. We are staff writers and editors for an organization called *E&E News*, which provides objective coverage of the fast-changing world of energy and the environment for people across the political spectrum.

That means that when we head out on the Electric Road Trip, we aren't wearing rose-tinted goggles. We'll tell you the good stuff and the bad stuff — and figuring out the route for this trip revealed a lot of what's wrong with electric vehicles today.

As the organizer, I started mapping back in May. I got on the phone with dozens of activists and experts and consulted with colleagues who work all over the country. I spent hours on a site called PlugShare, which has the best beta on where to charge an electric car. I tried out different routes around the country, testing the EV's battery range against where we wanted to go.

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THE WEST

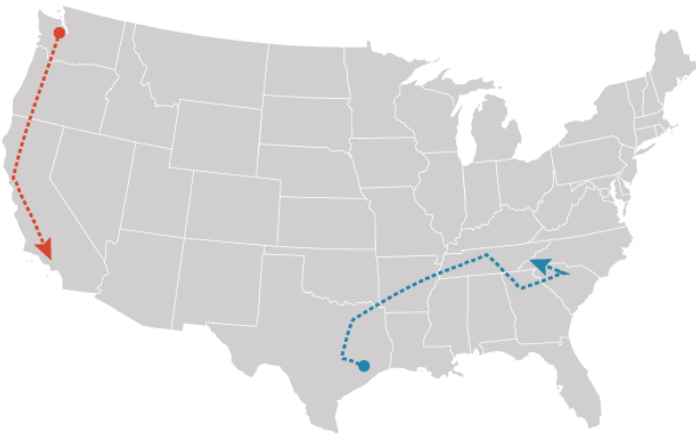


Reporters gravitate toward places that are changing fast. And nowhere is the world of transportation and electrification changing faster than California — home to Tesla and Uber, home to the most stringent air regulators, and to Los Angeles, which invented the freeway but now is grid locked in smog.

Just up north, in Portland, the Oregonians have had a love affair with EVs for years, dreaming up innovations that belie the city's small size. Keep going to Seattle, and you find bold civic experiments and the country's largest electric bus fleet.

So it's a no-brainer. Our Electric Road Trip would sweep the West Coast, from Seattle to Los Angeles.

OIL COUNTRY



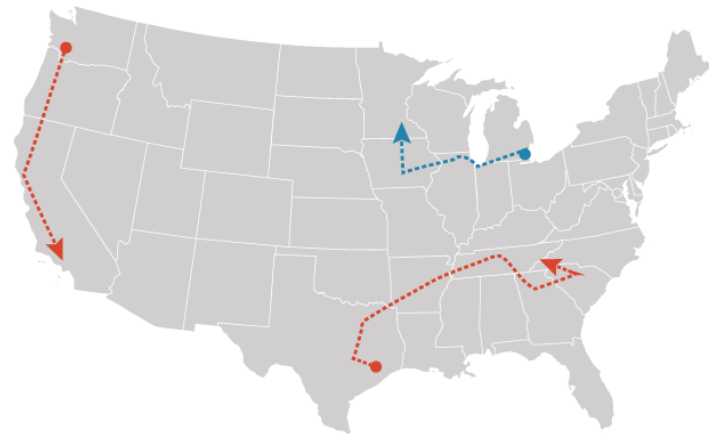
Reporters don't seek out just change, but conflict. If clashes are coming, where rifts are opening, we want to be there, detecting the fault lines, canaries tweeting from the coal mine.

So obviously we have to go to Texas.

It isn't that Texans have a quarrel with electric cars. We have interviewed many Texans who love their EVs. It's that demand for oil — the cornerstone of the state's economy — ebbs a bit with every new electric vehicle that rolls off an assembly line. That's a paradox that will one day deliver to Texas an economic and cultural earthquake. We will report on the early tremors.

While in the neighborhood, it made sense to steer our electric steed east to Tennessee. A slew of cars are made in the Southeastern states, though they get less attention than Detroit. Just outside Nashville is where the oldest production electric vehicle in the country is made — no, not Tesla, but the Nissan Leaf. Does the EV revolution mean that auto workers have to fear for their jobs?

MOTOR CITY



We also couldn't miss Detroit. If EVs in Texas are upending the oil business, the upheaval in Motor City is about manufacturing. The auto industry is in the early days of a drastic re-imagining of the vehicle as one that is autonomous, connected, shared — and electric.

An EV requires far fewer parts than its gas-powered sibling. What does this mean for the auto industry's vast network of suppliers? And what about the auto makers themselves? Will a new kind of car send General Motors and Ford, two pillars of the U.S. economy, toward oblivion or a renaissance?

We also sniffed an opportunity to the west, in Iowa. We couldn't miss the opportunity to drive up to a rally, in the heat of the presidential primary season, and ask the candidates (and the voters) for their views on our curious machine.

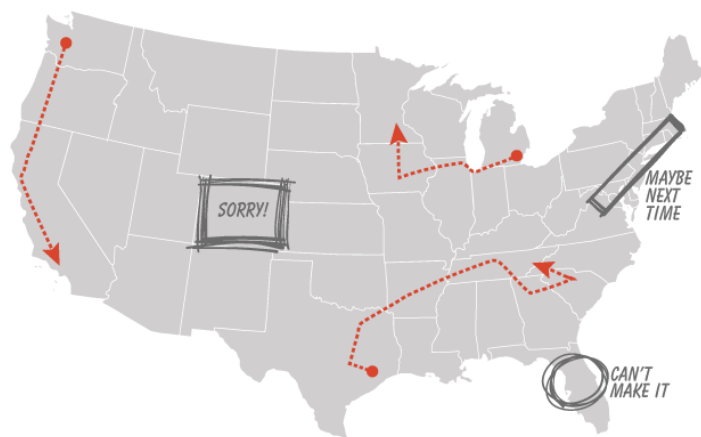
This is where I ought to mention that there are plenty of other intriguing places in America to visit in an electric car. But we aren't going there, and the reason is revealing.

continued on page 22

Road Trip

continued from page 21

... AND WHERE WE'RE NOT GOING



For example, our wish list included Colorado, which has become an EV hotbed, and Orlando, Fla., the site of a grand but failed experiment to introduce electric rental cars. We also had many reasons to visit the Mid-Atlantic and Northeast, from Maryland to Maine. This arc is sometimes called the “the ZEV states” because the bulk of states that follow California’s rules for zero-emissions vehicles are located there. We would have encountered an enjoyable buffet of Maryland blue crabs and Boston clam chowder and a passel of EV pioneers.

But we aren’t visiting those places, for a very simple reason: In 2019, an electric car only takes you so far in one day.

The maximum range of a production electric car is Tesla’s Model S, at 370 miles per charge; among non-Teslas, there are a clutch of other electrics (Chevy Bolt, Nissan Leaf Plus, Kia Niro EV, Audi e-tron) that surpass 200 miles. After that, the battery empties, and recharging it can take all night unless you find fast chargers that are rare in many parts of the country.

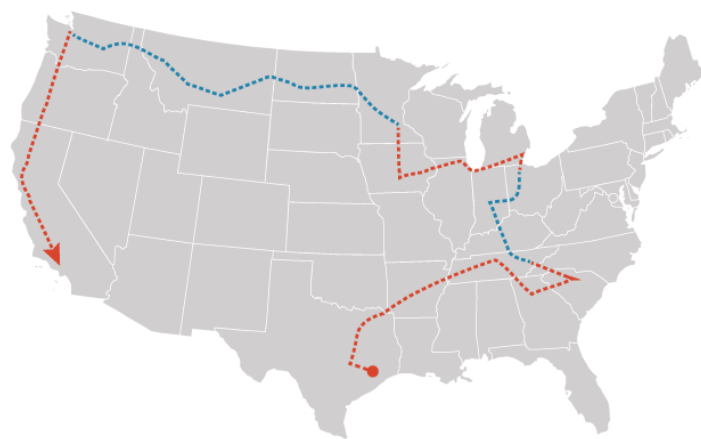
This means doling out a road trip in little 200-mile doses. Today’s electric cars are not yet capable of the 500-mile, just-get-the-hell-across-it day that Americans are wont to do, powered by Chevron and a big bag of Cheetos. The Electric Road Trip would take time, and we — like everyone — have limited amounts of that.

I calculated that driving electric from Orlando to Washington, D.C., would take four days. Boston to Detroit, three days. Minneapolis to Seattle, an astonishing nine days. We could do some of these routes, but we couldn’t do all of them. Some destinations would have to get the heave-ho.

So, with apologies to Colorado, Orlando and the ZEV states, you won’t be seeing us this fall.

After those painful decisions, the route came into focus quickly. We will get you to the places where change and conflict of electric transportation are coming — the West, the oil country of Texas, the auto manufacturing hubs of the Southeast, and the Midwestern Rust Belt.

To connect them, we will link Tennessee to Detroit by wending through Kentucky, Indiana and Ohio — which turn out to be rich in electric-vehicle stories, once you look for them. And we will connect Minneapolis to Seattle by a perilous nine-day trek across North Dakota and Montana, which have fewer places to charge an EV than anywhere else in the USA (the experts warned us against this).



So there you have it: Our two-month Electric Road Trip across America is a journey into a electric future that is exciting and scary, that few understand and that no one has come to terms with. Honestly, we don’t know what is going to happen to us out there. But we sure look forward to having you along for the ride.

Sign up at [https://www.eenews.net/eep/electric_roadtrip_signup?signup_source=blogpost2] for road trip updates or follow along on Twitter, Facebook and Instagram #ElectricRoadTrip.

All Maps by Claudine Hellmuth/E&E News

<https://medium.com/the-electric-road-trip/where-our-6-000-mile-electric-road-trip-is-going-and-where-its-not-7f40c09dc6a0>

What We're Driving on the Electric Road Trip

By David Ferris

In preparing for our Electric Road Trip, we got one question all the time: **What electric car are you driving?**

So we are delighted to finally disclose the car — or actually, all eight of them. Here's our fleet, with specifics on each at the end of the post.

- BMW i3
- Chevrolet Bolt
- Hyundai Kona Electric
- Jaguar I-PACE
- Kia Niro EV
- Nissan Leaf
- Tesla Model S
- Tesla Model 3

The whole **purpose** [<https://www.eenews.net/roadtrip/1060757211>] of the Electric Road Trip is to explore how electric transportation will change America. To convey the experience of motoring and fueling, we wanted to expose you to as many models as possible.

Not just any electric car would do. We focused on pure electric models, not plug-in hybrids, since our experiment is to cover 6,000 miles without a drop of gas.

Furthermore, we needed steeds that would cover 200 miles or more on a single charge, as we have a lot of distance to cover (see the **route** [<https://www.eenews.net/roadtrip/1061023493>]). All of the cars we'll use fit that description, except for the BMW i3, with a range of 153 miles, and an older-model Nissan Leaf, with a range of 75 miles.

Four of the cars — the Kia Niro EV, BMW i3, Chevy Bolt and Tesla Model 3 — were loaned to us by their manufacturers. These are the workhorses of the trip because in 2019, it is virtually impossible to rent an electric car that isn't a Tesla from one of



the big rental agencies, with pick-up at one location but drop-off at another. (Believe us, we checked.)

The other vehicles will be based in a single metro area. (Which metro area? Watch and bookmark our **blog** [<https://www.eenews.net/roadtrip/1061111759>] for updates.) Sometimes our **reporters**, [<https://www.eenews.net/roadtrip/1061110635>] in teams of two, will drive two cars simultaneously.

We're excited to have perhaps the largest fleet of all-electric cars ever to comprise a single Electric Road Trip.

Here are the cars:



BMW i3

Model Year: 2019
Range: 153 miles
Electric motor: 135 kilowatts
Horsepower: 181
Battery: 42 kilowatts per hour
MSRP: \$44,450 to \$51,500
MPGe city/highway: 113
Torque: 184 pound-feet
Zero to 60 mph: 6.6 seconds
Time to charge: 5 hours at 240 volts

Photo courtesy of BMW

Chevrolet Volt



Model year: 2019
Range: 238 miles
Electric motor: 149 kW
Horsepower: 200
Battery: 60 kWh
MSRP: \$36,620-\$41,000
MPGe city/highway: 119
Torque: 266 pound-feet
Zero to 60 mph: Less than 7 seconds*
Time to charge: 9.3 hours at 240 volts

Photo courtesy of Chevrolet

Hyundai Kona Electric



Model year: 2019
Range: 258 miles
Electric motor: 150 kW
Horsepower: 201
Battery: 64 kWh
MSRP: \$36,950 to \$44,900
MPGe city/highway: 120
Torque: 291 pound-feet
Zero to 60 mph: 6.4 seconds
Time to charge: 9 hours at 240 volts

continued on page 24

Road Trip

continued from page 23

Jaguar I-PACE



Model year: 2019
Range: 234 miles
Electric motor:
 Two motors, total 294 kW
Horsepower: 394
Battery: 90 kWh
MSRP: \$69,850-\$80,900
MPGe city/highway: 76
Torque: 512 pound-feet
Zero to 60 mph: 4.3 seconds
Time to charge: 13 hours at 240 volts

Photo courtesy of Jaguar

Kia Niro EV



Model year: 2019
Range: 239 miles
Electric motor: 170 kW
Horsepower: 201
Battery: 64 kWh
MSRP: \$38,500-\$44,000
MPGe city/highway: 112
Torque: 291 pound-feet
Zero to 60 mph: 6.5 seconds
Time to charge: 9.5 hours at 240 volts

Photo courtesy of Kia

Nissan Leaf



Model year: 2013
Range: 75 miles
Electric motor: 80 kW
Horsepower: 107
Battery: 24 kWh
MSRP: Used
MPGe city/highway: 115
Torque: 187
Zero to 60 mph: 10 seconds**
Time to charge: 7 hours at 240 volts

Photo courtesy of Nissan

Tesla Model 3



Model year: 2019
Range: 310 miles
Electric motor: Two motors, total 258 kW
Horsepower: 346
Battery: Figure not reported
MSRP: \$35,000-\$59,900
MPGe city/highway: 116
Torque: 376 pound-feet
Zero to 60 mph: 4.4 seconds
Time to charge: 10 hours at 240 volts

Photo courtesy of Tesla

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Tesla Model S



Model year: 2014
Range: 265 miles
Electric motor: Unavailable****
Horsepower: Unavailable****
Battery: 85 kWh
MSRP: Used
MPGe city/highway: 89
Torque: Unavailable****
Zero to 60 mph: 3.7 seconds***
Time to charge: 4.75-12 hours (depending on amperage and charger type)

Photo courtesy of Tesla

All the information comes from the manufacturers, with the following caveats. Range, MPGe (miles per gallon of gasoline-equivalent) and time to charge originate from data at the Department of Energy and EPA. Figures on MSRP (manufacturers suggested retail price) are courtesy of *Edmunds*; zero-to-60 estimates are from test drives by *Car and Driver*.

* The Chevrolet Bolt is the only new car whose zero-to-60 speed was not measured by *Car and Driver*. This figure comes from a list of Bolt specs.

** A 2014 Nissan Leaf was clocked zero-to-60 in 9.7 seconds by the publication *Top Speed* and a 2011 model at 10 seconds by *Car and Driver*.

*** From *Car and Driver*'s review of the 2015 Tesla Model S P85 all-wheel-drive.

**** Tesla did not make all information available in time for publication.

https://mail.yahoo.com/d/folders/360/messages/AP4io2dpIR4tXXKTgwpMuI2_iGE?.src=fp

Did you know?

Total US renewable electricity production (from wind, solar, geothermal, biomass, and hydro sources) in the first half of 2018 had reached 19.9% of all electricity generated. So far this year, in the first half of 2019 – it rose to 20.11% (399,585 GWh) of all production. BTW: all US nuclear production produces 20.14% of the electricity or 400,005 GWhr, meaning that they are neck in neck. However, nuclear is considered baseload power (very hard to turn off, unlike solar and wind) and no additional nukes are being built (nor would they be ready in the next decade, since the average construction time is about 10+ years. So now battery storage is helping make that renewable source more dependable and makes it more usable in many situations. It's still a good idea to consider putting PV panels on your roof, while the 30% Federal credit is still around (until end of Dec. 2019, then it drops to 26% next year...)

Meet Up With the E&E News Electric Road Trip This Fall



E&E News kicked off its 6,000-mile road trip Sept 9 in Houston, including an interview with Houston Mayor Sylvester Turner on EVs [link: <https://www.eenews.net/roadtrip/1061111683>]. Reporters will spend the next eight weeks traveling the Southeast, Midwest, Great Plains and West Coast in eight different electric cars visiting other key EV players, gas station owners, manufacturing

plants and charging stations.

You can follow along on the road trip via the blog [link: <https://www.eenews.net/roadtrip/>] and newsletter [link: https://www.eenews.net/eep/electric_roadtrip_signup?signup_source=association_eaa].

But for those of you interested in a bit more hands-on participation, E&E News has started a Facebook group [link: <https://www.facebook.com/groups/electrictransformation/>] on electric transportation for discussion, comments and coordination of meetups during the road trip.

For those not familiar, a Facebook group is a separate Facebook page where those who join the group may post items and others in the group can respond. E&E News is screening members joining the group to weed out any trolls and looks forward to tough but civil discussions, as noted in the group's behavior guidelines. E&E News hopes the group will have value after the road trip, too, as a platform for anyone interested in electric transportation to find news, connect and share.

You can also contact the head of your local chapter for availability or more information about Electric Road Trip meetups in your area.

E&E News Electric Road Trip Route | Dates/Cities

Date	Day	Start Day In
Sun Sep 8		HOUSTON
Mon Sep 9	1	HOUSTON
Tue Sep 10	2	AUSTIN TX
Wed Sep 11	3	FORT WORTH TX
Thu Sep 12	4	LITTLE ROCK AR
Fri Sep 13	5	MEMPHIS TN
Sat Sep 14	6	NASHVILLE
Sun Sep 15	7	NASHVILLE
Mon Sep 16	8	NASHVILLE
Tue Sep 17	9	CHATTANOOGA
Wed Sept. 18	10	ATLANTA
Wed Sep 18	11	ATLANTA
Thu Sep 19	12	ATLANTA
Fri Sep 20	13	GREENVILLE
Sat Sep 21	14	KNOXVILLE

Sat Sep 21	14	KNOXVILLE
Sun Sep 22	15	KNOXVILLE
Mon Sep 23	16	KNOXVILLE
Tue Sep 24	17	KNOXVILLE
Wed Sep 25	18	LOUISVILLE KY
Thu Sep 26	19	COLUMBUS OH
Fri Sep 27	20	TOLEDO
Sat Sep 28	21	DETROIT
Sun Sep 29	22	DETROIT
Mon Sep 30	23	DETROIT
Tue Oct 1	24	BENTON HARBOR?
Wed Oct 2	25	DAVENPORT IA?
Thu Oct 3	26	RED WING, MN
Fri Oct 4	27	MINNEAPOLIS MN
Sat Oct 5	28	MINNEAPOLIS MN
Sun Oct 6	29	FARGO ND

Mon Oct 7	30	BISMARCK ND
Tue Oct 8	31	MEDORA ND
Wed Oct 9	32	MILES CITY MT
Thu Oct 10	33	BILLINGS MT
Fri Oct 11	34	BILLINGS MT
Sat Oct 12	35	HELENA MT
Sun Oct 13	36	MISSOULA MT
Mon Oct 14	37	SPOKANE WA
Tue Oct 15	38	RICHLAND WA
Wed Oct 16	39	SEATTLE WA
Thu Oct 17	40	EUGENE OR
Fri Oct 18	41	REDDING CA
Sat Oct 19	42	Dates are still TBD for this section but will be in San Francisco, Sacramento, Reno, NV, and L.A. during this time period.
Sun Oct 20	43	
Mon Oct 21	44	
Tue Oct 22	45	

Urban Air Mobility Already Has 200 eVTOL Designs

By Nicolas Zart

In the short space of three years we've seen urban air mobility (UAM) develop from a concept to eHang promising the first electric vertical takeoff & landing (eVTOL) air taxi service at the end of 2019. The Vertical Flight Society, which I'm privileged to also write for, just reported that it now has 200 eVTOL aircraft in its database.

200 eVTOL Programs Tackling UAM

Perhaps the greatest human feats are those that seem impossible. Electric VTOL aircraft are up there in terms of stretching the capacity of lithium battery technology. But it is happening, as it has happened with cars, bicycles, and now more and more boats. And after all, if three men made it to the moon and two walked its surface using the equivalent of a modern pocket calculator, flying eVTOL aircraft and electric conventional airplanes must be fairly easier to handle.

I visited Ampaire a week ago and was impressed by how far that company has come and also the unique energy and culture within the company. And it is not the only one. Jaunt Air Mobility already has its own deeply ingrained culture and has done an amazing job. Pipistrel has perhaps the most established electric aviation culture. And many more are on the scene with promising features and executive teams.

In total, 200 fairly different eVTOL teams think their products will soon be ready to take to the skies, or hope so. The market has come about in a very short few years, something unheard of in the aviation world.

Is it that much different from the automotive world? Not at all. The pace has exponentially quickened, leaving unsuspecting laggards with the need to use heavy-handed communications tactics to slow down fast-paced startups.



Image courtesy Pipistrel

VFS Adds 200th eVTOL To Database

The Vertical Flight Society just added the 200th eVTOL aircraft concept to its online World eVTOL Aircraft Directory. It has been exciting watching the directory grow recently. Started in 2017, the directory aimed to become the world's most "comprehensive compendium of electric and hybrid/electric-powered VTOL." It tracks aircraft developed by aerospace companies, entrepreneurs, and inventors around the globe.

Mike Hirschberg, VFS Executive Director, told CleanTechnica: "We recognized in 2013 that there was a rapid convergence of technologies — including advances in electric motors, batteries, power management systems, fly-by-wire flight controls, and lightweight composite structures — that would enable what we call the Electric VTOL Revolution."

The VFS held the world's first technical meeting on eVTOL in 2014 and today the Society's 7th Annual Electric VTOL Symposium will be held in Silicon Valley this January where we count on being there for you. Hirschberg further added "Electric VTOL is one of the most exciting

developments in aviation since the advent of the helicopter more than 75 years ago."

Thousands of people are now engaged in eVTOL aircraft development technology, including more than 60% of the VFS's corporate members. It's safe to say that the electric VTOL revolution has captured the attention of the world's leading aerospace, technology, automotive, ridesharing, and distribution companies, as well government agencies, militaries, and academia.

"The advent of distributed electric propulsion (DEP) has also led to radical new eVTOL aircraft configurations that don't resemble traditional fixed-wing aircraft or rotorcraft and will provide developers with exciting new opportunities to radically reduce the operating cost, noise and complexity of vertical flight," said Hirschberg.

The Society compiled the World eVTOL Aircraft Directory in late 2016 with only a half-dozen electric-powered VTOL aircraft. The term "eVTOL" was only used by a small segment of the aerospace community. The free World eVTOL Directory is updated

continued next page

daily and features more than 200 articles and news items hosted on eVTOL.News.

Jim Sherman, who recently became VFS Director of Strategic Development, said: “The Vertical Flight Society’s role is to help these companies, engineers and inventors overcome the many barriers to commercial success, which include technology, regulations, infrastructure, air traffic management and system safety. We do this through the benefits of membership, but also by holding conferences and workshops to increase understanding and collaboration in this nascent field.”

The VFS will host its first workshop on defining the challenges of eVTOL aircraft from Sept. 10–12, 2019, at the US Navy Memorial Visitors Center in Washington, D.C. This 3-day meeting will identify the core elements needed to support this growing industry, focusing on infrastructure, air traffic management, and system safety. The Aerospace Industries Association (AIA), ASTM International, the General Aviation Manufacturers Association (GAMA), the National Business Aviation Association (NBAA), SAE International, and the newly founded Community Air Mobility Initiative (CAMI) are actively engaged.

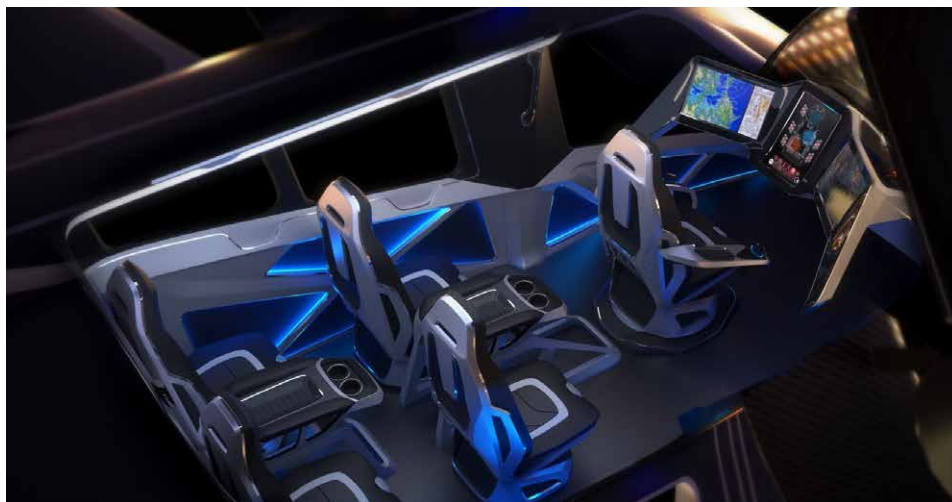
The electric aviation revolution reminds me of the same rEvolution that happened roughly around 15 years ago on land. It was soon followed by the maritime industry and now UAM. Of all the conversations I’ve had with eVTOL & eCTOL key players, one constant remains: People think eVTOLs & eCTOLs are decades away. They are not. They are flying today and the aviation world is quickening its introduction. Maybe a positive aspect of those horrendous Boeing 737 MAX crashes is the realization that an overhaul is needed to the way businesses are run and their unhealthy relationships with our elected representatives. As Steve Hanley correctly said: Adults need to step up. [Be sure to watch the video.]



EmbraerX concept, courtesy Embraer.



EmbraerX concept, courtesy Embraer.



Bell Nexus eVTOL concept, courtesy Bell.

<https://cleantechnica.com/2019/09/07/urban-air-mobility-already-has-200-evtol-designs/>

NASA Launches Urban Air Mobility Grand Challenge Program

By Brian Garrett-Glaser

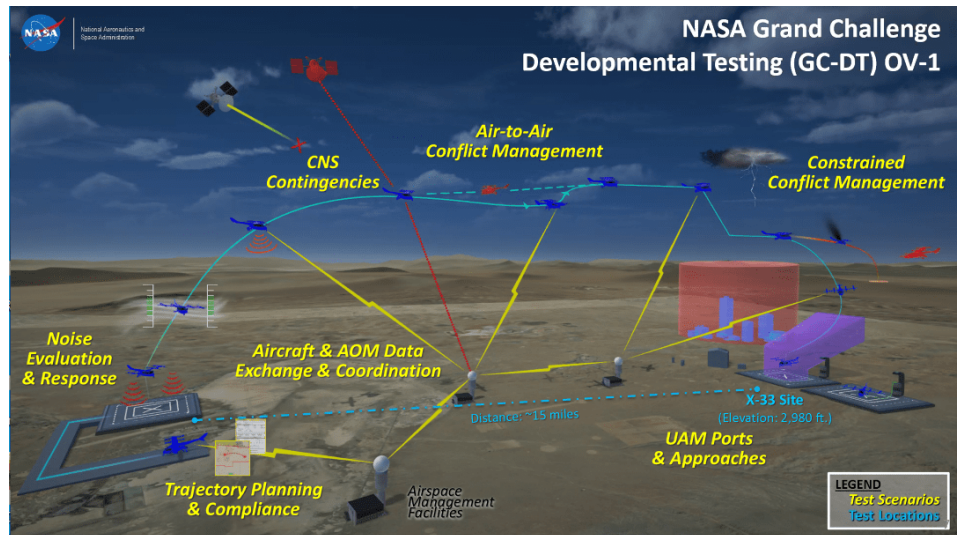
With NASA's four-year testing program on unmanned aircraft integration drawing to a close, the agency held a kickoff call with industry to begin its next research and demonstration effort: the urban air mobility (UAM) Grand Challenge.

Beginning in 2020, NASA will conduct full field tests in urban environments with select participants, evaluating all elements of UAM operations under a variety of weather, traffic and contingency conditions.

The goal of the Grand Challenge program is to inform the codification of a "UML-4 book of requirements," or an understanding of what will be required to achieve a mature UAM ecosystem capable of operating efficiently in dense urban environments. Through a series of simulations and operational tests with industry and government partners, NASA also hopes to identify areas where further research is required in order to accelerate the timeline by which safe UAM operations can begin.

During the tests, NASA and government partners will record a wide array of flight data, including acoustics, vehicle flight performance, charging, pre-departure scheduling and much more. That information will be provided to the FAA to help determine vehicle certification requirements and, for some data such as acoustics, back to the participating companies for their benefit.

The first stage of the Grand Challenge, GC-Developmental Test or GC-DT, will take place between July and November 2020. An announcement for potential aircraft participants will be released in



A depiction of NASA's Grand Challenge developmental test concept, subject to change. (NASA)

September, with three to four partners chosen rather quickly — by the end of October — in order to achieve this timeline. Testing is focused on UAM vehicles with passenger-carrying capability, both vertical vertical takeoff and landing (VTOL) and standard takeoff and landing. Vehicle providers

can partner with ANSPs or NASA can provide that capability.

"Developmental testing will be shaped by industry input on scenario definitions, airspace use cases, allow us to build a process to expedite operational safety and security for both the vehicle and

continued next page

UAM Let's Open Up the Skies



Urban air mobility is about a future where self-flying vehicles of all sizes carry passengers and cargo safely in city environments. Yes, kind of like "The Jetsons." What's NASA's role in making this vision come true? <https://www.youtube.com/watch?v=FmBbVJ4TkO4&feature=youtu.be&list=PLiuUQ9asub3QgTjxtZWjBGhSzaPYIo9Vg>

Timeline

[illegible]

NASA's UAM Grand Challenge timeline. Subject to change. (NASA)

the airspace participants, early two-way network connections to understand delays in messaging between vehicles and airspace negotiation, operator displays, weather displays for local vertipads, contingencies for remotely piloted vehicles, and an early look at gaps for our NASA research and also identifying early enablers for the FAA to inform policy,” Starr Ginn, who will lead the NASA UAM Grand Challenge program, told reporters during the kickoff call.

The live flights and simulations conducted as part of GC-DT will then inform the scenarios chosen for the first true Grand Challenge event, GC-1, which will take place in mid-2022 and be open to partners who did not participate in the developmental test. Testing will begin in nominal conditions and introduce increasingly difficult sce-

narios, to eventually include multiple contingencies at the same time.

“We need to understand what missed approaches and botched landings look like, so we understand the how ground operations and scheduling look for throughput ... and also how those contingencies in landing are being included or not included into reserves to start understanding what reserve policies should be in place,” Ginn said, as an example of one area where NASA hopes this testing will contribute to industry and regulatory understanding of operational realities.

In addition to GC-DT, GC-1 and future Grand Challenge flight tests, NASA will be standing up a number of “ecosystem-wide Working Groups” to guide the Grand Challenge program, validating potential test scenarios that

will address industry's immediate and longer-term needs as well as areas where the program could collect important data.

“[These working groups] are going to be ... broad community, strategic input on the Grand Challenge scenarios and other UAM topics around certifying the airmen, aircraft, airspace, autonomy, infrastructure and noise,” Ginn said.

Organizations can request to join working groups even if they are not participating in the initial Grand Challenges, and other related airspace stakeholders such as airlines are encouraged to participate as well.

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[Ed: With a major commercial airline manufacturer exploring electric propulsion (Airbus Group with their e-Fan 2.0 effort in 2014), then privately funded Swiss ‘Solar Impulse 2’ completing its historic 17-stage round the world electric airplane journey (March 2015 to August 2016) successfully, plus repeated entries at the annual AirVenture EAA Oshkosh fly-in in recent years — we quote Bertram Piccard, one of two Solar Impulse pioneering pilots “It’s like a new era in aviation”. A decade ago, Google sponsored the Green Flight Challenge (GFC) and by 2011 we saw that top prize go to Slovenia’s Pipistrel. That company then developed the Alpha Electro, an early light sport aircraft available today for purchase.

Now NASA has grabbed the baton and is sponsoring a new challenge will help spur innovation in this aspect of transportation which is responsible for significant global petroleum consumption. This cross-fertilization of technology further accelerates development. Silcom Valley has spawned many companies, and electric aviation is feeling that impact as well. We continue to follow this fast-paced industry as a parallel to EV advances. Read about the NASA effort now underway.]

1000-Mile Electric Car Unveiled: Aptera Returns 10 Years Later

By John Voelcker

What's the minimum necessary range for an electric car?

The world's auto industry seems to have settled on 200-plus miles for North America and 250 kilometers (160 miles) or more for European and Asian markets. The longest-range 2019 Tesla, the Model S Long Range, gets an EPA range rating of 370 miles.

So the idea of an electric car with 1,000 miles of range takes the discussion to a whole new level—especially since its maker expects to achieve that range on just 100 kilowatt-hours of battery capacity, the same size as that top-range Tesla.

The photo at the top of this story may trigger memories in longtime electric-car followers, though, and it's the clue to the story.

The way to get 1,000 miles of range is to offer a two-seat, three-wheeled electric car with ultra-light weight and a lower drag coefficient than any other vehicle on the market. Ten years ago, we drove the prototype of just such a vehicle.

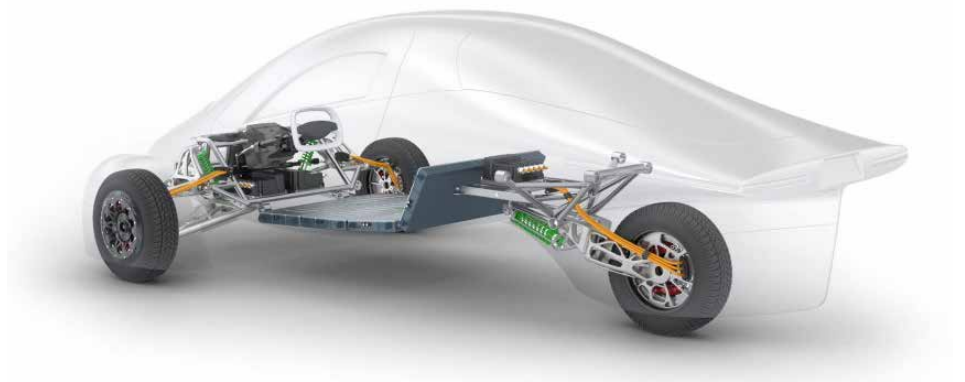
That money, they say, will let them build three prototype vehicles for testing by the end of the year, with a final design to be revealed to the public sometime during 2020.

The new company's three-wheeled electric car is to be powered by in-wheel motors, most likely three, rated at 50 kilowatts (67 horsepower) apiece. The team will also test a two-motor version with front-wheel drive only to see how that affects the car's overall efficiency.

The car will come with a range of battery capacities, from 40 to 100 kwh, and energy usage of less than 100 Watt-hours per mile.



Aptera 2e development prototype at company offices in Vista, California



Design for new Aptera electric car, Aug 2019

As a comparison, the most efficient Tesla Model 3 sold today, per EPA ratings, uses 250 Wh/mi—though admittedly it seats twice as many people as the Aptera.

Among the advances in the decade since Aptera collapsed has been the emergence of a global supply chain for electric-vehicle

components, among them onboard chargers and charging ports, all of which the company had to engineer the last time around.

But, the team points out, an Aptera will have no need for a Supercharger network equivalent. Today's 50-kW CCS or

continued next page

APTERA



Still, in an era of luxury electric vehicles that weigh 3 tons, it's nice to see energy efficiency get some attention. Perhaps other carmakers should pay attention.

CHAdEMO charging network can add 200 miles or more in half an hour, due not to charging speed but to the car's minimal energy usage to cover those miles.

Even a 120-volt North American household plug can add 100 miles of range overnight.

Who needs a garage Level 2 unit with that?

The reconstituted Aptera team knows their car won't appeal to everyone. And they have a long distance to cover—and millions of dollars to raise—before production is even conceivable.

This article has been updated to reflect that the company closed in 2011 after liquidation, not bankruptcy.



Volkswagen Will Now Convert Classic Beetles to Electric Power Which is Maybe Even Better Than a New EV Beetle



By Jason Torchinsky

I knew that even though Volkswagen ended Beetle (including Beetle-dressed Golfs) production in July, they wouldn't ever really be able to not build some sort of Beetle, and I think this announcement proves that to be correct. VW is partnering with German EV conversion company eClassics to do conversions of classic, air-cooled Beetles into EVs with modern electric drivetrains. The first one they're showing is a 1973 Super Beetle convertible, and it looks fantastic.

The really interesting part about all of this is how they're doing the conversions. Unlike other vintage Beetle (and Bus, and Porsche 356, etc.) conversions we've seen before from companies like Zelectric that use an electric motor mated to the car's existing transaxle and batteries placed in existing



luggage areas, the VW/eClassic conversion is using the drivetrain from VW's e-Up! city car.

From what I can see from VW's press pictures, it appears that the whole e-Up!

continued next page

VW BEETLE CONVERSION

transverse drivetrain has been transplanted to the back of the VW chassis, replacing the whole longitudinal transaxle/engine setup.

It's a very nice, tidy setup, and the e-Up!'s power pack fits remarkably well in the back of the Beetle. I can see that some extra motor mounts and supports have been added to the rear torsion tube housing, and the frame "horns" that once carried the transaxle have been cut off. New rear shock absorber mounts seem to be added as well.

The drivetrain, being transverse, is a bit shorter than the original transaxle/flat-four setup, so its weight is more focused over the axle line, and as such is less of an "outboard" motor, which will likely improve handling a good bit.

Not only that, the engine package is so compact, the former engine compartment is freed up for use as a second trunk! I'm not exactly sure how you access the engine, though—it seems to take up the area of the old interior rear luggage well, so maybe via pulling down the back seat?

Compared to other Beetle EV conversions, the battery installation is significantly better—instead of eating up the front trunk and rear luggage well, the batteries have been integrated into the Beetle's platform chassis. There's 14 battery modules, each making 2.6 kWh, for a total of 36.4 kWh.

The power is significantly better than an original Beetle as well; here's VW's rundown on the specs:

The components from Kassel and Brunswick work together in the e-Beetle as an electric drive that reaches performance peaks of 60 kW /82 PS. The battery system is built into the underbody and consists of up to 14 modules, each with a capacity of 2.6 kWh. The lithium-ion battery modules cumulatively deliver energy of up to 36.8 kWh. The high performance
continued page 34



Beetle Conversion

continued from page 33

and the increased weight due to the extent of electrification require the adaptation and reinforcement of the chassis and the brakes. Despite the new total weight of 1,280 kg, the e-Beetle accelerates to 50 km/h in just under four seconds and to 80 km in just over eight seconds. The range of the e-Beetle, which reaches top speeds of up to 150 km/h, is 200 km – a comfortable distance for a relaxing day out in an electrified classic car. In the event that the e-Beetle runs out of electricity during the trip, the built-in series-produced components allow for fast charging via a combined charging system. As a result, the e-Beetle can store enough energy for a journey of over 150 km after charging for around an hour.

So, let's see what we have here—the electric motor makes just over 80 horsepower (fantastic for an old Beetle), and even though it's over 1,000 pounds heavier at 2,821 pounds, but it'll get to over 30 mph in under four seconds, to 50 in eight seconds, and I suppose 60 in a bit more than that. VW says it'll do a 93 mph top speed, also better than the original.

The range those 14 batteries is about 124 miles—not amazing by current standards, but certainly not bad, especially for what is really a 1930s design converted to an EV.

VW suggests that the same e-Up!-based conversion method should work on Buses or even a Porsche 356—really, any of VW's air-cooled vehicles should work, since they all used effectively the same basic transaxle setup. So a Type 3 Squareback could get the EV treatment or a Ghia or even a Brasilia or whatever. A Type 4 may be a bit trickier, but I bet not much.

continued next page



Note the CCS connector underneath the right taillight assembly!





Of course, they restored and upgraded everything else about the car, too, and the manner which they handled the aesthetics I think is great.

Body modifications have been kept to a minimum, with the only real visual clues being the skirt under the running board that I believe is part of the battery housing setup, but also may have some aero benefit as well. It looks cool, too.

This car appears to be a 1973 curved-windshield Super Beetle (1303), though it does have the older taillights used from 1968 to 1970. These taillights hide a neat little trick, though, as the right-side light lifts to reveal the charging port.


Are they hiding any cooling units behind the vented front valance? I like those sealed-beam replacement units, too. I'd love to see this thing up close. Remind me to pester VW's PR people about that.

The rear is sort of odd-looking to old-school VW nerds because of the lack of any cooling vents at all. It makes sense, as they're not needed in this context, but it's still oddly jarring.

One minor complaint, though: see those three dots under the e-Käfer decal? That's where the old VOLKSWAGEN badge would have been mounted. After all this work, they couldn't have filled in those holes? It seems like a weirdly minor thing they could have done instead of just plugging them with what looks like black rubber plugs.

VW hasn't released any pricing or availability information yet for their conversion service, but based on the quality of this conversion and the associated restoration and the significant changes made to the chassis, I suspect it will not be cheap.

I'd love to do this to my old Beetle, kinda, but I don't know if I can grow and sell enough kidneys in time. Overall, I think this is a great move for VW, at least until they wise up and make a modern, MEB-based mass-market EV Beetle.

So many Beetles were built [Ed: 21 million between 1949 and 2003] that I think it's just fine to convert a good number of them to EVs. And, if you have the money, this looks to be a pretty amazing conversion. 

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<https://jalopnik.com/volkswagen-will-now-convert-classic-beetles-to-electric-1837900039>

VW is Providing Electric Powertrains to Convert Classic Beetles

It's just the beginning of what Volkswagen may offer the EV aftermarket

By Joel Stocksdales

When Volkswagen revealed the ID. Buggy, it also noted that the company was looking into producing electric powertrains for specialty companies that could build unique EVs similar to the Buggy. Now we get to see one of the fruits of VW's efforts with the eBeetle, or eKäfer in German. It has been developed in part with a Stuttgart-based EV conversion company called eClassics. Classic VWs converted to electricity aren't new, but the fact that this uses a complete VW electric powertrain is.

Replacing the air-cooled flat-four-cylinder engine is the electric motor and single-speed transmission from the VW e-Up! That motor produces 81 horsepower and 155 pound-feet of torque. That's significantly more than any Beetle had new. The eBeetle is heavier than a gas-powered Beetle, though, with a curb weight of 2,822 pounds. A large portion of that is likely due to the 36.8-kWh battery pack, which is slightly less than twice as much capacity as the e-Up! that shares its powertrain. Interestingly, the new powertrain appears to have freed up some cargo space in the back, with the motor assembly hidden behind a metal panel.

Volkswagen says the eBeetle should be able to go from 0 to 50 mph in a bit over eight seconds, which isn't fast, but is pretty solid for a classic Bug. It has a top speed of 93 mph and an estimated range of 124 miles. It also features DC fast charging capability, so it can pick up a 75% charge in about an hour from a fast charger.

If you want one of these electric Beetles with VW hardware, you'll have to get in touch with eClassics in Germany. But we expect availability of aftermarket VW electric powertrains will increase over time,



as the company is committed to this sector. It's apparently working on a package for the VW Bus, and it hasn't ruled out developing a version for Porsche 356 sports cars. The company also said it would look into using

MEB components in the future, which are the bits being used for the soon-to-be-revealed ID.3, Buzz, et al. There's more potential performance in the MEB parts,
continued next page

too, as the base ID.3 is expected to have 168 horsepower, and variations are supposed to have even more grunt.

If going to Germany or waiting for more VW-supported conversion availability doesn't work, there are other companies offering ways to convert air-cooled Volkswagens. Zelectric offers complete, turnkey conversions, though they're a bit pricey. For DIY-ers, EV West has a selection of complete kits and EV components to create your own electric VW, as well as a number of other vehicles.

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<https://www.autoblog.com/2019/09/05/volkswagen-e-classics-e-beetle-electric-conversion-official/>

Move Over Vespa, Blacksmith Unveils Stunning, New 75 mph Electric Scooter

By Micah Toll

With the increasing popularity of electric scooters, new designs are popping up all over the place. The latest is the B3 from Blacksmith, and it's likely one of the more interesting electric scooters to be unveiled in a while.

The first thing you'll notice about the Blacksmith B3 electric scooter is that it diverges from the standard Vespa-style scooter design.

Blacksmith, the Chennai, India-based electric motorcycle startup, based the design of the B3 largely on their stunning B2 electric cruiser motorcycle unveiled earlier this summer.



Blacksmith B3 electric scooter

The Blacksmith B3 is powered by a 5 kW (6.7 hp) continuous electric motor rated for an actual peak power of 14.5 kW (19.4 hp).

That helps the B3 reach its advertised top speed of up to 120 km/h (75 mph). The B3 also offers speed limiting though, with the capability of being electronically limited to

lower top speeds, which likely helps with regulatory hurdles in various countries.

Want to learn more? See URL below.

<https://electrek.co/2019/08/28/blacksmith-b3-electric-scooter-75-mph/>

Hyundai Kona Electric and Toyota C-HR Rank Highly in J.D. Power Tech Study



By Brad Anderson

The Hyundai Kona and Toyota C-HR have both been awarded highly in the recent J.D. Power 2019 U.S. Tech Experience Study, coming joint first in the small segment.

The study measures owners' experience, usage, and interaction with a host of driver-centric vehicle technology after three months of ownership. Published last month, it's the same study which revealed that a large number of motorists do not like driver-assist systems much – and many of them even disable them altogether.

It's not uncommon for car manufacturers to proudly boast of their performances in such studies and, understandably, that is what Hyundai is doing. The Kona ranked the highest in its segment for entertainment and connectivity, driving assistance, smartphone mirroring, and navigation. Following our recent review of the Kona, we can absolutely agree that it is very user-friendly and doesn't require a steep learning curve to get used to.

Among the standard technologies found in the Kona are a seven-inch touchscreen, rearview camera, Android Auto and Apple CarPlay, Vehicle Stability Management,

and Hill Start Assist Control. Systems including Blind-Spot Collision Warning, Rear Cross-Traffic Collision Warning, and Lane Change Assist are also available as standard on high-spec models.

"We take great pride in offering cutting edge safety technologies in all Hyundai models," director of product planning for Hyundai North America Scott Margason said. "The Hyundai Kona not only showcases advanced technology, safety and convenience features, but also creates a comfortable and satisfying experience for the whole family."

Finally, it's worth noting that while the Kona and C-HR were the best-performing vehicles in the small car segment, it was the Kia Stinger that achieved the highest overall score in the study.



<https://www.carscoops.com/2019/09/hyundai-kona-and-toyota-c-hr-rank-highly-in-j-d-power-tech-study/>

2019 Hyundai Kona vs. 2019 Toyota C-HR

Detailed Review, Specifications & Comparison

Safety

The Kona offers all-wheel drive to maximize traction under poor conditions, especially in ice and snow. The C-HR doesn't offer all-wheel drive.

Both the Kona and the C-HR have standard driver and passenger frontal airbags, front side-impact airbags, driver knee airbags, side-impact head airbags, front seatbelt pretensioners, front-wheel drive, height adjustable front shoulder belts, plastic fuel tanks, four-wheel antilock brakes, traction control, electronic stability systems to prevent skidding, daytime running lights, rearview cameras, available crash mitigating brakes, lane departure warning systems, blind spot warning systems, rear parking sensors, rear cross-path warning and driver alert monitors.

Warranty

The Kona comes with a full 5-year/60,000-mile basic warranty, which covers the entire truck and includes 24-hour roadside assistance. The C-HR's 3-year/36,000-mile basic warranty expires two years and 24,000 miles sooner.

Hyundai's powertrain warranty covers the Kona five years and 40,000 miles longer than Toyota covers the C-HR. Any repair needed on the engine, transmission, axles, joints or driveshafts is fully covered for 10 years or 100,000 miles. Coverage on the C-HR ends after only 5 years or 60,000 miles.

The Kona's corrosion warranty is two years longer than the C-HR's (seven vs. five years).

Reliability

To reliably start during all conditions and help handle large electrical loads, the Kona has a standard 640-amp battery. The C-HR's 520-amp battery isn't as powerful.

J.D. Power and Associates' 2018 Initial Quality Study of new car owners surveyed provide the statistics that show that Hyundai vehicles are better in initial quality than Toyota vehicles. J.D. Power ranks Hyundai third in initial quality, above the industry average. With 22 more problems per 100 vehicles, Toyota is ranked 17th, below the industry average.

J.D. Power and Associates' 2018 survey of the owners of three-year-old vehicles provides the long-term dependability statistics that show that Hyundai vehicles are more reliable than Toyota vehicles. J.D. Power ranks Hyundai 6th in reliability, above the industry average. With three more problems per 100 vehicles, Toyota is ranked 8th.

Engine

The Kona's standard 2.0 DOHC 4 cyl. produces three more horsepower (147 vs. 144) than the C-HR's 2.0 DOHC 4 cyl. The Kona Limited/Ultimate's standard 1.6 turbo 4 cyl. produces 31 more horsepower (175 vs. 144) and 56 lbs.-ft. more torque (195 vs. 139) than the C-HR's 2.0 DOHC 4 cyl.

As tested in *Car and Driver* the Hyundai Kona is faster than the Toyota C-HR:

	Kona 4 cyl.	Kona Limited/Ultimate	C-HR
Zero to 60 MPH	9.2 sec	6.6 sec	11 sec
Zero to 100 MPH	28.2 sec	19 sec	33.8 sec
5 to 60 MPH Rolling Start	9.6 sec	7.2 sec	11.8 sec
Quarter Mile	17 sec	15.2 sec	18.4 sec
Speed in 1/4 Mile	82 MPH	91 MPH	79 MPH
Top Speed	120 MPH	135 MPH	115 MPH

Fuel Economy and Range

On the EPA test cycle the Kona FWD with its standard engine gets better fuel mileage than the C-HR (27 city/33 hwy vs. 27 city/31 hwy).

Brakes and Stopping

For better stopping power the Kona SEL/Limited/Ultimate's front brake rotors are larger than those on the C-HR:

	Kona SEL/Limited/Ultimate	C-HR
Front Rotors	12 inches	11.75 inches
Rear Rotors	11.2 inches	11.1 inches

The Kona stops shorter than the C-HR:

	Kona	C-HR	
70 to 0 MPH	171 feet	174 feet	<i>Car and Driver</i>
60 to 0 MPH	129 feet	131 feet	<i>Consumer Reports</i>
60 to 0 MPH (Wet)	131 feet	147 feet	<i>Consumer Reports</i>

Tires and Wheels

For better traction, the Kona Limited/Ultimate's tires are larger than the largest tires available on the C-HR (235/45R18 vs. 225/50R18).

The Kona Limited/Ultimate's tires provide better handling because

continued on page 40

Kona & Toyota C-HR

Continued from page 39

they have a lower 45 series profile (height to width ratio) that provides a stiffer sidewall than the C-HR XLE/Limited's 50 series tires.

Suspension and Handling

The Kona has standard front and rear gas-charged shocks for better control over choppy roads. The C-HR's suspension doesn't offer gas-charged shocks.

For better handling and stability, the average track (width between the wheels) on the Kona is one inch wider in the front and 1.4 inches wider in the rear than the track on the C-HR.

The Kona SEL 4x4 handles at .88 G's, while the C-HR Limited pulls only .81 G's of cornering force in a Car and Driver skidpad test.

Chassis

The Hyundai Kona may be more efficient, handle and accelerate better because it weighs up to about 400 pounds less than the Toyota C-HR.

The Kona is 7.2 inches shorter than the C-HR, making the Kona easier to handle, maneuver and park in tight spaces.

Passenger Space

The Kona has 1.5 inches more front headroom, .3 inches more front hip room, 6.5 inches more front shoulder room, 2.9 inches more rear legroom, 4.2 inches more rear hip room and 2 inches more rear shoulder room than the C-HR.

Cargo Capacity

The Kona has a larger cargo area with its rear seat folded than the C-HR with its rear seat folded (45.8 vs. 36.4 cubic feet).

A low lift-over cargo hatch design makes loading and unloading the Kona easier. The Kona's cargo hatch lift-over height is 27.5 inches, while the C-HR's liftover is 31 inches.



2019 Hyundai Kona

Payload

The Kona has a higher standard payload capacity than the C-HR (915 vs. 835 lbs.).

The Kona has a higher maximum payload capacity than the C-HR (930 vs. 835 lbs.).

Servicing Ease

A maintenance reminder system is standard on the Kona to save the owner time and money by calculating maintenance intervals based on odometer mileage. This takes the guesswork out of keeping your vehicle in top condition and helps it last longer. Toyota doesn't offer a maintenance reminder on the C-HR.

Ergonomics

The Kona offers a remote vehicle starting system, so the vehicle can be started from inside the driver's house. This allows the driver to comfortably warm up the engine before going out to the vehicle. The climate system will also automatically heat or cool the interior. The C-HR doesn't offer a remote starting system.

The Kona Ultimate has a standard heads-up display that projects speed and other key instrumentation readouts in front of the driver's line of sight, allowing drivers to view information without diverting their eyes from the road. The C-HR doesn't offer a heads-up display.

To shield the driver and front passenger's vision over a larger portion of the windshield and side windows, the Kona has standard extendable sun visors. The C-HR doesn't offer extendable visors.

The Kona SEL/Limited/Ultimate has a standard center folding armrest for the rear passengers. A center armrest helps make rear passengers more comfortable. The C-HR doesn't offer a rear seat center armrest.

Recommendations

Consumer Reports® recommends both the Hyundai Kona and the Toyota C-HR, based on reliability, safety and performance.

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2019 Toyota C-HR

<https://www.asburyauto.com/compare/2019-hyundai-kona-vs-2019-toyota-c-hr/160849>



Automotive World est. 1992

How battery benchmarking can create high performance, reliable and safe EV batteries

September 25, 2019 – 10am (Detroit) | 4pm (Stuttgart) | 7:30pm (New Delhi)

Register for free

<https://automotiveworld.us1.list-manage.com/track/click?u=93bc9c845f0eb3045db4a6b82&id=4b980e1834&e=1c09e6bdb8>

If you can't attend the session live please register anyway and we'll send you a link to the slides and a video of the session when it's finished.

In association with...



Comparing the technical and commercial information of batteries that are used in electrified propulsion systems is a key step in gaining state-of-the art knowledge and engineering methodology understanding. But how can the available data provide an insight into the key functions of the battery systems and their interactions in the vehicle?

AVL's Series Battery Benchmarking programme provides a database for the objective comparison of technical attributes and engineering methodology with market competitors. This helps to create a clear definition of the characteristics for high performing, reliable and safe batteries.

As part of the programme, 270 different criteria are evaluated through AVL benchmarking metrics displayed in eight high-level attributes. The resulting integrated system performance values are highlighted to support current and future development programmes.

In this 60-minute webinar, **AVL's Paul Schiffbänker**, Product Manager Electrification and **Martin Zaversky**, a Battery Development Engineer, discuss the methodology used and compare the latest results, with a focus on the current benchmark portfolio. This includes the Audi e-tron Quattro, Jaguar I-Pace, Hyundai Kona, Tesla Model 3 and many more.

Photos Offer Look Inside Tesla's China Factory



New images reportedly from inside Tesla's new factory in Shanghai further highlight how close the electric carmaker is to building cars in the country.

The Gigafactory 3 photos were shared on Chinese social media platform Weibo by a user known as Battery King. They show the interior of the sprawling factory, which has a great deal of infrastructure installed including some manufacturing equipment.

A Model 3 body in the photos suggests the company is doing some calibration of the facility. Tesla's Shanghai operation will produce Model 3 and Model Y cars,

including battery modules and packs. The company expects vehicle manufacturing to begin by the end of the year.

Here are new images of what #GF3 looks like inside. Seems Model 3 assembly line is near completion. Are the two Model 3s being assembled for trial run? Incredible accomplishment so far, considering GF3 construction began less than 9 months ago.



<https://teslamotorsclub.com/blog/2019/08/27/photos-offer-look-inside-teslas-china-factory/>

NDA provides Opportunity to Counter China's Strategic EV Ambitions

By Alex Adams

China has made little secret of its intention to capture the electric vehicle (EV) supply chain. Viewing the domination of the EV industry from minerals to markets as a strategic priority, per its Made in China 2025 report, Beijing has wasted little time in ramping up its EV ambitions.

Even at this early stage in the industry's development, the scale of China's domination of the entire EV supply chain is astonishing. Total U.S. EV sales finally crossed the 1 million mark in November last year. In 2018 alone, Chinese consumers bought 1.2 million EVs. In addition, two out of the top five EV brands are Chinese, with Nissan, BMW and Tesla making up the rest. Of the 70 lithium ion battery megafactories being planned worldwide, 46 are due to be built in China. Just five are planned for the United States.

As battery costs fall, government finance programs defraying upfront purchase costs in tandem with stricter emissions goals mean electric buses are most likely to be the beach head for wider EV deployment.

China has worked hard to corner this market too: There are already 421,000 electric buses in China, compared to just 300 in the United States as of May 2019. Moreover, Chinese companies benefit from significant state funding, with approximately \$60 billion given to the country's EV manufacturers between 2009 and 2017. This support allows Chinese companies to submit bids for U.S. transit agency contracts that undercut their North American counterparts by millions of dollars.

Beijing has a clear strategy to cement its position as the dominant player in the



There are already 421,000 electric buses in China, compared to just 300 in the US as of May 2019.

EV market by subsidizing its companies worldwide to crush local competition at this nascent stage of the EV market's development. Not only does this harm our domestic industry, but it also creates larger problems for U.S. national security: If China captures the EV market, the United States shall be swapping its current reliance on a volatile global oil market to fuel our transportation system for a dependence on an emerging great-power rival for our EVs, batteries, and the minerals required to build and power these vehicles.

In testimony to the Senate in February, Simon Moores, the CEO of rare earths consultancy Benchmark Minerals Intelligence, told the U.S. Senate Committee on Energy and Natural Resources that the United States is a "bystander" in a global race for EV supply chain dominance. However, the National Defense Authorization Act (NDA) provides the United States with an opportunity to counter Beijing's strategic ambitions.

The Senate version of the NDA contains provisions to prevent federal funding from being used by U.S. transit agencies to purchase Chinese rail cars and buses. However, the House version limits its restriction solely to rail rolling stock. If the House recedes to the Senate version, then the United States will have taken an early step toward countering Chinese electric bus ambitions in the lucrative—and strategically important—American market.

On its own, passing an NDA which precludes the use of federal funds to buy Chinese buses is unlikely in a vacuum to derail Beijing's attempts to secure the global EV supply chain. It is, however, a signal that the United States is alive to the economic and national security threat Chinese EV dominance would have on the country.

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<http://www.energyfuse.org/nda-provides-opportunity-to-counter-chinas-strategic-ev-ambitions/>

Coating Developed By Stanford Researchers Brings Lithium Metal Battery Closer to Reality

FROM THE PRECOURT INSTITUTE WE LEARN THAT HOPE HAS BEEN RESTORED FOR THE RECHARGEABLE LITHIUM METAL BATTERY – A POTENTIAL BATTERY POWERHOUSE RELEGATED FOR DECADES TO THE LABORATORY BY ITS SHORT LIFE EXPECTANCY AND OCCASIONAL FIERY DEMISE WHILE ITS RECHARGEABLE SIBLING, THE LITHIUM-ION BATTERY, NOW RAKES IN MORE THAN \$30 BILLION A YEAR.

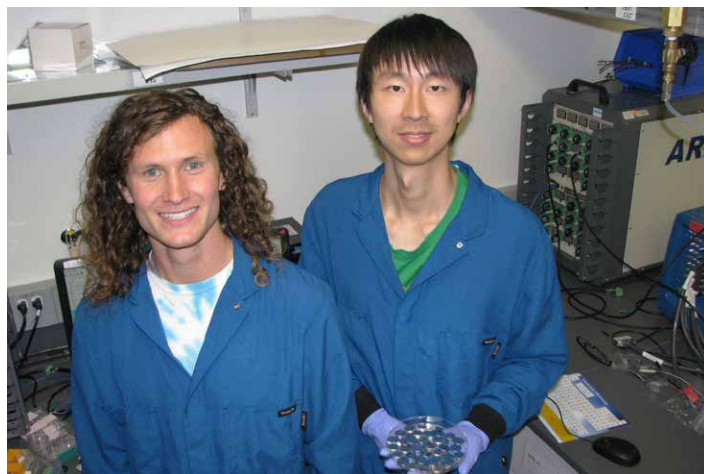
A team of researchers at Stanford University and SLAC National Accelerator Laboratory has invented a coating that overcomes some of the battery's defects, described in a paper [[https://www.cell.com/joule/fulltext/S2542-4351\(19\)30369-1#secsectitle0020](https://www.cell.com/joule/fulltext/S2542-4351(19)30369-1#secsectitle0020)] published Aug. 26 in Joule.

In laboratory tests, the coating significantly extended the battery's life. It also dealt with the combustion issue by greatly limiting the tiny needle-like structures – or dendrites – that pierce the separator between the battery's positive and negative sides. In addition to ruining the battery, dendrites can create a short circuit within the battery's flammable liquid. Lithium-ion batteries occasionally have the same problem, but dendrites have been a non-starter for lithium metal rechargeable batteries to date.

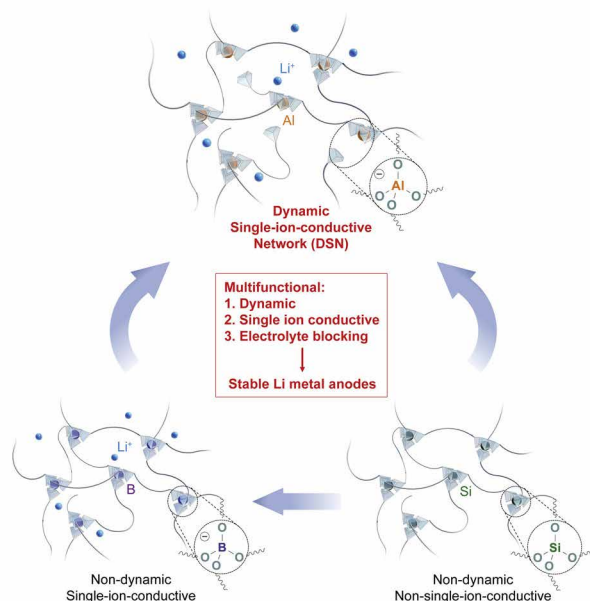
“We’re addressing the holy grail of lithium metal batteries,” said Zhenan Bao, a professor of chemical engineering, who is senior author of the paper along with Yi Cui, professor of materials science and engineering and of photon science at SLAC. Bao added that dendrites had prevented lithium metal batteries from being used in what may be the next generation of electric vehicles

The promise

Lithium metal batteries can hold at least a third more power per pound as lithium-ion batteries do and are significantly lighter because they use lightweight lithium for the positively charged end rather than heavier graphite. If they were more reliable, these batteries could benefit portable electronics from notebook computers to cell phones, but the real pay dirt, Cui said, would be for cars. The biggest drag on electric vehicles is that their batteries spend about a fourth of their energy carrying themselves around. That gets to the heart of EV range and cost.



Lead authors and PhD students David Mackanic, left, and Zhiao Yu with their battery tester at right. Yu holds a dish of already tested cells that they call “the battery graveyard.” (Image credit: Mark Golden)



[Taken from the article that the above authors published: [https://www.cell.com/joule/fulltext/S2542-4351\(19\)30369-1](https://www.cell.com/joule/fulltext/S2542-4351(19)30369-1)]

“The capacity of conventional lithium-ion batteries has been developed almost as far as it can go,” said Stanford PhD student David Mackanic, co-lead author of the study. “So, it’s crucial to develop new kinds of batteries to fulfill the aggressive energy density requirements of modern electronic devices.”

continued next page

The team from Stanford and SLAC tested their coating on the positively charged end – called the anode – of a standard lithium metal battery, which is where dendrites typically form. Ultimately, they combined their specially coated anodes with other commercially available components to create a fully operational battery.

After 160 cycles, their lithium metal cells still delivered 85 percent of the power that they did in their first cycle. Regular lithium metal cells deliver about 30 percent after that many cycles, rendering them nearly useless even if they don't explode.

The new coating prevents dendrites from forming by creating a network of molecules that deliver charged lithium ions to the electrode uniformly. It prevents unwanted chemical reactions typical for these batteries and also reduces a chemical buildup on the anode, which quickly devastates the battery's ability to deliver power.

"Our new coating design makes lithium metal batteries stable and promising for further development," said the other co-lead author, Stanford PhD student Zhiao Yu. The group is now refining their coating design to increase capacity retention and testing cells over more cycles.

"While use in electric vehicles may be the ultimate goal," said Cui, "commercialization would likely start with consumer electronics to demonstrate the battery's safety first."

Zhenan Bao and Yi Cui are senior fellows at Stanford's Precourt Institute for Energy. Other researchers include Jian Qin, assistant professor of chemical engineering; postdoctoral scholars Dawei Feng, Jiheong James Kang, Minah Lee, Chibueze Amanchukwu, Xuzhou Yan, Hansen Wang and Kai Liu.

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<https://news.stanford.edu/2019/08/26/new-coating-brings-lithium-metal-battery-closer-reality/>

Will Germany's Car Industry Survive? DW Documentary



Germany is facing a major threat with the electrification of automobiles after long being the driving force for auto innovation. They invented the automobile in the late 19th century, with today an estimated 800,000 employed in the industry, but the country is ready to lapse into a recession. The disruption started by Tesla is being widely felt. Here is an excellent and insightful documentary produced by Deutsche Welle, a major public Radio and TV broadcast service. This frank discussion reveals the danger of their hesitancy, which could prove an existential mistake.



VW, with diesel-gate still reverberating loudly, sees their big luxury and performance brands are losing their edge. And it's the dawn of a new era in the auto industry. When that does well, Germany does well. There is little choice but to conform. Their loss of crucial export markets is painful. Trying to preserve jobs at all costs, in areas where world markets are dictating developments, is a horrible mistake. Responsible for 2% of global auto emissions, the VW Group comprises 12 brands: Volkswagen Passenger Cars, Volkswagen Commercial Vehicles, Audi, SEAT, ŠKODA, Bentley, Bugatti, Lamborghini, Porsche, Ducati, Scania and MAN.

<https://youtu.be/hcXjVxaKzv4>

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 of Interest

Edison Didn't Invent Them, But Light Bulbs Have a Fascinating 200-Year History

Thomas Edison didn't invent the light bulb, but as a businessman put the pieces together and secured the patent which propelled him to get the credit. Modern EVs use LED headlights which save energy (120 to 200 watts which over the course of a multi-hour trip translates into more driving range, yet another optimization!

Watch this excellent video on lighting products, and the development of the modern LED. They are dominant now, and have a fascinating history.

<https://www.cnbc.com/2019/07/26/the-incredible-200-year-transformation-of-the-light-bulb.html>



Porsche Taycan Reveal, Rimac Crash Testing, e Beetle Conversions, TEN 264



This issue features just an intro to the formal unveiling of the Porsche Taycan at the Frankfurt Auto Show. Among many other topics covered, the classic VW bug now is getting an electric upgrade in Germany, with the internals of the European e-Up EV being transplanted into the chassis of the original Beetle. For details on that development, turn to page 36 of this publication. More about the Beetle conversion begins on page 32.

<https://youtu.be/TbqnUaLAYxo>

All-new EV Volkswagen ID.3 Premiere REVIEW Exterior Interior – Autogefühl



This is the first all-electric VW based on their new ID.3 platform. We predict that this will be a strong selling car, with an extended wheelbase, spacious interiors and well thought out design. Features and innovations are discussed in both this and in Bjorn Nyland's video review done at the just completed Frankfurt Auto Show on the next page.

<https://youtu.be/op4HO6GHC8Q>

Don't Miss These ...(cont.)

Big Yellow School Buses Go Green With Electric Power

By Eric C. Evarts

School buses may be the perfect application for EVs. They run short delivery routes, sit for hours in between, and deliver the most environmentally precious cargo of all.

School districts who want to get on board don't have to wait. Blue Bird, perhaps the best known coachbuilder with vast vats of yellow paint, now offers three electric choices, in small, medium, and large.

Blue Bird revealed in a recent release that the company has already delivered electric school buses in California, North Dakota, and Washington, starting last fall—and it has stated in financial updates that it sees tremendous interest in electric school buses.

“The nation is increasingly influenced in electric vehicle transportation in general, and we anticipate rapid growth of electric school buses as more districts are educated on the zero-emissions and low-maintenance benefits they bring to their local communities,” said CEO Phil Horlock.

Buses, including city buses, are one of the fastest-growing electric vehicle segments worldwide.



Blue Bird electric school buses



Range and SOC on Blue Bird electric school bus

Blue Bird has introduced one other revolutionary new feature to its iconic buses: green paint on the stripes and bumpers. *Read more and see the video at the URL below.*

https://www.greencarreports.com/news/1124870_big-yellow-school-buses-go-green-with-electric-power

Volkswagen ID.3 First Impressions

By Bjørn Nyland

Comments under the video indicate that Mr. Nyland approaches the car like a real auto buyer instead of a car journalist. The commentor indicates that Nyland goes through the nitty-gritty of many often used buttons, functions and areas, compared to the high level “ooh, aah, swoopy” of many other reviewers. That is very helpful and refreshing.

<https://youtu.be/6ex28SVZXW0>



Don't Miss These ...(cont.)

Field Trip to Blue Indy



Jim Kelly and Tim Benford of Drive Electric Dayton Chapter visit "Blueindy" car sharing service in Indianapolis hosted by Richard Steiner.

This video explains the EV car sharing service set up today in Indianapolis, IN for visitors who want to save money and drive electric, as an alternative to renting a gas car. With 190 active cars and 93 charging stations available, EAA Indianapolis Chapter President Richard Steiner covers some background info and the mechanism for using the facilities, which shows effectively how good things have become in the mid-west!

https://www.youtube.com/watch?v=jVVj_QoFb0k

The Tesla Whisperer



Carl Medlock and his Medlock & Sons Tesla Roadster rehab shop in Seattle recently received a profile by CNBC. Medlock is a former Tesla employee and "one of the few people in the U.S. that can fix the company's original Roadster car." Spare parts for the original Tesla are difficult to source and Medlock has been reproducing items on his own. Few are as familiar with the intricacies of the vehicle and Medlock has found business from around the country because of his expertise. "... Many of the shop's clients are leaders in the tech industry, or actors and other celebrities, who refer to Medlock as the 'Roadster whisperer.'" Check out the video.

<https://youtu.be/Eh6gqPI51pU>

How Truckla Was Built: The Worlds First Tesla Pickup Truck



This older episode of "Rich Rebuilds" is where he reveals many of details involved in that "Tesla Model 3 to small all-electric pickup conversion" featured in June 2019 CE on page 10. This too, was released in late June. A quick glimpse into his travels, with a generous injection of his humor – the fabrication is overviewed for potential replication by others. This project is probably within the realm and reach of readers, if they team up! A pencil and paper for notes is recommended. The major title content ends at about 11:00.

<https://www.youtube.com/watch?v=zZbAjhMiMG8>

Don't Miss These ...(cont.)

Volvo's Polestar Opens China Factory to Export to U.S.

By Joe McDonald, AP

Amid rising trade tension, Volvo's electric brand, Polestar, is going ahead with plans to export its first Chinese-made model to the United States next year, the automaker's CEO said today.

Polestar opened a factory today in the western city of Chengdu to produce the Polestar 1, a two-door, gasoline-electric hybrid coupe with a carbon-fiber body.

European sales of the Polestar 1 start this year, priced at about €150,000 (\$165,000), said Polestar CEO Thomas Ingenlath. He said U.S. sales are due to start early next year. Volvo Cars has been owned by Chinese automaker Geely Holding since 2010.

President Trump is due to announce possible action on auto imports in November following an investigation into whether they harm national security. Trump said Washington would hold talks with the European Union, Japan and possibly others that will likely seek to reduce imports.

China exports few vehicles to the United States, but Trump has imposed punitive duties of up to 30% on other Chinese imports in a fight over trade and technology. Some manufacturers are shifting production out of China to avoid Trump's tariff hikes.



Polestar opened a factory today in the Chinese city Chengdu to produce the Polestar 1, a two-door, gasoline-electric hybrid coupe with a carbon-fiber body. Polestar

"We obviously would really like political leaders to bring equal tariffs to develop fair and free trade between all countries," Ingenlath said.

"The task ahead for the world, and I think each politician should embrace as well, is really very much working on the environmental question," he said. "That is where all the energy and all the discussion should be."

Volvo also has a factory in Chengdu, but Polestar's factory was built from scratch in the same city.

The Polestar 1 promises a range of 95 miles on a charge, with a gasoline-

powered engine to supplement that if needed.

The company is taking advance orders for its second model, the pure-electric Polestar 2, due to go into production next year. That is to be followed by a pure-electric SUV.

Polestar joins an increasingly crowded luxury electric market dominated until now by U.S.-based Tesla Inc., which is building a Chinese factory in Shanghai.



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National Drive Electric Week (NDEW)

Sept 14-22

<https://driveelectricweek.org/>



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.electricaauto.org



Keep Up on all Auto Shows & EV Related Conferences

US and International Events

National Drive Electric Week (NDEW) is Sept 14-22. See <https://driveelectricweek.org/>

MOTOR TREND INTERNATIONAL AUTO SHOW - LAS VEGAS
09/13/19 - 09/15/19

OKLAHOMA STATE FAIR AUTO SHOW
09/12/19 - 09/22/19

FRANKFURT INTERNATIONAL MOTOR SHOW 09/12/19 - 09/22/19

CENTRAL FLORIDA INTERNATIONAL AUTO SHOW 09/20/19 - 09/22/19

STATE FAIR OF TEXAS AUTO SHOW
PUBLIC DATES: 09/27/19 - 10/20/19

ORANGE COUNTY INTERNATIONAL AUTO SHOW 10/03/19 - 10/06/19

MEMPHIS INTERNATIONAL AUTO SHOW
10/04/19 - 10/06/19

SACRAMENTO INTERNATIONAL AUTO SHOW 10/18/19 - 10/20/19

NASHVILLE INTERNATIONAL AUTO SHOW 10/18/19 - 10/20/19

TOKYO MOTOR SHOW
10/24/19 - 11/04/19

SEMA PUBLIC DATES: N/A
EDMUNDS.COM COVERAGE DATES:
11/05/19 - 11/08/19

DUBAI INTERNATIONAL MOTOR SHOW
11/14/19 - 11/18/19

CENTRAL CALIFORNIA AUTO SHOW
11/15/19 - 11/17/19

TAMPA BAY INTERNATIONAL AUTO SHOW 11/15/19 - 11/17/19

EDMUNDS.COM COVERAGE DATES:
11/18/19 - 11/21/19

CHARLOTTE INTERNATIONAL AUTO SHOW 11/21/19 - 11/24/19

ARIZONA INTERNATIONAL AUTO SHOW
11/28/19 - 12/01/19

SAN FRANCISCO INTERNATIONAL AUTO SHOW 11/28/19 - 12/02/19

LOS ANGELES AUTO SHOW
11/22/19 - 12/01/19

INDIANAPOLIS AUTO SHOW
12/26/19 - 01/01/20

HAMPTON ROADS INTERNATIONAL AUTO SHOW 01/10/20 - 01/12/20

SOUTH CAROLINA INTERNATIONAL AUTO SHOW 01/10/20 - 01/12/20

MONTREAL INTERNATIONAL AUTO SHOW 01/17/20 - 01/26/20

UTAH INTERNATIONAL AUTO EXPO
01/17/20 - 01/20/20

WEST VIRGINIA INTERNATIONAL AUTO SHOW 01/17/20 - 01/19/20

HOUSTON AUTO SHOW
01/22/20 - 01/26/20

ST. LOUIS AUTO SHOW
01/24/20 - 01/27/20

CINCINNATI AUTO EXPO
02/05/20 - 02/09/20

QUAD CITY REGIONAL AUTO SHOW
02/07/20 - 02/09/20

CHICAGO AUTO SHOW
02/08/20 - 02/17/20

NORTH CAROLINA INTERNATIONAL AUTO EXPO 02/13/20 - 02/16/20

VIRGINIA INTERNATIONAL AUTO SHOW
PUBLIC DATES: 02/14/20 - 02/16/20

CANADIAN INTERNATIONAL AUTO SHOW 02/14/20 - 02/23/20

PORTLAND INTERNATIONAL AUTO SHOW 02/20/20 - 02/23/20

GREATER MILWAUKEE AUTO SHOW
02/22/20 - 03/01/20

THE WORK TRUCK SHOW
03/03/20 - 03/06/20

GENEVA MOTOR SHOW
03/05/20 - 03/15/20

AMELIA ISLAND CONCOURS D'ELEGANCE 03/12/20 - 03/15/20

ZAGREB AUTO SHOW
PUBLIC DATES: 03/31/20 - 04/05/20





International CANADA

EV COUNCIL OF OTTAWA

Web Site: www.evco.ca
Contact: Darryl McMahon
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VANCOUVER EVA

Web Site: www.veva.bc.ca
Contact: Bruce Sharpe 604-897-9072

MEXICO

EVA of SONORA (AVES)

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Contact: Oscar Vidal
662-105-6551

TAIWAN

TEVA | Taiwan Electric Vehicles Association

Facebook: 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
Contact: John Metric, 979-665-5621

PLUG IN AMERICA

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CALIFORNIA

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CHICO EAA

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530-343-0331

EVA OF SAN DIEGO (EVAOSD)

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Contact: Elaine Borseth 858-395-8181

EVA OF SOUTHERN CALIFORNIA (EVAOSC)

Web Site: www.evaosc.org
Contact: Leo Galcher 949-492-8115

GOLDEN GATE EVA

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NORTH (SF) BAY EAA

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SACRAMENTO EVA (SacEV)

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SAN BERNADINO INLAND EMPIRE EVA

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SAN JOSE EAA

Web site: rotordesign.com/sjeaa
Contact: George Stuckert
408-377-5037

SILICON VALLEY EAA

Web site: www.eaasv.org
Contact: Tom Sidle, 408-446-1538

COLORADO

DENVER ELECTRIC VEHICLE COUNCIL (DEVCC)

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NORTHWEST FLORIDA EAA

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SUN COAST EAA

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TALLAHASSEE AREA EVA

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GEORGIA

EV CLUB OF THE SOUTH

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DRIVE ELECTRIC CARS NEW ENGLAND EAA

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PIONEER VALLEY EAA

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MICHIGAN EAA

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MISSISSIPPI EAA (MSEAA)

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MISSOURI

GATEWAY EV (GEVA)

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NEVADA

EAA NORTHERN NEVADA

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Contact: Chuck Swackhammer
530-479-0269

LAS VEGAS EVA

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NEW JERSEY

EASTERN ELECTRIC VEHICLE CLUB

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NEW JERSEY EAA (NJEEA)

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NEW MEXICO

NEW MEXICO EVA (NNMEV)

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GREATER NY EAA

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NORTH CAROLINA

BLUE RIDGE EV CLUB

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CHARLOTTE EAA

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TRIANGLE EAA

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continued next page

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Tesla Is Working on 5th Assembly Line at Fremont Factory Ahead of Model Y Production



By Fred Lambert

Tesla is preparing a fifth assembly line at its Fremont, California, factory as it prepares to add Model Y production to the already very busy plant.

There have been a lot of talks about how many cars Tesla could produce at the Fremont factory.

When it was operated by Toyota and GM, the plant had a capacity of about 500,000 vehicles per year.

Tesla has achieved an annualized production rate of about 300,000

cars at the factory, and it has talked about raising the capacity to 500,000 units per year.

But CEO Elon Musk previously mentioned that he sees potential for Tesla making up to one million cars per year at the Fremont factory.

With this potential for higher output, Tesla considered the Fremont factory as a location to produce the new Model Y.

After about a year of debating it, the automaker confirmed in July that it will build Model Y in Fremont.

[Excerpted from an article on September 10, 2019. URL below.]

<https://electrek.co/2019/09/10/tesla-new-assembly-line-fremont-factory-model-y-production/>



“EV pricing has only minimally increased in the last seven years while pricing for new internal combustion engine vehicles has spiked almost 19%. This affordability gap, as it closes, is one of the key areas of educational opportunities for both dealers and OEMS to help consumers to understand what is really a valid option for them.” — Atlanta-based Cox Automotive Mobility Group Manager of Research & Market Intelligence Rachelle Petusky. See <https://www.teslarati.com/tesla-tesla-leads-ev-awareness-us-study/>



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