

# Charged Up



## ELECTRIC VEHICLE ASSOCIATION OF SAN DIEGO (EVAOSD)

An affiliate of the Electric Auto Association (EAA)

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And we're on Facebook (search on EVAOSD)

### Officers:

President: Joseph S. Gottlieb

Vice President: Lloyd Rose

Treasurer: Richard Rodriguez

Secretary: David Crow

Program Chairman: Staff

Newsletter Editor: David Crow

Webmaster: Russ Lemon

Librarian & AV: Lloyd Rose

**Regular Meetings:** Our monthly meeting location is in rotation. Please, check date and location below (No meeting in December)

### Meeting Location, Date and Time:

**Center for Sustainable Energy**

**9325 Sky Park Court, Suite 100**

**San Diego, CA 92123**

**Tuesday, 28 April 2015, 7:00 P.M.**

**Program: News, Info, and future events**

### Newsletter Topics:

#### Cars Feeding the Grid



#### Formula E Future



#### California Rebate Limits?



### Inside this issue:

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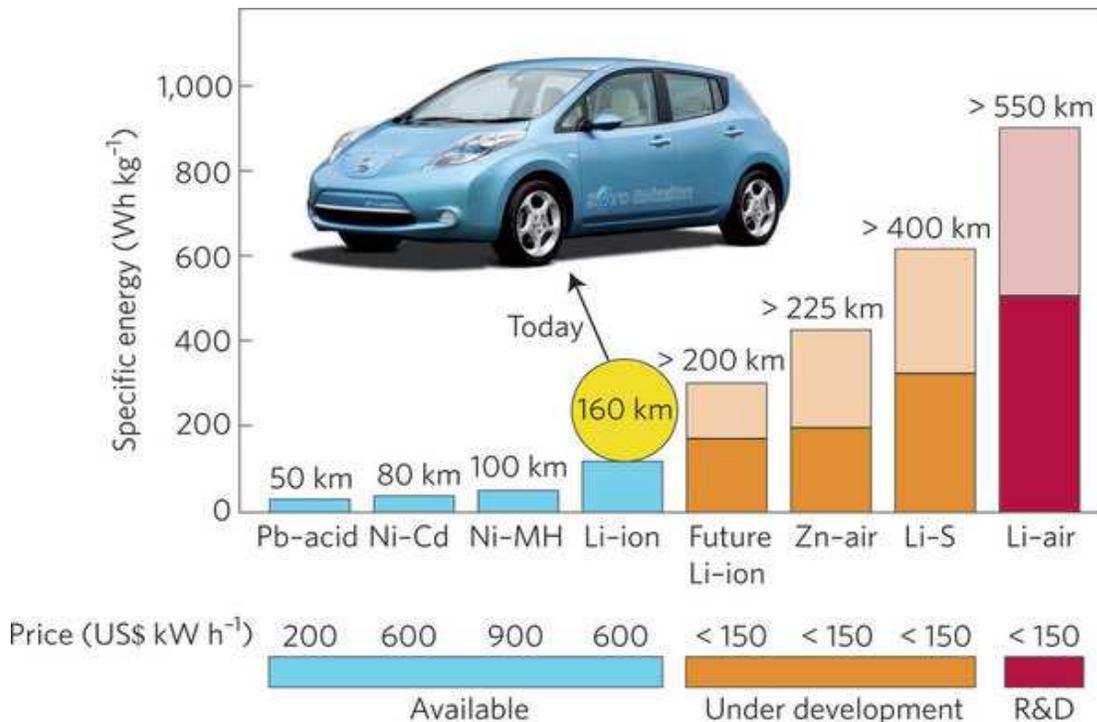
## Message from the President

Hi Everybody,

Happy Earth Day Earthlings! The news articles are flying about how low gas prices are killing the EV again. It must be weak news days so they are trying to stir up some comments on the blogs. What does seem to be gaining more traction is newer lithium formulation companies claiming energy density is going WAY up and costs are coming WAY down. Lithium Sulphur seems like the latest buzz word. Let's hope those people are leading us down a path of real substance.

On another note, I can tell this year people will be refocusing their range anxiety into water supply anxiety. Who wants to bet on how long before someone writes an article explaining how hydrogen fuel cell cars will save us from the drought because they make water. So I can drive my car during the day, and fill my spa with the water it made at night. Problem solved.

-Joseph



### Battery Chemistry Energy Density Estimates (InsideEVs.com)

## Electric Cars to become Mini Power Plants in California's Energy Grid

By John Anderson, GIZMAG.com, March 29, 2015

The California utility, San Diego Gas & Electric (SDG&E), has begun bidding energy resources from fleets of electric vehicles and storage systems into the state's wholesale power market. The pilot program, one of the first of its kind, is meant to provide insights into how electric vehicles and other kinds of distributed energy resources can make the grid more reliable and efficient.

San Diego Gas & Electric has begun bidding energy resources from fleets of electric vehicle. An electric vehicle in SDG&E's pilot program buys energy and charges up when rates are low. The project is expected to end in late 2015, with the planners hoping to glean valuable information on electric vehicle-grid integration and grid energy distribution. This grid-to-vehicle relationship is seen as a key factor in planning a more distributed energy grid, allowing EVs to charge at night when demand is low and acting as a grid resource when demand is high.

The issue with renewable energy, such as wind and solar, is its reliance on intermittent sources, combined with a lack of robust, efficient storage systems. California's solar panels produce most of their energy during the middle of the day, but taper off in the evening when consumer energy needs are traditionally highest. Meanwhile, electric car batteries and other energy storage systems typically need recharging on a daily basis, if not more often.

The challenge for utilities such as SDG&E is integrating electric vehicles into the grid and efficiently allocating energy resources to the right place at the cheapest time, while benefiting both the customer and the supplier. The idea is to find workable solutions now, while the market is still relatively small. SDG&E says more than 13,000 electric vehicles are in use in its territory, while the state's Zero-Emission Vehicles (ZEV) Action Plan wants to put 1.5 million zero-emissions vehicles on the road by 2025. The San Diego utility plans to add at least 5,500 EV charging stations during that time.



For the 10-month project, stationary storage systems and EV charging sites are combined at five locations throughout San Diego County and controlled remotely via software that balances charging needs and grid demand. The software provides "demand response" services; in other words, it charges up EVs during off-peak hours when demand is lower by correlating charging activity with wholesale energy prices, a setup that allows energy to be more efficiently spread to customers throughout the region. The cheaper off-peak charging rates are passed on to EV owners at similar prices to what a conventional power plant would be paid.

"The optimization software polls and understands the current state of charge of the vehicles, and each vehicle's charging needs over a particular time horizon," SDG&E's Hanan Eisenman told Gizmag.

As an example, a vehicle might be charged at 45 percent, and need a full charge to be completed sometime in the next four hours. Charging can occur (and be interrupted) at any time, as long as the vehicle is completely charged within the specified period. When the "demand resource" is in the market, instructions are sent by the optimization software to stop charging, which reduces demand in that hour. Charging resumes in lower priced hours, and is completed before the deadline set by the customer.

"Similarly, the storage resources stop charging in these hours, and potentially discharge to ensure the quantity of total response matches what was committed to the CAISO (California Independent System Operators) in our bids," says Eisenman. "By being a direct participant in the CAISO's markets and committing to reduce demand in certain high price hours, we allow the CAISO to not commit additional conventional resources in those hours."



### **[IBM smartphone app schedules off-peak, green car charging \[link\]](#)**

SDG&E is also developing a website/mobile app that lets customers set their EV charging preferences in response to rate signals, effectively acting as their own utility that buys from a larger grid power supplier. It's also an additional piece of information SDG&E can gather and use on their customers' charging behavior and grid use.

Source: San Diego Gas & Electric

## The Promise of Formula E

By Luke Ottaway, TorqueNews.com, 2015-04-07 02:17

Formula E is not the kind of motorsport Americans are used to. Which makes sense, because it was never intended to compete for the attention of NASCAR fans. Its first season makes just two stops in these United States out of 11 total races – Miami and Long Beach join cities like Beijing, Buenos Aires, and Monaco on the 2014/2015 calendar. The ePrix, as it is also called, pits drivers from all over the world against one another on urban circuits that make high speeds achievable only temporarily.

But that, and the lack of engine roar, does nothing to diminish the excitement. The stunning electric Spark-Renault cars can only reach top speeds of 140 mph, but they do so quickly – rocketing from 0-60 mph in 3 seconds despite a modest 270 hp electric motor. The courses are designed to reward strategy and cornering ability more than straight-line speed. And though the audience hears nothing of the rapid explosions accompanying conventional internal combustion racing engines, there is something thrilling about the high-pitched scream of the all-electric Formula E cars as they scorch the asphalt of city streets accustomed to a never-ending stream of dinosaur-burning urban traffic.

This weekend's race was won in rather unexciting fashion by the Brazilian Nelson Piquet Jr., competing for China Racing, but nobody in the sun-splashed crowd seemed to care all that much who won the race. Most people were there to experience something entirely new and different in the world of motorsports, and the near-capacity crowd in downtown Long Beach got what it came for.



Aside from the novelty of the race, and the enthusiasm of California's fervent EV supporters that turned out to see their beloved technology displayed in a new and exciting package, it was clear that Formula E is still in its infancy – and that the technology driving it has a long way to go.

Given the limitations of current lithium-ion battery technology, the race was only 39 laps long and lasted about 40 minutes. Halfway through the race the drivers pulled into the pits not for a recharge or a battery swap but for a car swap, in which the driver hops out of one car and into another. The 28-kWh batteries, not much larger than that of a Nissan LEAF, can only withstand about 20 laps before expiring. Formula E gets around this problem by allotting each team two fully charged cars, but it still results in an undeniably short race.

For the casual racing fan with a correspondingly short attention span (or the non-racing fan who could be convinced to take in a race) this short duration is not the worst thing. But the limitations of current battery and motor technology also result in power restrictions that rob the cars of their true potential – though the full 270 hp is unlocked for qualifying, race mode sees the cars reduced to 200 hp. Safety was a paramount concern in this first season, which no doubt contributed to the conservative use of power, but the current level of technology is also a limiting factor.

The flip side of this, of course, is that there is great room for improvement. And considering how exciting Formula E already is, it is easy to be wildly optimistic about the future of the series. For example, this inaugural season has zero competition as far as the cars are concerned; each is the exact same vehicle, with a battery by Williams Engineering and a drive unit by McLaren. Next season, eight manufacturers will compete to field a car with the most potent powertrain (excluding the battery). In the third season, the battery will become fair game for improvements. Once this happens, the goal is for the cars to make it an entire race on a single charge.

Of course, battery technology is advancing steadily, and this progress will manifest itself in more and more exciting races. It is even more exciting to consider all the possibilities with limited-use racing batteries, free of the longevity restrictions of passenger electric vehicle battery technology. All those breakthrough chemistries that exhibit fantastic performance characteristics but can only last a few hundred charge/discharge cycles or even less? Fair game for a 10-race series. Granted, it will not be quite that simple and most alternative chemistries are years away from realization, but motorsports is an arena where the viability of such advances may be tested.

And that may be where the greatest potential lies: racing could be a great proving ground for new EV technology that could trickle its way down to the commercial market. As more players enter the game, advancements are inevitable, born from competition at the highest level. In addition, Formula E is a wonderful platform for bringing attention to electric vehicle technology, and dispelling once and for all the notion that electrified propulsion is not exciting or viable. It may just pick up a few new racing fans along the way.



EDITORS NOTE: Some of us club members went to see the Long Beach race. It was an incredible experience with the crowds, the speed, and the QUIET.

## California Senate Bill 40 — Proposal To Limit Tax-Funded Rebates To Cars Under \$40,000 (Subtext: So, No Teslas)

March 27th, 2015 by James Ayre, [www.cleantechnica.com](http://www.cleantechnica.com)

A proposal to limit tax-funded rebates to cars (i.e., electric ones) under \$40,000 in price was recently put forward in California, via Senate Bill 40. The bill comes to us via Senator Ted Gaines, of “gold shovel for Elon Musk” infamy.

Given that California has, so far, paid out \$34 million to Tesla Motors (via 13,600 \$2,500 rebate grants), I think the subtext of this move is clear — no more rebate money for Tesla.

This seems especially clear when remembering that Senator Gaines was intimately involved in California’s bid for the Gigafactory — including having the aforementioned gold-painted shovel delivered to Tesla’s headquarters in Silicon Valley when the company was deciding where to locate the factory.

Considering that Elon Musk and Tesla went with Nevada, not California, it seems pretty likely that this new bill is (at least somewhat) related to the loss of the Gigafactory (and the +6,500 jobs likely accompanying it)....Doesn’t it?

I will say, though, that the bill (and its wording), is rather sensible — I’m not sure that I find fault with it, regardless of the possibly targeted and malign motivation behind it.

Commenting on the bill, Senator Gaines noted: “I would much rather help people who are middle class. A \$40,000 car is still expensive.” (He apparently drives a \$26,000 Subaru.)



The Sacramento Bee provides some interesting comments:

If Tesla decides to fight Gaines' bill – its spokesman didn't respond to me – it almost surely will die. The staff at the air board last year proposed restricting rebates to cars costing \$60,000 or less. Tesla opposed it; it stalled.

Musk has the sway that comes with owning a car factory in Fremont, and the clout that comes with hiring Platinum Advisors and California Strategies, the sixth and 10th largest-billing lobbying firms in town during the 2013-14 legislative session.



If anything, the state will expand spending on rebates for electric vehicles this year. Governor Jerry Brown is calling for a 50% reduction in gasoline use by 2030, and de León has introduced legislation to that effect. To attain that goal, we'd need to reduce gasoline consumption to levels from the mid-1960s, when there were 18 million Californians, not almost 40 million of us. To do that, we're going to need to buy many more electric vehicles.

In the first 10 months of 2014, Californians bought 24,007 electric vehicles, such as Teslas and Leafs, and 24,710 plug-in electric vehicles, such as Volts. That represents 3.25% of the 1.5 million vehicles sold in the state between January and October 2014.

[Yes, the author should have written "plug-in hybrid electric vehicles" toward the end there....]

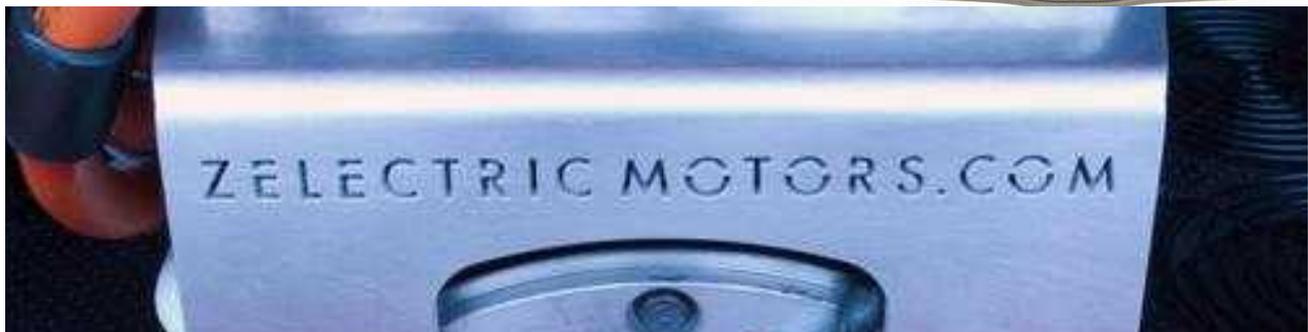
So, good, but not quite there in other words — making it seem unlikely that the rebate will be capped.

While potentially cutting off Tesla buyers from the \$2,500 rebate would be unlikely to have much of an effect on sales, it's a point that may be made moot anyway by the planned release of Tesla's "affordable" Model 3. And perhaps when the Gigafactory is completed and up-and-running, prices/costs on the other models will be slashed somewhat as well?

**FOR SALE: 1998 VW Golf EV Conversion**

Range: 50-60 miles, driver dependent  
Top Speed: 85 MPH  
4 KW 120V/240V Manzanita Charger  
recharge time: 4 hour  
Azure Dynamics Motor/Controller  
97 X CALB 60 AH Cells, 19 Kwhr Batt Pack  
62 HP, 73 FT-LBS  
5-Speed Manual Transmission  
Power Brakes, Power Steering  
Displayed at SD International Auto Show for four years, and my daily driver  
Selling due to buying a LEAF for Family use

Contact Dave Crow, (619) 846-5358, cell [deekcrow@yahoo.com](mailto:deekcrow@yahoo.com)  
\$4,900 or OBO



# Electric Auto Association (EAA) Membership Application Form

Fill out this form, attach a check, money order or use PayPal, in US funds only, payable to 'Electric Auto Association'. CE = Current EVents newsletter

e-CE  \$35 USA & other Countries  \$25 Student  \$25 Senior (>65-USA/Canada only) birth year

paper CE  \$45 USA  \$48 Canada  \$52 World  \$29 Student  \$29 Senior (>65-USA/Canada only)

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

I support the \_\_\_\_\_ EAA Chapter (additional chapters, \$10 each) \_\_\_\_\_

(\$10 each ) Additional Chapters or Special interest group (other than the one that comes with the membership)

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

New Member  Renewal

Name  email

Mailing address (Apt. #)  Home phone

Mailing City, State & Zip-8  Work phone

Electronic version of Current EVents, paperless only, link sent by email, if your membership was for the e-version, that is what you will receive

Do you own or  Lease an electric vehicle (plug-in)  production  conversion  bicycle  hybrid or  None

please include miles driven and type of vehicle

All information in this application is for the exclusive use of the EAA and not sold or given to any other organization.

**Please identify your primary areas of interest relating to the EAA (check as many as your wish**

- Owner/Driver  Hobby/Builder  Professional/Business  Competition (Rallies, Races, Records)  Plug-in Hybrids
- Environmental/Govt. Regs  Social (Rallies, Shows, Events)  New Technology & Research  Solar & Wind Power
- Promotion & Public Awareness of EVs  Student or General Interest  Electrathon/Bicycle/Scooter/Other

The Electric Auto Association is a non-profit, 501(c)(3) for the promotion of electric vehicles. Your donations are tax deductible and with your membership you will receive the EAA publication, "Current EVents". All information and statistics in this application are for the exclusive use of the EAA and is not sold or given to any other organization or company. Your membership dues include a percentage goes to the EAA Chapter you support for public Electric Vehicle promotion EVents like rallies, shows and EV rides.

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