A HUGE SPLASH AT THE LA AUTO SHOW

One of the most exciting cars at the LA Auto Show. See Page 6

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A full advertiser's information package and Rate Sheet can be sent by E-mail. Please contact CE Staff for details.

**Current Events Back Issues:**

The EAA has put most of its issues from 2001 to 2018 on its website. Please visit http://electricauto.org/ and from the home page, click on “Documents” in the top navigation bar.

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

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Chapter Highlight

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

School Based EV Events

By Bob Erdman, EVADC

Our EV enthusiast community has a number of ways to reach the general public to help educate them about the benefits of driving electric vehicles. The best known is National Drive Electric Week (NDEW), as highlighted in the October 2018 issue of Current Events. My local EAA chapter – the EV ADC (Electric Vehicle Association of greater Washington DC), has supported NDEW along with local Earth Week events, a Science Day festival and other local events.

I have been involved in a quite a few car pools over the years, taking my two teenagers and their friends to and from activities using either our Chevy Volt or Tesla Model S. Every now and then I would get EV related questions. “How far can you go?”, “How high is your electric bill?”, “Can you take a long trip?” It was great being able to answer these questions and encourage their interest in EVs.

In order to reach many more students, I created a project to reach younger members of the public by documenting the resources needed to bring EV Events to schools. An example of an easy event would only require arranging for 4-10 EVs to be parked in front of a High School during the student’s lunch period.

I encouraged other EVADC members to contact any science teachers they knew to make them aware of the project. We have had a few events and have more planned in the spring.

One of our members is a high school student who convinced his parents to buy an electric vehicle several years ago. He plans to organize an event in the spring at his high school.

Our events have been jointly organized by teachers and EVADC. We provided EVs and their owners – the EV advocates to answer questions. We also provided flyers containing information about EVs and all the EVs available for sale in the area. The teachers provided some questions for the students to ask and worked with the school staff to get approval and determine the time and date for the events. It just took one meeting over lunch with the teacher and about five emails with the EV owners to organize the event.

To make it easier to share information and scale the project, I created a website which contains the information needed to create a school based Electric Vehicle event at High Schools, Community Colleges or Universities. https://evadc.org/school-ev-events

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School Based EVents  
*continued from page 12*

The idea is that a teacher, parent or student would use the information in the website to request the resources needed to hold an event. These are primarily the Electric Vehicles along with their owners, the EV advocates.

The website also contains examples of past events with a short description of each past event including photos. After future events are held, I hope to get a writeup, especially for any events that have new ideas that subsequent events could leverage.

The first URL links to the summary of the most recent event at Walt Whitman HS. The second link is to an article from the Walt Whitman HS newspaper about the EV Event


The School EV Events website also has ideas for different types of events. One of my favorites is an event that would be organized by students in conjunction with another school event, such as an Earth Day event, or an event in the parking lot of the school just before a football game. It would be great if students could leverage the resources we could provide while at the same time getting some EVs from parent owners if they exist. Not only would this make it more of a community event, but it could also inspire some of the parent EV owners to become EV advocates as well if they aren’t already.

The website is meant to be self-contained. If a teacher has the link, he or she should be able to find what is needed for help setting up an event.

At first, I thought the best way forward would be to try to grow this project slowly so it could improve with each event, but since the organization of the event is like a mini-NDEW event, I don’t see any reason not to try to grow this fast.

If you are interested in helping with this project, you can start by contacting teachers or professors to see if they are interested in hosting an event. Your local EAA chapter or captains from past Drive Electric Week events are sources for finding Electric Vehicles and their owners. I would be happy to help by finding EV Owner advocates which are local to the school interested in an event.

**Conclusion** – To wrap this up, curious students may soon understand that there are so many factors that affect EV driving range, much like with ICE cars, but they become more immediately visible. Speed kills range. Accessories don’t matter as much (except for heating and cooling loads). Vehicle losses are different for colder air temperatures and with commensurate heater use. I used 230 miles as a “guess-timate” for my average winter maximum range to underscore that there is a difference. Brand new owners will soon find out about these influencers. Every EV story will be different.

Special thanks to Charles Gerena from Drive Electric RVA for reviewing and providing suggestions for the School EV Events web site.

Bob Erdman can be contacted with questions, ideas or leads for any EV events at schools at bob.erdman@gmail.com or 301-910-4587 (Cell).

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**Data Capture Sheet Example**

This sample capture sheet was sourced from the Poolesville HS and Walt Whitman HS events, and includes some additional questions added by the local EV community.

When used as a resource by teachers or event organizers it can give students guidance during their discoveries to help them better understand Electric Vehicles.

When used, all the text in italics can be removed, and the questions can be tailored to specific classes – for example Physics or AP Environmental Science – or just for the general student population.

The following are the author’s comments on the results of using this approach at the Whitman HS event. The intention is to acquaint individual students with information that their personal EV Capture Sheet contains.


**Make, Model, Year, Cost, Total miles Driven gas-free, weight of the vehicle** – These were all fairly well understood and quick to answer.

**Range (New)** – This question gives insight on loss in range with increasing miles driven or age of the EV when compared to the Range (Current). Owners of new vehicles
may not have this data yet. My range (New) was 265 miles.

**Range (Current)** – I gave the summer range as 250 which was what it was the last time I charged it to the top.

**Battery Degradation** – I told the students that my car when new could deliver 265 miles of range, yet have lost 15 miles over five years of ownership. If the rate of loss stays somewhat linear, I may not need a new battery for another 15 years since even on long trips, given the spacing of Supercharger locations, 200 miles of range is okay.

One man’s testing done over several months revealed differences found when there was snow and ice on the road. This directly affects traction and hence energy usage per mile. Considered also air density at lower temperatures.

The website below has some detailed information about efficiency measured at different temperatures. Divide the EV’s storage (kWh) by the wh/mile to get expected range. Using that data, a Tesla Model S 85 at 75 degrees uses 330 wh/mile or should get 85,000/330 = 258 miles.

**Range (Winter)** – Not easy to give a short answer that is also accurate. The loss depends on the temperature and maybe if it is parked in a garage or not. The best answer may depend on the region where one lives. The loss for an average cold temperature of 32 degrees is around a 25-30% loss based on information from two websites.

This website has the data from an owner’s own test over a month. Snow and ice affect traction, as does rain which affects the amount of energy conveyed on the pavement. https://www.teslarati.com/tesla-battery-range-sub-zero-snowy-conditions/

**Longest Trip** – Easy to answer and allows the EV Owner to give the student an idea of how the EV can be used.

**Favorite EV Story** – Another chance for the students to learn something interesting about EVs. One of my favorites is when an EV showed that it didn’t have enough miles left to reach a charger. By slowing down to 40 mph the EV was able to make it, getting a surprisingly higher range at that speed. [Ed: Aerodynamic losses at work.]

**Questions from the AP Environmental Science Exam** – These are good to include if there are students taking the class. Even if they don’t get good answers from the EV Owners, it could encourage them to try to learn more independently or in class.

The answer key is online. Interesting that it came from the exam given in 2002!

https://secure-media.collegeboard.org/apc/sg_envir_sci_02_11517.pdf
Data Capture Sheet

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<th>Make</th>
<th>Model</th>
<th>Year</th>
<th>Cost</th>
<th>Total miles Driven gas-free</th>
<th>Pack voltage</th>
<th>Energy storage</th>
<th>Range (new)</th>
<th>Range (current)</th>
<th>Range (winter)</th>
<th>Weight of the vehicle (on door pillar)</th>
<th>Longest Trip</th>
<th>Favorite EV Story</th>
</tr>
</thead>
</table>

(a.) Identify and describe two environmental benefits to using electric vehicles in place of gasoline-powered engines for transportation.

(b.) Describe TWO economic impacts (excluding costs related to climate change resulting from CO2 emissions or the cost of gasoline at the pump) that result from an increased number of BEVs on the road.

(c.) Propose two potential new US government or state policies that would encourage the widespread use of electric vehicles. Explain.
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*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.

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<table>
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<th>Membership Type</th>
<th>Dues</th>
<th>Benefits and Bonuses</th>
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<tr>
<td>Regular Member</td>
<td>$35</td>
<td>12 months of full color, 40+ page E-Magazine “Current EVents”(CE)</td>
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<tr>
<td></td>
<td></td>
<td>Chapter meetings, speakers, meet EV owners, Help increase public awareness by volunteering.</td>
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<tr>
<td>Supporting Members:</td>
<td></td>
<td>In addition to the above:</td>
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<tr>
<td>Supercharged: $120</td>
<td></td>
<td>EAA Polo Shirt, “Current EVents”, Supercharged Personal or Business Supporter listing (one issue)</td>
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<tr>
<td>Supercharged Plus: $240</td>
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<td>EAA Polo Shirt, “Current EVents”, Supercharged plus Personal or Business Supporter listing two issues)</td>
</tr>
<tr>
<td>High Voltage: $500</td>
<td></td>
<td>Polo Shirt, “Current EVents” listing as a High Voltage Personal or Business Supporter (three issues), “Who Killed the Electric Car” movie</td>
</tr>
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