



## ELECTRIC VEHICLE ASSOCIATION OF SAN DIEGO (EVAOSD)

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**Regular Meetings:** 4<sup>th</sup> Tuesday of every month (January thru November), at 7:00 pm,

**Location:** San Diego R.T.C. (Pearson Plus), at 4001 El Cajon Blvd. and Interstate 15

**Place:** In the Autotorium

**Next Meeting:** Tuesday, August 26, 2006 @ 7 p.m.

**Topic #1:** Video of J. B. Straubel of Tesla Motors EV Roadster presentation to EVA-Silicon Valley.

## The President's Message

The August EVAOSD Meeting set a record attendance that made the front page of the San Diego Metro Weekly. On the suggestion from the membership we started using a microphone that was provided by Russ Lemon. Abran Quevedo & Mark Kearns debut their video on C2EC2T the EV Conversion Workshop that was just completed. See it at <http://video.google.com/videoplay?docid=5148280482272042028&pr=goog-sl>

The EV Workshop video was well received and discussions started flying about the next workshop. In 2007 there will be another workshop and perhaps several workshops so stay plugged into EVAOSD for details.

Many other items were discussed that space does not allow I appreciate your participation and contribution to the meeting.

I just read Bill Moore's EVWorld column where he quotes the "Tale of Two Cities" saying, "It was the best of times. It was the worst of times." With the workshop video being so well received even while we are giving the video away people from all over are demanding that we sell them a hard copy. Several of us are busy with request from more workshops and information to sorting through various vehicles to be converted. Along with all of the other news and progress that is being made. And then Nissan managed to pull their EV for what surely seems to be a demise similar to

that of GM's EV1 and Honda's EV Plus Fleets. A recall of computer lithium batteries and the Segway PT can not be a good thing. However it will serve to improve both if either of them is ever in our future.

Speaking of the future I suggest that you follow the CARB Technical PHEV Review from 9/25 to 27.

It seems to me that we have more items to discuss than our time allows. So let's have a meeting it will be next Tuesday at the same place and time.

For our September 26, Meeting we do have a full program. Last July we had several attendees that went to the unveiling of the new Tesla Motors EV Roadster that is due to be released next summer. The discussion covered Pros (sleek design and power) and Cons (same old "off-the-shelf" stuff with no breakthrough design). Well as more knowledge is shared there are some design challenges that were met with ingenuity and consideration for future designs. Our program this month is a video interview from an insider at Tesla Motors on their new roadster EV that sold their first 100 signature models for \$100,000 to most that had not driven and some that had not seen the actual prototype. This milestone was accomplished in less than one month.

I look forward to see you at our meetings perhaps in an EV.

Bill Hammons, President EVAOSD

# The EV Grin

"EV'ers know about the grin that someone has just after driving an EV." Here are some notes for the San Diego EV Community.

## Calendar of Events:

9/25-27 CARB Technical ZEV Symposium - w/ webcast  
<http://www.arb.ca.gov/msprog/zevprog/symposium/symposium.htm>

9/26 EVAOSD Meeting – Tesla Motors EV Roadster

9/27 & 28 Solar Conference, San Diego

9/30 34<sup>th</sup> Annual EV Rally & Show – Palo Alto, CA

10/1 4<sup>th</sup> Annual EV Conversion Workshop – Silicon Valley – [www.eaaev.org](http://www.eaaev.org) for info

10/7-8 CA Fuel Cell Partnership – 5<sup>th</sup> Annual Road Rally – Coronado, CA  
[http://www.cafcp.org/events\\_roadrally2006.htm](http://www.cafcp.org/events_roadrally2006.htm)

10/12 Nat'l AFV Odyssey Day – with San Diego activities being at the RTC.

10/24 EVAOSD Meeting - EV Adapter Plate Installation & Plug-in Partners National Campaign

11/28 EVAOSD Meeting (last meeting for 2006)

12/9-10 Santa Monica Alt Car & Transportation Expo. Stealing LA Auto Show's thunder see story in newsletter.



10/12 National AFV Day Odyssey - San Diego Region activities will be held at the RTC



**Note that checks or PayPal payments for EVAOSD need to be made out to EAA with memo indicating that funds are intended for EVAOSD. Our day-to-day function stays the same EAA is helping with our banking and non-profit status.**

To prepare this newsletter we use items that we find on the internet and to share the knowledge. In accordance with Title 17 U.S.C. Section 107, this material is distributed without profit to those who have expressed a prior interest in receiving the included information for research and educational purposes.

CARB is having a technical review this summer, Sept. 25-27th. They've asked different folks to testify about experience with different technologies (PIA will testify as to the collective experience of the EV drivers) and the current state of what's viable, etc. Next year, new decisions will be made as to what technologies will be required to meet the mandate, though no date for those decisions has been announced. Obviously, our goal is to get PHEVs in for the first time, and hopefully BEVs back in.

## EVAOSD Gives Thanks to all that help us down the road...

Jerry Pohorsky for providing the DVD presentation for September's meeting.

The following members & associates that are "Taking Turns" with updates not in the mainstream media.

## Taking Turns ' - - -, \_ \_ \_ Messages from our members . . .



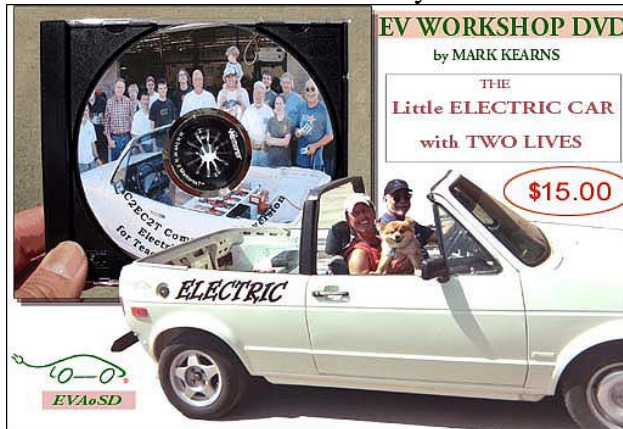
San Diego's newest EV and this MR2 is getting a complete overhaul by its new owners Dale & Miles McCloud from the C2EC2T EV Conversion Workshop. Abran Quevedo is assisting his former students as they apply their knowledge.

Dave Cutter says, "Village Energy has Declared Independence from Oil, and hopes you will too!"

Check out the Freedom from Oil flash animation at

[http://freedomfromoil.com/watch\\_the\\_animation/](http://freedomfromoil.com/watch_the_animation/)

We are providing free video access for a DVD about the C2EC2T EV Conversion Workshop that was held this past summer. Still many from all over the world are demanding that we sell them a DVD that is labeled. Here is the info that you will need shipping is included in the \$15 cost.



### Description:

Electric Commuter Car Conversion Workshop DVD: Thirty men and women come together for one common cause - This high quality video tells the true story about how 'Da Little Phoenix' returns to life as an electric car! **More at Village Energy** <http://www.pleiades-enterprises.bigstep.com/generic173.html>

2. You can download the high quality 97mb file of the DVD Electric Car Conversion Class to play on your computer for free. <http://www.sendspace.com/file/un42o1>

3. You can purchase a DVD that is labeled and mailed to you for \$15.

Additional information at [www.evaosd.com](http://www.evaosd.com)

“Who Killed the Electric Car” is scheduled to be available on DVD in November, just in time for filling your Holiday Shopping needs. Stay plugged-in for more news.

### **Tesla Motors EV Roadster...**

Some folks from Tesla gave a talk 9/14/06 at Ideo, a Palo Alto design and marketing company. JB Strausel gave a brief technical overview and took some questions. A design guy from Ideo advising Tesla presented the 5 axis design brief that Tesla presented to their competing three designers to further refine their work. The three designers were Lotus, Peter Stevens, and Simon Saunders. Stevens designed the McLaren F1, Lotus Elan M100 and many other cars. Saunders designed the Ariel Atom, which the Wrightspeed X1 is based on. The in-house Lotus team won with their revision.

A few interesting facts pointed out by JB included that the battery pack has 11 trays of 621 cells. The motor and controller are both air cooled (!), and the battery pack is liquid-cooled. The cooling liquid is itself cooled by the air conditioning and it can keep the cells below ambient temperature, even in the heat of Death Valley. Cool! ;-)

Since the battery string is series parallel, and (since each cell has internal thermal protection) a few of the massively-paralleled cells can drop out without affecting the overall string much.

Martin Eberhard showed up after the Ideo presentation due to giving a separate talk in San Jose. I was able to ask him a few questions most interesting of which was how regen was handled. \*All regen on the Tesla Roadster is done through the accelerator since doing a friction brake integration would be prohibitively expensive.\* (Those were not his exact words, but that was the gist of the reason.) He mentioned full integration as requiring re-engineering 4 channel traction control. He pretty much confirmed what I suspected about ACP's lack of brake integration being due to lack of funds, though he was dismissive of ACP's particular approach of cutting regen at high lateral Gs, so presumably their approach differs. But in any case it's not integrated with the friction brakes, as I believe it should be.

Eberhard also said that he funded the ACP T-Zero Li-Ion when he paid them \$250k to develop it, with the Li-Ion 18650 cell technology intended for later use by Tesla. As he described it, ACP prototyped Li-Ion for Tesla using the T-zero platform first.

Eberhard seemed dynamic, thoughtful, and forceful. JB was a bit more cautious in demeanor, perhaps because he needs to deliver the technology and make sure everything works and lasts. JB said there were many tricks used to try to protect and preserve the battery pack, including not charging it fully.

I asked both of them about A123 and they agreed that A123 could make good plug in hybrid batteries, with lots of current from a smallish-capacity pack, deep discharge capability and long cycle life. But they also pointed out a fact that I missed: A123 has half the energy density of Tesla's laptop 18650 batteries since the A123 cell is twice as large. The capacities per cell are similar, but the A123 cell is twice as big, thus it has half the energy density. Eberhard said that A123 said they could also make cell versions that had higher energy density at lower powerdensity which might suit Tesla better.

I didn't bother asking him about Altairnano, since as some of us already know it operates at 1.5 Volts and thus has a very major disadvantage in energy density versus Li-Ion at 3.7 V and A123 at 3.3 V.

Eberhard was dismissive of capacitors as promising much and delivering little to date. In terms of building a production car that's probably appropriate. It's also apparent they are keeping an eye on progress of all the various energy storage technologies. But Li-Ion cells have clear upgrade paths though continual cost reduction and capacity increases, so he agreed that future Li-Ion replacement packs will likely have more range and/or cost less.

It's clear that the Tesla folks have analyzed many aspects of EVs in great detail, and they seem to have made many wise decisions along the way. Surely having good, thoughtful, reasoned answers for many of the difficult questions helped them talk with technically-savvy Silicon Valley investors and VC to gain funding.

Jeff Chan <mailto:rav4ev@jeffchan.com> <http://www.jeffchan.com/>

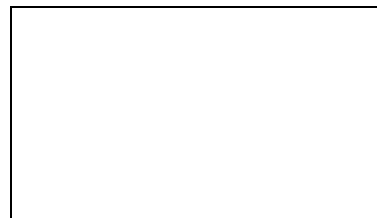
## **XEBRA Electric Car from ZAP Now Available on eBay through Voltage Vehicles Dealership**

### **New Dealership Sells Two XEBRAs Since Grand Opening Friday**

FULTON, California (September 12, 2006) - The unique XEBRA electric car from automotive pioneer ZAP (NYSE Arca: ZP) rolled out to car-buyers in the Sonoma County wine country over the weekend, with two orders placed since opening and additional interest generated on eBay.

ZAP says the XEBRA was designed to fill a very specific need in the US for 100 percent electric city-speed vehicles priced under \$10,000 and CEO Steve Schneider says the company is now marketing the only electric car in full production today faster than 25 MPH.

"So far we are pleased with the response at Voltage Vehicles," said Schneider. "Two XEBRAs were sold there since opening, including one to a person who said they were a mayor visiting the area from the Midwest. We also talked to a lot of business-owners who operate fleets asking about the XEBRA PK designed to fit specific uses."



[To view the XEBRA auction, click here.](#)

Schneider added that, for the first time ever, Voltage Vehicles has put a first generation demonstrator XEBRA on eBay. As of Monday afternoon, the bidding had reached \$6,700 with five days to go. More than 2,000 Internet users have visited the eBay auction site, according to the eBay counter.

Include us among those who felt that while "[An Inconvenient Truth](#)" was an effective wake-up call, it fell short in giving audiences a vision of large-scale ways to address what Al Gore calls "Climate Crisis."

In a Monday speech at NYU Law School, he began to fill in some of the gaps, including a call for a Carbon Freeze and "Connie Mae" -- a Carbon Neutral Mortgage Association that could be extended to cover financing for green cars. I suggest the entire speech is worth reading. (It took an hour for him to deliver it; you may be able to read it in half that time.) You can find it at <http://www.nyu.edu/community/gore.html>; we've also turned it into a two-column, eight-page document you can download and print or pass on to others at <http://www.calcars.org/gore-nyulawspeech-18sept06.doc>.

**This marks the end of our printed & mailed newsletter** additional EV related stories are available in our electronic edition at [www.evaosd.com](http://www.evaosd.com) under meetings.

Paul Scott reports that if you are frustrated when you go to the Auto Show to find EV and fuel efficient transportation L.A. will have alternatives for you by having another Car Show that is not so fulish.

City of  
Santa Monica  
presents:



# 2006



## The Alternative Car and Transportation Expo

**Saturday & Sunday**  
**December 9 & 10**  
**at the**  
**Santa Monica Pier**

- The **largest presentation ever** of high fuel efficiency vehicles, mass transit, transportation planning, cycling options and more
- Ride & Drive lot for an experience with all technologies
- Continuous seminars and panels discussing and debating the options
- World renowned experts
- Contest for transportation solutions

# save the date!

For information regarding attending, exhibiting or entering the contest, please contact Platia Productions at **310-390-2930**.

**Free Admission**



This Alt Car Expo runs during the L.A. Auto Show with transportation (a clean bus) from the Santa Monica Pier to the L.A. Convention Center. Besides the environmental vehicles this show is free. **Support this event by sharing the info and attend if you are able.** Just think what kind of statement would be made if this new Expo had better attendance than the traveling Detroit show that is the same as it was in the beginning of 2006? Will San Diego be next as Detroit seems to roll out the same old show around the New Year Holidays before they put together a new show for everybody else.



## Southern California Clean Vehicle Technology Expo

(agenda posted online at [www.cleanvehideexpo.com](http://www.cleanvehideexpo.com))

Join Southern California's fleet operators, alternative and clean fuel vehicle manufacturers, infrastructure technology providers, funding agencies, and other industry experts as they exchange information on clean vehicle funding, policies and regulations. Hear from the manufacturers directly about their light-, medium- and heavy-duty product offerings for 2007 and beyond.

### **The Time is Now**

The cost of diesel fleet vehicles and fuel continues to rise with increasingly stringent regulations and maintained high oil prices. Significant tax credits were passed in 2005 as part of the nation's transportation and energy bills. The Energy Policy Act of 1992 has been recently strengthened by the U.S. Supreme Court. The South Coast AQMD Vehicle Fleet Rules remain in effect and the new ARB fleet rules continue to be accepted. New incentives are being announced on a regular basis to help you reduce the emissions from your fleet. Come to the EXPO to learn about how to comply with the regulations while increasing your cost savings.

Expo highlights include:

Clean Vehicle Technology **TRADESHOW** - Fleet **WORKSHOPS** - Exciting **RECEPTIONS**

**NETWORKING** Activities - Clean Vehicle **RIDE & DRIVE** - Exhibitor **Round Robin**

Exhibitor and Sponsorships still available. Please email [info@cleanvehideexpo.com](mailto:info@cleanvehideexpo.com) for more information.

Hosted by the South Coast Air Quality Management District

**WHERE** Ontario Convention Center  
2000 Convention Center Way  
Ontario, CA 91764

**INFO** (310) 314-1934 ext. 8