

# EEVC NEWSLETTER

Published by the Eastern Electric Vehicle Club

Peter Cleaveland, Editor

Club Address: P.O. Box 134, Valley Forge, PA 19481-0134

email: [easternev@aol.com](mailto:easternev@aol.com). Web site: [www.eevc.info](http://www.eevc.info)

President: Oliver Perry, 5 Old Stagecoach Turn

Shamong, NJ 08088, (609) 268-0944

Copyright © 2008, Eastern Electric Vehicle Club, all rights reserved

Vol 28 No 4  
APRIL, 2008



Now affiliated with EAA

## PREVIEW OF GM'S CHEVY VOLT AT THE NEW YORK AUTO SHOW

Wednesday  
March 19, I  
was invited  
by Jerry  
Asher and  
Dave Gold-  
stein of the  
EVA/DC  
electric car  
club in  
Washington  
DC to ride  
with them to  
New York  
City to attend  
an "invitation  
only" preview  
of the GM elec-  
tric-hybrid  
car called the



*EEVC President Oliver Perry with the Chevy Volt at the New York Auto Show*

Volt. Electric  
and hybrid car  
enthusiasts  
across the  
country have  
been following  
with great  
interest the  
promotion of  
General Motor's  
soon to be  
marketed mass  
production  
electric hybrid  
car. Many of  
these individuals  
have been  
keeping abreast  
of the latest  
developments  
on the web site,  
GM-VOLT.COM,  
created and  
maintained in  
part by a New  
York

physician  
named Lyle  
Dennis. Dr.  
Dennis quickly  
discovered that  
more people  
than he  
imagined were  
vitaly interested  
in the Volt. His  
web site became  
popular over-  
night. He  
received so  
many hits that  
at one point  
the system  
stalled. GM  
soon

began providing  
Lyle with the  
latest information  
available on  
their Volt program  
and even provided  
personal inter-  
views, interac-  
tions with the  
engineers, and  
visits to the  
GM research  
center. Due to  
the tremendous  
response from  
the internet  
enthusiasts,  
Dennis was  
able to convince  
GM to host a  
question and  
answer session  
for the first  
250



*GM Executives talk to the assembled crowd.*

people to sign up through his web page. GM sent about a dozen representatives to this special even called the Volt Nation Townhall. GM representatives ranged from the chief project engineer Frank Weber (Global Vehicle Line Executive), to Ed Peper, General Manager, to sales and promotion people, to GM Vice Chairman Bob Lutz. The purpose of this high profile, glitzy and proficient GM team was to convince the spirited and equally knowledgeable electric and hybrid car buffs that GM knows what it is doing and that the Volt is for real. The Town hall event took place several days before the New York Auto show officially opened to the public.

The New York Auto Show, held annually in the Jacob Javits Center in Manhattan, is truly a spectacular sight for auto enthusiasts, a beauty pageant for cars. You easily can get lost in the maze of cars on display and in the huge show rooms that never end. The show, like the NYC skyline, is uniquely impressive! And, it is impossible to see it all in one day.

My first glimpse of the GM Volt came as we entered the downstairs showroom. The artists' concept and model makers' production of what the ultimate vehicle might look like sat motionless on a slightly raised platform backed with large display boards. One of the displays featured a huge liquid crystal TV screen that provided brilliant video clips of GM technology. Jerry, Goldie and I arrived just as the scheduled Town Hall program began. We slipped into a standing crowd frozen behind a row of professional video cameras that were focused on the Volt platform. About a hundred seated people separated the GM display from the array of video cams. Dr. Lyle Dennis was introduced. He briefly reviewed his interest in the Volt and

then kicked off the question and answer session. The session was programmed to provide interaction between pre-selected electric and hybrid experienced individuals and a team of approximately a dozen GM representatives involved in the Volt Project. One of the persons whom we personally knew, who asked a few questions, was Rob Neighbor from EVA/DC who is an airline pilot and owner of eight electric vehicles.

Most technical questions were answered by Frank Weber, GM Global Vehicle Line Executive. Frank played the role of the chief project engineer. His answers were clear, unwavering, and convincing. He knows electric and hybrid language and appeared to be fully in tune with the latest challenges to bringing an electric car to market, including the chemistry of batteries. When asked questions regarding recent lithium ion battery advances, Weber replied, "The moment GM chose to go with lithium ion phosphate technology, as a safer, more reliable route, several more possibilities appeared on the horizon." But, as with the other related technology in the drive system, Weber implied they could not continue to examine every new idea or they would never begin building a car. Weber was emphatic. "It is time to stop the engineering and get to production!" The audience was told that there will be second and third generation vehicles for decades to come as GM continues to implement improvements. GM will continue to improve each generation of vehicle as new technology arrives. But there will never be a production model until GM begins building. According to the team assembled, GM knows enough now to move from a prototype to a production model. The Volt vehicle that has been on display up to now has been primarily a concept shell. It did not have the new concept propulsion drive system under its skin. The present body style will be eventually changed, including the direction the rear door swings.

Bob Lutz said that the lithium ion battery is advancing rapidly and each generation of car and battery will get better and better. He cited a California research team as projecting a tenfold increase in the energy density of lithium ion cells. At present GM has ruled out any oxide chemical combinations in lithium ion battery chemistry as being too unsafe

and risky for automotive application. They have invested in a nano phosphate approach. GM has contracts with several lithium ion battery developers, and claims to be working hard with several lithium ion battery research teams to develop a suitable battery for the Volt. We were told that to meet GM standards the battery — which will have more than 250 cells — will have to work perfectly in the charge and discharge cycles of all 250 cells for ten years.

For most of us the highlight of the evening was the appearance of Vice Chairman Bob Lutz and his upbeat proclamations. Lutz told us that the Volt was going to be as revolutionary to the world as the Model T Ford was. The Volt is going to be marketed around the world to the common man. There will be left and right hand side steering wheels to accommodate countries that drive on the other side of the road. Like the Model T that paved the way for affordable cars, so too will the Volt usher the way to affordable electric cars. Lithium ion batteries are going to get better and better and take us further and farther.

The Volt right now is being hyped as a vehicle with a totally new propulsion system. It is critical that the generation one Volt meet the approval of the public at large. For that reason the Volt is being sold as an extended range vehicle. It is what we call a plug-in hybrid. An internal combustion engine combined with a generator will get one home after they have traveled 40 to 50 miles on electricity. The ICE will also charge the Volt's batteries when, and if, the highway demand allows. GM feels that our public has to be gradually introduced to the electric car. The Volt is the right step for the transition from the ICE vehicles to an electric with the ultimate lithium ion battery. As to whether or not GM has considered marketing the use of the onboard generator to power tools in the garage, it was implied they have not at this time. But in the end, regardless of what the Volt on the drawing board has or does not have, Bob Lutz promises that the GM Volt is going to be the best styled, best looking, most technically advanced, best interior designed car ever.

**But Everyone Asks, “Is GM really serious this time?”**

Many disgruntled electric vehicle enthusiasts complain that GM has cried “wolf, wolf” too many times for us to believe that they are really going to mass produce the Volt. After all, they killed the EV-1. They crushed what many believed was the best electric car ever constructed. So why in 2008 can we expect them to be a different company?

Bob Lutz personally admitted to those of us gathered for the Volt Q&A session in NYC, that crushing the EV-1 was a mistake, one that he would never make again. At the time of the EV-1 project, according to Lutz, the GM board of directors was primarily interested in making profits for their shareholders. GM is publicly owned. The GM directors were not interested in doing anything that would jeopardize public profits. Anyone who approached them with a recommendation for sponsoring projects initially losing money for possible future profits faced a sudden job loss. Lutz said, “My name was not on the company building.” He implied that since the managers did not own GM, individuals in his position could not act independently like the directors in privately owned companies, such as Ford Motor Company or Toyota, could. GM directors had to answer to the stockholders. When Toyota was losing money introducing the Prius, GM, which Lutz claimed had equal technology, held back. What manager in his right mind would take a losing proposition to the GM board at that time? Why not let Toyota pay the price? “But in hindsight that decision to hold back was a mistake,” said Lutz. Now, after Toyota has demonstrated that taking early losses with the Prius gained them supremacy in a winning hybrid car market, GM directors are looking at the auto business differently. Lutz says that the GM board of directors today would fire their project managers if they did not suggest spending money on a research project to gain the future.

Making the decision to bring a car like the Volt to market, says Lutz, “Is the highlight of my career!” “This car will go down in history as a real game changer!” According to Lutz the GM of four or five years ago would have questioned the idea of being the first to produce an electric car for the people. But the new GM Board has left the “numbers crunching” game and reinvented itself. Now GM is

moving towards a really creative and truly innovative automobile company. "They have set high standards and high goals to beat the rest of the world." And yes, a less noble motive for getting the Volt to market is to "kick Toyota in the teeth!"

Is there any chance of GM slipping back to its old ways of doing business? According to Vice Chairman Bob Lutz, "There is little risk. The internal structure of GM has permanently changed. There will be armed insurrection from the board if we go back to our old ways." "We are willing to build a loser to gain image." After the Prius, it makes sense. "We will not make the same mistake twice." "When you step out and do bold things you win!" "When you are cautious and let others lead, you lose!" "Our creative side is re-legitimized."

The GM team talked to us as if they were operating on the cutting edge. At one point during the Q&A, one GM member stated that as a team that they are so far out in front that they don't even know what they don't know. There will be surprises, challenges, and unexpected problems encountered as they forge ahead to prepare this car for market.

When asked point blank whether or not GM would actually succeed in this endeavor, Bob Lutz said that there is a 95% chance that the Volt will come to market on time and a zero percent chance of not making it at all.

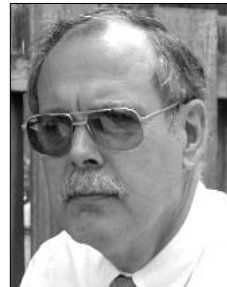
I do not know what the expected delivery date of the Volt will be. It seems to be a little unclear at the moment. We may be looking at a date near 2011. If you are curious to learn the latest about the program, go to GM-Volt.com. And, I was informed that if you go



Oliver Perry tries out a Mitsubishi iMiEV (Mitsubishi innovative Electric Vehicle) at the New York Auto Show. The car is intended for the Japanese market.

to youtube.com and look under NYIAS 2008: Volt Nation Townhall you can see several of the same interviews that I saw. If you e-mail me I can forward you an e-mail from Jerry Asher which has an in scripted address to click on that takes you to the interview.

## PROGRESS AND STRANGENESS By California Pete



### ARB sticks to its guns —or not

The California Air Resources Board, which famously backed off from its ZEV mandate some years ago when faced with resistance by the auto companies, has taken a further step. Under the previous rule the seven largest automakers had been required to produce and sell 25,000 zero-emission vehicles between 2012 and 2014, followed by 50,000 between 2015 and 2017, as reported by the *San Francisco Chronicle*. The new rule, adopted on March 27, would require a minimum of 7,500 ZEVs plus 58,000 LEVs (low-emission vehicles), which could include plug-in hybrids, between 2012 and 2014.

Nobody was pleased. GM said it was too hard to meet. Tesla Motors said it put them at a competitive disadvantage. And environmentalists accused ARB of caving.

### The University of Pot?

...easy...& done right too!

**Medical Marijuana Physician Evaluations**

MEDICAL CLINIC VETERANS & TRANSFERS

\$50 off

(415) 681-0823 ☺ potdoc.com

FREE POT \$\$\$

Quack MD Alert! see web pot!

As pointed out in these pages before, California and marijuana go back a long way. Pot is, arguably, the state's biggest cash crop (you thought it was oranges or lettuce?), and there is an ongoing argument between the state and local governments on one side and the federal government on the other. State law allows use of pot for "medicinal purposes," and there are so-called marijuana clubs that openly sell pot to anyone with a doctor's prescription. And prescriptions aren't hard to get, as this ad from

the *Chronicle* makes clear.

Meanwhile the Feds make occasional busts of the pot clubs, and crooks like to hit them too, thinking that where that much weed is sold there must be a lot of money lying around. Between the feds and the crooks it's, like, hard to do business.

Fear not, entrepreneurs, there's now a school to teach you how to succeed in the pot business. As reported in the *Chronicle* on April 6, a guy named Richard Lee has started what he calls Oaksterdam University. Inspired by the Cannabis College in Amsterdam and located in Oakland's pot district (Oakland and six other California cities officially put private sale and cultivation on the back burner for enforcement, and in 2004 a local initiative passed with 65% of the vote calling on the city of Oakland "to tax and regulate cannabis for all adults, not just medical). The school charges \$150 for a basic course "which includes politics, legal issues, beginning horticulture and budtending — which is working at a bud bar, like bartending," according to the *Chronicle's* Sam Whiting; advanced courses include "Retail Management," "Starting a Business," "Packaging and Distribution."

### OK, hand over that coffee

BART, which runs the local commuter trains, is chronically short of funds (especially now, with the state running a \$14 billion deficit), and would like to find a way to get a few more bucks into its coffers. OK, how about licensing coffee establishments at the stations? Commuters could grab a doughnut and coffee and BART could collect a licensing fee. Sounds pretty reasonable. The first place opens at the end of this month.

Ah, but this is the Bay Area.

BART has also been receiving complaints that the stations and train cars are dirty, so they have made it illegal to eat or drink on BART property (stations or trains).

So there you have it: You can buy coffee or a snack at the station, but you can't consume them. I swear I am not making this up.

### DOINGS AT THE NY AUTO SHOW

The New York International Auto show featured a number of alternative-fuel vehicles



. The Chevy Volt was there, of course (see following story), as well as (from top) the Subaru R1e, the Saab BioPower hybrid and the Chrysler



Eco Voyager.

One of the more interesting cars, though, was the Nissan



Denki Cube concept, an electric version of the existing Nissan Cube, probably the least-streamlined vehicle in the world. Power



comes from laminated lithium ion batteries located under the floor and seats, but Nissan so far

withheld any all information about motors, performance, etc. They did, however, wax rhapsodic about the styling, both interior and exterior.

### GM SEEMS SERIOUS ABOUT THE VOLT, AT LEAST FOR NOW



General Motors may be serious about bringing out the Chevy Volt — at least it's putting on a pretty convincing show of it. Rumors have it that the suits have told the developers to use whatever resources they need to get the car into production by 2010, which is a tight schedule for a completely new car with lots of new technology.

Just last week GM noted progress in several areas.

A new battery test algorithm has been developed to accelerate durability testing of the lithium-ion batteries needed to power the Chevrolet Volt for up to ten years. The new program, says the company, “duplicates real-life vehicle speed and cargo-carrying conditions, and compresses 10 years of comprehensive battery testing into the Volt’s brisk development schedule.”

“Production timing of the Volt is directly related to our ability to predict how this battery will perform over the life of the vehicle. The challenge is predicting 10 years of battery life with just over two years of testing time,” said Frank Weber, global vehicle chief engineer, Chevrolet Volt and E-Flex systems.

The next step is to put the batteries into a “mule,” or test, vehicle with other E-Flex system components for on-road tests.

As currently envisioned the battery will be roughly 6 feet (1.8 m) long and weigh more than 375 pounds (170 kg). The battery will be T-shaped and located down the center tunnel of the vehicle and under the rear seats. This integration requires the battery to be treated as part of the vehicle structure.

Other changes include reducing the size of the fuel tank to minimize weight while retaining a 400 mile range between fill-ups.

In another area, the company reports success in reducing aerodynamic drag by 30 percent compared to the original concept.

### **BOEING FLIES FUEL-CELL PLANE**



On April 3 Boeing corporation announced that it has successfully flown a manned aircraft powered by fuel cells.

A two-seat Dimona motor-glider with a 16.3 meter (53.5 foot) wingspan was used as the airframe. Built by Diamond Aircraft

Industries of Austria, it was modified by BR&TE to include a proton exchange membrane (PEM) fuel cell/lithium-ion battery hybrid system to power an electric motor coupled to a conventional propeller.

Three test flights took place in February and March at the airfield in Ocaña, south of Madrid, operated by the Spanish company SENASA.

During the flights, the pilot of the experimental airplane climbed to an altitude of 1000 meters (3300 feet) above sea level using a combination of battery power and power generated by hydrogen fuel cells. Then, after reaching the cruise altitude and disconnecting the batteries, the pilot flew straight and level at a cruising speed of 100 km/hr(62 mph for approximately 20 minutes on power generated solely by the fuel cells.

### **SUBARU TO EVALUATE EV WITH NY POWER AUTHORITY**

On March 20 Subaru announced that it would begin evaluating its R1e EV in the United States this summer. Based on the Subaru R1 minicar sold in Japan, the R1e was developed by Subaru in partnership with the Tokyo Electric Power Company, Inc. (TEPCO). The utility has been testing a fleet of R1e electric cars since 2006. As part of a U.S. test program, two of the Subaru R1e electric cars will join the New York Power Authority (NYPA) fleet.

The R1e uses fast-charge lithium ion battery technology that eliminates typical lithium ion battery issues of charge memory loss, allowing partial charges and quick charges that do not decrease battery life, according to the company. The two-seat R1e is capable of driving at speeds up to 65 mph with a range of up to 50 miles and can be “quick-charged” to 80 percent capacity in 15 minutes using quick-charge technology. The vehicle can be fully charged overnight (eight hours) while connected to a standard household electrical outlet. The car uses an AC permanent magnet synchronous motor producing 40 kW.

There are currently 40 Subaru R1e vehicles in use and Subaru parent Fuji Heavy Industries will place an additional 100 electric vehicles for test marketing in Japan in

2009. Subaru is focusing on the development of new battery technology for future power train applications.

Service life for the high-density lithium-ion battery is estimated at 10 years and 100,000 miles, and the battery pack is designed to be recycled easily.

## **21ST CENTURY AUTOMOTIVE CHALLENGE 2008, JUNE 7-8, BURLINGTON COUNTY, NJ**



*The Burlington County Institute of Technology converted Ford Escort, called the Olympian, that won the electric car acceleration, efficiency run, and autocross events at our event.*

The second annual 21st Century Automotive Challenge will take place June 7-8, 2008 in Burlington County, NJ. The event, which features on-the-road competition for electric, hybrid, alternative fueled and regular fueled vehicles, will be a repeat of last year's with the addition of a plug-in hybrid range event.

The challenge facing 21st century automotive highway transportation is to move passengers and cargo from point A to point B with ever-increasing fuel efficiency, reducing our dependence on fossil fuels without sacrificing safety, comfort, and aesthetic value.

Participants are encouraged to compete in our event with purchased production vehicles OR with special built prototype vehicles. The vehicles will compete against one another to see which can demonstrate the most improved fuel economy for pound of cargo (transported safely on existing highways) without sacrificing performance or creature comfort. There are two main categories of competition: vehicles that incorporate an internal combustion engine and those that do not. Regular cars, diesel powered cars, bat-

tery powered cars, hybrids, plug-in hybrids, motorcycles, and scooters all fall into one of these two categories.

Saturday, June 7th, our competition begins and ends on the campus of the Burlington County Institute of Technology (BCIT). We will attempt to measure the pounds of passenger and cargo per fuel mile and reward the best performance. There will be, as last year, a drive to the shore of about 100 miles for the regular and hybrid vehicles and a shorter range event for the electric and plug-in hybrids. Our team is still in the process of determining the best methods of test measuring the 21st Century Automotive objectives. The final rule book has not been written. All competitors are encouraged to join us in constructing better rules and providing us ways and means of measuring accurate results.

We hope to continue with our autocross event and acceleration tests for those interested. Since our primary focus is on student projects and student entries; we will present suitable awards for the better student project presentations. Saturday evening awards will be presented in all categories of competition. Last year's event was pronounced a great success. Many were impressed with the number and the quality of the trophies and awards.

The weekend will serve as a reunion for former American Tour de Sol volunteers and participants. Nancy Hazard plans on attending. The Banquet, special presentations, and awards ceremony will occur Saturday evening in a fire training facility adjacent to BCIT. We hope to include some of the highlights of past Tour events and focus some attention on keeping the Spirit of the Tour alive.

Entry fees are \$35 per vehicle; the Saturday Evening Banquet is \$20.

On Sunday, June 8th all student-built and other selected vehicles wishing to go on display will do so at the annual Burlington County Earth Fair to be held at nearby Smithville Park.

The 21st Century Automotive Challenge is an event in the making. For further information and updates please contact Mr. Oliver H. Perry [perrydap@aol.com](mailto:perrydap@aol.com) (home phone) 609 268 0944 (cell) 609 922 7275 . Also check out website [www.evc.info](http://www.evc.info).

## HASN'T THIS GOAL BEEN MET?

On March 20 the Department of Energy announced plans to award nearly \$3.5 million in a grant to the X PRIZE Foundation for the national education and outreach component of the Automotive X PRIZE (AXP) Education Program. The AXP will award at least \$10 million in privately funded prizes to teams that can engineer clean, production-capable vehicles that exceed 100 miles per gallon, or its energy equivalent fuel efficiency, and win a cross-country stage race.

All very nice, but one wonders how that mileage is to be measured; plug-in Prius hybrids regularly exceed 100 mpg by a comfortable margin.

## NEWS UPDATE

### Orlando Airport testing H<sub>2</sub> ICE vehicles

A recent CNN online story by Marsha Walton reported that Orlando International Airport is testing four Ford shuttle vans whose internal combustion engines have been modified to run on hydrogen. Goals of the program, says the report, are "to get average consumers acquainted with hydrogen and to acquire data on the buses' performance in a setting where they are in use almost non-stop." The main reason for using the buses' original 6.8 liter V10 engines is cost; although they use much more hydrogen than fuel cells would.

Ford also recently delivered two of the vehicles to Detroit Metropolitan Airport.

### Making solar cells with inkjet technology

On March 27 photovoltaic innovator Konarka Technologies announced that it had used technology from inkjet printhead maker FUJIFILM Dimatix for in manufacturing photovoltaic solar cells. According to the company, the demonstration confirms that organic solar cells can be processed with printing technologies with little or no loss compared to cleanroom semiconductor technologies such as spin coating. In addition, inkjet technology is very promising for fabricating photovoltaics because it is compatible with various substrates and it does not require additional patterning.

## COMING EVENTS

### BCI 120th Convention & Power Mart Trade Fair

April 27-30, Tampa, FL. Go to [www.batteryCouncil.org/120th.htm](http://www.batteryCouncil.org/120th.htm)

### SOLAR 2008

May 3-8, San Diego, CA. Go to [www.ases.org/solar2008/](http://www.ases.org/solar2008/)

### Alternative Fuels & Vehicles National Conference & Expo 2008

May 11-14, Las Vegas. For information go to [www.afvi.org/NationalConference2008/](http://www.afvi.org/NationalConference2008/)

### WINDPOWER 2008

June 1-4, Houston. For information go to [www.windpowerexpo.org/index.cfm](http://www.windpowerexpo.org/index.cfm).

### 21st Century Automotive Challenge 2008

June 7-8, Burlington County Institute of Technology and the Historic Smithville Park in Burlington County, NJ. For information contact Oliver Perry.

### 2008 SAE International Powertrains, Fuels and Lubricants Congress

June 23-25, Shanghai, China. Go to [www.sae.org/events/pfl/](http://www.sae.org/events/pfl/)

### Battery Power 2008

Sept. 4-5, New Orleans, LA. Go to [www.batteryPoweronline.com/bp08\\_index.htm](http://www.batteryPoweronline.com/bp08_index.htm)

### Convergence 2008

October 20-22, 2008, Detroit, MI. Go to [www.sae.org/events/convergence/](http://www.sae.org/events/convergence/) or call 626-744-5600.

### Electric Drive Transportation Association Conference & Exposition

Dec 2-4, Washington, DC. Go to <http://edta.orchidsuites.net/sites/conf2008/>

## MEETING SCHEDULE

Meetings are held in Room 49, Plymouth-Whitmarsh High School, 201 East Germantown Pike in Plymouth Meeting, PA, and begin at 7:00 p.m.

May 14

June 11

September 10

October 8