



EEVC NEWSLETTER

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Peter Cleaveland, Editor

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

email: easternev@aol.com. Web site: www.eevc.info

President: Oliver Perry, 5 Old Stagecoach Turn

Shamong, NJ 08088, (609) 268-0944

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TULLIO FALINI: 2007 EEVC CLUB MEMBER OF THE YEAR

Tullio Falini, one of the founding fathers of the EEVC and the volunteer committed to keeping our treasury, is our selection for the EEVC 2007 Club Member of the Year Award. This annual presentation, sometimes in the past referred to as The President's Award, goes

to an EEVC member who has distinguished himself through outstanding service to our organization and the promotion of electric vehicles. From the EEVC's beginning, over twenty-five years ago, Tullio has been the EEVC treasurer. It is for his many years of faithful service as our treasurer that we finally honor him.

Tullio has stayed the course not only with



For Tullio, family comes first. Here we see (left to right) Zack Best, Francesco Falini, Analisa Falini, Patrick Falini, Teresa Falini.

his service to the EEVC as treasurer, but through his commitment to driving alternative fueled vehicles as well. When Tullio first joined the EEVC he purchased a professionally converted Renault called the "Electric Leopard." A trip down lover's lane reminds us of a story

shared with us by Tullio regarding one of his "hotter dates" in the Leopard. The stately and well mannered Tullio, always impeccably dressed, convinced his date that the future of cars would be electric even on cold winter nights. To demonstrate this Tullio turned on the Renault's electric heater. Somehow the heater caught on fire and burned lasting impressions of electric cars



(left to right) Francesco, Teresa, Analisa, and Patrick Falini pose with Tullio's ZAP bike.

into the memory of the pretty girl who, up to that time, fully trusted Tullio's judgment in all things. [Editors note: when the two of them got out of the car a sweater was pushed into the heater, which didn't automatically turn off when the ignition was switched off. They returned to find the fire department extinguishing the blaze, which destroyed the dashboard and severely damaged the interior; but the car was repaired]

Throughout the last quarter century Tullio has proven that the heater fire was just a small glitch on the road to the electric future. Over the years he has successfully incorporated electric bikes and cars into the daily fabric of his family and is presently driving his second Prius Hybrid car.

Tullio well deserves the recognition of this award. He has remained a "gentleman and scholar" throughout his never-ending term as treasurer. He and his lovely wife adopted a number of children and are in the process of raising a great family. To this quiet CPA and gentle man, family and the Christian faith come first. Tullio is sincere in his convictions that by following the teachings and values of Christianity one will live a richer and fuller life not only in this world but in a world to come. Tullio is widely respected in business and in his community. The EEVC has a trusted reliable family man holding the purse strings of our organization. We couldn't have a more honorable man than Tullio represent us. He is both an EAA and EEVC member, extraordinaire!

WHERE TO GO FROM HERE Tullio Falini

So here we are. When the EEVC started about 25 years ago, electric cars from major manufactures were a long-term dream. The home-built and EVs from small manufactures were our only choices at the time. It was great putting 21,000 miles on the Lectric Leopard (Renault 5 conversion), of which the Boyertown Museum has one (belonged to past President Ed Kreibick and later Dave Hollaway). It was also great putting about 7,000 miles on the Kewet (from Denmark), which is now at the Boyertown Museum in its retirement (red minicar). These cars received much attention in their day, and rightfully so. I was traveling without polluting the air and without using gasoline. They ended up in the newspaper and/or TV news, as well as the EEVC newsletter several times. I had the honor of driving the GM EV-1 and the Toyota RAV-4 EV. These are the two most remarkable cars I have ever seen or driven. They handled the California freeways with ease.

It has been very frustrating over the decades waiting for Detroit to produce these cars and sell them nationwide. They let us down, and are still letting us down. Still no EVs. But I'll take whatever I can get, so I welcome the Hybrids. Our family enjoyed the 2001 Toyota Prius for five years, then upgraded to the roomier hatchback 2006 Prius. The 06 Prius is pictured with our four children, who are honored to be joined with Zack Best, son of Skip Best. Zack has been driving his family 01 Prius for years, along with their Pathfinder. His Dad Skip has performed countless tasks educating the public, as well as his students at West Chester Henderson High School on electric cars and alternative energy; including showing the students Skip's homebuilt EV. This year Skip finds himself teaching the same curriculum at his new location, the brand new, high-tech 87 million dollar West Chester Bayard Rustin High School; built on what was a large farm across the street from where Skip grew up in rural Chester County. Skip is looking at the new Silverado Hybrid. If he buys it, he would be the first in West Chester, of which he was also the first in West Chester to own a Prius (with myself, and Tom and Anne Moore following). We really love our Prius. It's the

best we can do, at this stage, to reduce pollution and gas consumption. I'm disappointed there are not more choices. Detroit has abandoned the EV-1. GM has just unveiled a plug-in hybrid at the Detroit Auto Show. Sorry but I'm not impressed. Briggs and Stratton designed a similar, but more basic car about 20 years ago and it was featured on the cover of Popular Mechanics. Guy Davis, Dave Goldstein and myself (perhaps others in the club) saw this car at the Baltimore EV show back in the 80s. I was so saddened that at the time, Detroit was not interested in the car. Had Detroit got the ball rolling then, we would be much further along now. After all these years, we have seen so many promises and plans that never panned out. What happened to the Ford Think City, or the GM EV-1. How about the Durango Hybrid, or going way back, the GM Electrovette, Ford Ecostar, or the Tropica? What GM is touting in this plug-in hybrid is not ready for the showroom, and will not be for several years. If history is any indication, Toyota will beat GM to the showroom with a plug-in hybrid. GM let go of their partnership in the Ni-MH battery, and let it transfer to Chevron. So now we have a Federal Judge rule that the auto industry (especially Toyota) is not allowed to use large-format Ni-MH batteries until around 2009. (Large format are needed for EVs or plug-in hybrids). I can only look at this with frustration, pointing a finger at GM and Energy Conversion Devices, who were partners in this battery and dropped the ball. If I have this wrong, correct me, but I have been following this industry for a long time, and it has been a lesson in patience. Of course these two companies have done many good things over the years and I don't mean to ignore them. The plug-in hybrid seems to be the next stepping-stone, going from hybrids to evs. I look forward to getting one in hopefully a few short years.

These cars are hybrids that can be plugged in overnight, if desired, to achieve over 100 mpg the next day. I yield to editor Pete Cleveland for more about plug-in hybrids.

We have had the ZAP Bikes for about eight years now. They are still working, but do need adjusting now and then. We may soon be replacing the sealed lead acid battery for the first time. They are great and I really

don't understand why battery assist bikes have not caught on more. Another lesson in patience I have had over the years is investing in EV or alternative energy stocks. I have been a part of several mini Enrons in this field. I was a part of the crashing of companies like Jet Industries, US Electricar of MA (Lectric Leopard), US Electricar of CA, Ballard, Renaissance Cars (Tropica), among many others. I will say the risk of these investments were enormous. They were up against the Auto Industry and the Oil Industry. However, I am currently doing well with Toyota Motors and Medis (portable fuel cell power pack). I have found good commentary and insight on fuel cell investments in the www.H2FC.com newsletter.

Here's to a Happy New Year for everyone. May we breathe cleaner air, with less noise on our highways. I told my children that some day they would be driving cars that do not use gas and do not pollute the air. I am very confident that 1), that will happen, and 2) a very big part of making it happen is all the EEVC type clubs around the world. Congratulations to all of you, who continue to do your little part, year after year. Little deeds, though small, can bring about big change when frequent.

GM SHOW SERIES PHEV



On January 7, at the Detroit International Auto Show, General Motors showed off the latest in EV technology: A concept that dates back at least 30 years, and probably longer. What was announced was the Chevrolet Volt concept car, which extends the idea of a plug-in hybrid to its logical conclusion. The result

is a concept car called the Chevrolet Volt, and it's the first GM car since the ill-fated EV1 to power the drive wheels entirely by electricity. There's a large lithium battery capable of driving the car about 40 miles; backing that up is a small (1 liter) three-cylinder engine that doesn't kick in unless the battery gets low; in other words, it's an EV with a range extender.

The Volt is the first embodiment of a program called E-Flex, which takes the basic battery-and-motor platform and allows anything to be put in front of it. The Volt uses a flex-fuel engine (gasoline or E85), but there's no reason it couldn't be replaced with one running on E100, a diesel running on biodiesel or a fuel cell.

Specifications

Length:	4318 mm 170 in
Width:	1791 mm 70.5 in
Height:	1336 mm 52.6 in
Construction:	Body-frame-integral with composite exterior panels and roof
Engine:	1 liter, 3 cyl, turbocharged
Engine rpm:	1500-1899
Max. electrical power:	130 to 140 kW
Max. mechanical power:	160 hp, 120 kW
Continuous electrical power:	45 kW
Continuous mechanical power:	40 kW
Generator power:	53 kW peak
0-60 mph time:	8 to 8.5 s
Top speed:	193 km/h (120 mph)
Battery type:	Lithium ion
Battery energy:	16 kWh (minimum)
Battery peak power:	130 to 140 kW
Battery voltage:	320 to 350
100% recharge time (110-V):	6 to 6.5 hours
Fuel economy, 40-mile trip:	Infinite
Fuel economy, 60-mile trip:	150 mpg
Fuel economy, 80-mile trip:	100 mpg
Fuel economy on engine:	50 mpg

All this makes absolutely perfect sense. Consider, however, that the technology to build this car has been available for many years (with the possible exception of the Li-ion battery), and up until now GM has shown hostility to anything that doesn't involve an internal combustion engine driving the wheels. Why the sudden change?

The most obvious answer is fear of death

(some might call it grasping at straws). The comparison is unkind, but think about World War II. With the exception of tanks and the Messerschmitt ME-109 fighter, the equipment used by the Third Reich was obsolescent at the beginning of the war. Soldiers carried the 1898 Mauser rifle, the submarines were like those used in World War I, and there were few heavy bombers.

Germany began to innovate as the opposition got better. The early Panzer gave way to the Tiger, and after encountering the Soviet T-34 they developed the King Tiger. As things got worse and worse for Germany it began throwing money into more and more innovative technology, including the cruise missile (the V-1 "Buzz Bomb") and the ballistic missile (the V-2). They put jet fighters into production. But all this new technology was too little, too late, and Germany went on to lose the war. The winners, of course, were delighted to capture the advanced technology.

So is GM serious about the E-Flex concept, are they grasping at straws, or is it too late for them? And even if they put EVs into production, will GM's true believer customers be willing to switch from SUVs to EVs? Only time will tell. If GM does collapse, Toyota will be happy to turn the technology into profit.

TOYOTA SHOWS HYBRID SPORTS CAR



New from Toyota at the Detroit Auto Show was the FT-HS hybrid sports concept. The car was a joint undertaking of Caltex, Toyota's North American-based research and design center in Newport Beach, CA and the company's California-based Advanced Product Strategy Group. The two-plus-two FT-HS is a front-engine, rear-drive sports car with a projected zero-to-60 acceleration in the four-sec-

ond range using a 3.5 liter V6 coupled with an electric motor for a target power output of approximately 400-horsepower.

Preliminary Specifications

Drivetrain:	3.5 Liter V6 hybrid electric
Overall Length:	170.27 in.
Overall Width:	73.23 in.
Overall Height:	50.79 in.
Wheelbase:	104.33 in.
Wheels:	Carbon Fiber

AC PROPULSION SHOWS NEW EV



On December 8 AC Propulsion (San Dimas, CA — where the classic 1989 film *Bill and Ted's Excellent Adventure* is set), maker of the high-speed tzero electric sports car, showed a new EV at the AltCar Expo in Santa Monica. Called the The eBox, it's a converted Scion xB 5-speed with a 35 kWh lithium-ion battery pack and the company's electric power system. Claimed range is 180 miles (if you keep the speed down — the Scion's aerodynamic drag coefficient is 0.35, similar to that of an upright piano). It does have nice creature comforts, including With air conditioning, power steering, power windows, power mirrors and remote door locks, and a ton of interior room.

"Production" is just beginning. To get one you first go out and buy a Scion, then deliver it to AC Propulsion for conversion. We were unable to obtain any information on lead time.

NEWS UPDATE

Good news and bad on biofuels

The Energy Information Administration announced in December that domestic Octo-

ber ethanol production tied the all-time high set in September 2006 of 333,000 barrels per day (bbl/d). The U.S. ethanol industry was averaging 310,000 bbl/d of production through October, an annualized volume of 4.75 billion gallons. Industry estimates show ethanol production reaching 4.9 billion gallons for the year, an increase of more than 25 percent from 2005. How much of that is made from corn is not given.

Meanwhile Bloomberg News reported on December 22 that China is facing a looming shortage of farmland, and as a result may not be able to expand production of biofuels as much as planned. A combination of "construction, pollution and natural disasters are decreasing the land area China has available for food crops," says the report, and China's already-booming bioethanol production may well be crimped because of it. If available farmland decreases, the country will concentrate on food production.

Honda moves ahead with fuel cells

On December 19 Honda Motor Co., Ltd. announced that a mass production model based on the technology and design of the FCX Concept would become available for lease sales in 2008 in Japan and the U.S. and that it would continue work on its Home Energy Station, which produces hydrogen from natural gas, as well as the solar cell based Hydrogen Station, which the company has already begun testing in the U.S.

In addition, a December 29 story by Tom Granahan, Editor-In-Chief of Manufacturing.net, reports that Honda President Takeo Fukui said in an interview with Kyodo News that those cars should be available for the general market by 2018.

WILL GLOBAL WARMING DOOM US?

By California Pete



Global warming reminds me of the days when I used to reload my own shotgun shells.

When you fire a gun the powder burns and creates the pressurized gas that drives the pellets or bullet down the barrel.

Shells for shooting clay pigeons don't have to be very powerful, while those for hunting things like Canada geese need to be more potent. You'd think the way to get that extra power would be to add more powder, but that's not so, because the relationship is non-linear. The powder used in modern ammunition is pressure-sensitive: The higher the pressure the faster it burns, and the faster it burns the higher the pressure. If you add too much powder the pressure quickly reaches dangerous levels (the answer is to use slower-burning powder for heavier loads).

Now think about climate change. A recent show on the History Channel entitled "Last Days on Earth" established a ranking for those things that were likely to wipe out humankind. The usual suspects were there — asteroid impacts, nuclear war, global pandemic and even black holes — but the one ranked #1, both for potentially devastating impact and overall likelihood, was climate change. But the thing about climate change is that it's nonlinear.

As the earth warms the permafrost in northern Canada, Alaska and Siberia begins to thaw, decay and release vast amounts of carbon dioxide. Under the sea are huge deposits of methane hydrate, a material that forms when methane and water meet at low temperatures and high pressure. But as the oceans warm a staggering quantity of methane could be released, and methane is tens of times as effective a greenhouse gas as carbon dioxide.

All of this suggests that we might well take some lessons from the post-nuclear novels of the 50s and early 60s. *A Canticle for Liebowitz*, anyone?

COMING EVENTS

6th EVer Electric Auto Association Chapters Conference, in conjunction with 2007 Battery Beach Burnout.

Weekend of Jan 26-28, 2007, West Palm Beach, FL. Go to www.eaaev.org and www.FloridaEAA.org

Hybrid Vehicle Technologies Symposium — 2007

Feb. 7-8, 2007, San Diego. Check SAE at www.sae.org.

2007 motors & drive systems conference
Feb. 7-8, Dallas, TX. Go to http://www.e-driveonline.com/motors_conf_index.htm or e-mail jeremym@infowebcom.com.

2007 Clean Heavy-Duty Vehicle Conference
Feb 13-15, Universal City, CA. Contact Monica Alcaraz or Debie Dubose, 626-744-5600, malcaraz@weststart.org or ddubose@weststart.org, www.calstart.org

SAE 2007 World Congress

April 16-19, 2007, Detroit. Go to <http://www.sae.org/congress>

Battery Council International 119th Convention and Power Mart

April 22-25, 2007, Myrtle Beach, SC. Phone: 312/644-6610, Fax: 312/527-6640, info@batteryCouncil.org.

Fuel Cell 2007

June 14th - 15th, Rochester NY. Contact Marsha Hanrahan, marshah@infowebcom.com or go to www.fuelcell-magazine.com/fc_2007_conf_index.htm

Duryea Day #42

Sept. 1, Boyertown, PA. Call 610-367-2090 or go to www.boyertownmuseum.org.

Panasonic World Solar Challenge

October 21-28, Australia. CALL 61 8 8463 4500 or go to www.wsc.org.au

Michelin Challenge Bibendum 2007

Shanghai, Nov 14-17. Contact mail.challengebibendum@fr.michelin.com, www.challengebibendum.com

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.

February 14

March 7

April 11

May 9

June 13

July 11