EEVC NEWSLETTER

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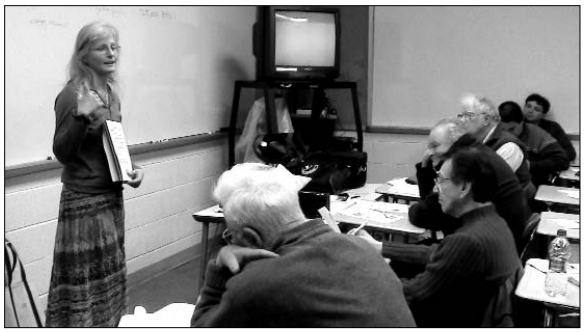
PRESENTATIONS AT RECENT EEVC MEETING

The April EEVC meeting at Plymouth Whitemarsh High School featured a number of interesting presentations. Jenny Isaacs from Bucks County Renewables presented information on an upcoming summer workshop and the May 3rd electric car show at Macgungie Memorial Park near Allentown PA.

EEVC members gather around Paul Kydd

Paul Kydd brought an F-150 pickup truck to the meeting; he has recently added two electric motors and batteries to the truck in order to make it a plug-in hybrid. He found a donor who was willing to allow Paul to implement his hybrid concept in his truck. If the donor does not appreciate the addition he can easily have it removed. Paul's system is not integrated into the existing gasoline drive system other than through a rear drive shaft connection. The electric motor kicks in at high speed rather than at low speeds as we see in many traditional Prius like hybrid applications. Note the two accelerator pedals.

Paul Kydd's plug-in hybrid pickup has two accelerator pedals.



Jenny Isaacs from Bucks County Renewables presents information on an upcoming summer workshop and the May 3rd electric car show at Macgungie Memorial Park near Allentown Pa.

Norman Flojo, our EEVC and EAA membership coordinator, takes a moment to review an article in Current EVents *at April's monthly meeting.*

EEVC MEMBERS PRESENT EVS TO AAPT CONFERENCE
Oliver Perry

Jenny Isaacs presents her VW van conversion.

The Southeastern Pennsylvania Section of the American Association of Physics Teachers (SEPS-AAPT) held its annual spring conference at Villanova University on Saturday April 25th. The theme of this year's conference was energy and energy conservation. I volunteered the EEVC to make a presentation of electric and hybrid cars in the Saturday afternoon segment.

Ed and Jim Kreibick discuss their bio-diesel fuel making process.

Jenny Isaacs of Bucks County Renewables brought her VW converted van converted van to display. Ed and Jim Kreibick brought their 1976 Mercedes Benz bio-diesel. Paul Kydd drove in a newly converted plug hybrid F-150 pickup truck that he has assembled for a donor who provided his personal vehicle for a joint venture. Al Arrison, Ken Barbour and I towed in our respective electric vehicles. Don Monroe brought a number of newly purchased parts for his Saturn conversion that is under way along with a lap top presentation showing the ICE and related parts that he has removed from the vehicle. Mike Manning came to add his expertise for answering technical questions.

Under the hood of Ken Barbour's yellow Geo Metro conversion.

Physics teachers watch an electric car squeal wheels in a demo.

The afternoon session unfortunately got a late start due to stragglers detained at a very good luncheon. As teachers wandered in to the inside presentation portion of the workshop we slowly got around to topics directly related to electric cars. When it became apparent that the teachers present really wanted to see the vehicles we went to the parking lot where the cars were on display. At that point the audience came alive and we saw the excitement that usually is seen when people become aware that electric cars really do exist.

PRESIDENT'S MESSAGE MAY 2009
Oliver H. Perry

This past month has been very busy. The EEVC engaged in the major 21st CAC competition at Penn State the week end of April 17-19th (Keep watch for the upcoming 2009 21st CAC special publication coming soon), a conference at Villanova University, and a car show at Macgungie Memorial Park. (See this issue for details)

Meanwhile, what has been happening in the rest of the auto world?

There has been a lot of discussion lately

regarding the possibilities of electric vehicles moving more into the main stream. Everybody who is anybody in the automotive world seems to be offering an electric car agenda. People are asking us with more fervor, "how soon will we see affordable electric cars in the market place?" An intelligent answer involves an understanding of what is happening world-wide in the automotive industry. And of special interest in how things eventually play out is the welfare of Toyota, the great green auto company.

According to the *Wall Street Journal*, Saturday-Sunday, May 9-10 2009 edition, page B-1, "Toyota posts big loss, signals more to come." "Showing the reach of the global auto-sales collapse, Toyota Motor Corp, on Friday posted a $7.74 billion fiscal fourth quarter net loss leading the world's largest auto maker to its first annual loss in 59 years and setting the stage for a deep loss this year."

In a previous *Wall Street Journal* article on Thursday, May 8, it was pointed out that Toyota has even hit a pothole in China, the only major global auto market that is still growing. While we have been reading reports of the former giant GM headed for bankruptcy as Toyota surpassed them in volume of sales, something very interesting is happening in China. Toyota's sales fell in the first quarter by 17 percent from a year earlier, even as the rising demand for small cars in China grew! In fact GM's sales in China gained 17 percent as Toyota's fell.

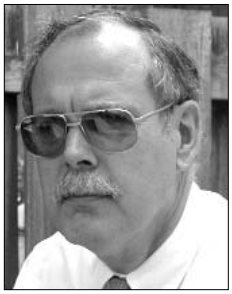
What seems to be going on here? According to the *Journal*, "The root of Toyota's China problem is a slow response to increasing demand outside China's biggest cities for small affordable cars — an unexpected lapse by a company known for its fuel-efficient vehicles." Chinese consumers have been snapping up such cars, especially after the government in January announced stimulus measures that cut sales taxes on cars with engines of 1.6 liters or smaller and offered rebates for rural residents buying new cars. Toyota's lineup in China is short on affordable, fuel efficient small cars with engines 1.6 liters or smaller.

In the U.S. market, as I mentioned a number of months ago, Toyota made a major mistake in attempting to compete with GM in the large truck market. "A belief in ever growing demand led the auto maker to expand production capacity just before the market collapsed." "There is question now whether Toyota can maintain it policy of lifetime employment for full time workers."

Can anyone sustain a profitable "small car" company? Can major car companies make profits large enough on small fuel efficient vehicles that they can permanently invest in them without guaranteed government mandates and incentives? If the company that produced the Prius and outgrew GM is suddenly in trouble, what does that tell us about the industry?

It may indicate that forecasting the future of mainstream electric cars is very unpredictable.

GET THEE BEHIND ME, CARBON
By California Pete



Perhaps feeling itself liberated from Bush administration restrictions, the California Air Resources Board recently voted to adopt a mandate requiring low-carbon fuels. "The rules call for reducing the carbon content of fuels sold in the state by 10 percent by 2020, a plan that includes counting all the emissions required to deliver gasoline and diesel to California consumers — from drilling a new oil well or planting corn to transporting it to gas stations," according to *The San Francisco Chronicle*.

The latter provision has brought the ire of the ethanol industry, which doesn't like the idea of counting in the "carbon intensity" of various fuels the environmental impact that farming them creates (including the impact of clearing land to grow the crops).

A blast from the past

As you may know, San Francisco has a collection of vintage street cars that provide regular service in some of the parts of the city most popular with tourists, including the Castro neighborhood, Market Street, the Ferry Building and the Embarcadero and Waterfront. Cars on the F-Line are from all over the world,

including Philadelphia, Boston, Chicago, Washington, Detroit, Milan, Moscow, Osaka and many more. But plans now call for the return to operation of a 1912 model, San Francisco Streetcar No. 1. The old car ran until 1995, when storm water got into the electrics while it was being stored, and general deterioration soon followed.

But now, according to the *Chronicle*, Streetcar No. 1 will undergo a complete overhaul and be back in service in about a year.

Clean air but dirty fish

California has a long history of mining, and not just for gold: there were once dozens of mercury mines along the Coastal Range. Now shut down, they left behind piles of tailings that leach the toxic metal into local streams and rivers. On top of that, there is the usual brew of fertilizer and pesticide runoff, plus PCBs. Most of us already know not to eat fish from San Francisco Bay (all, perhaps, but the lower-income folks who fish there for the table on a regular basis. One wonders how much that contributes to school test scores).

But the State Water Resources Control Board recently completed tests of sport fish taken from 152 lakes state-wide, and found most of them unsafe. Fish from 21 lakes were OK, while the rest had varying, but still excessive levels of contamination — mostly PCBs and mercury. Yum.

LOOK FOR UPCOMING SPECIAL EDITION ON 21ST CAC AT PENN STATE

Methacton High School Student in driver's seat of the Lomax.

The EEVC gang traveled out to Penn State to participate in the 2009 21st Century Automotive Challenge the weekend of April 17-19. Alan Arrison, Ken Barbour, Mike Manning, Ed and Jim Kreibick, Dr. Paul Kydd, and Oliver Perry all participated in a successful event. Anne Moore (responsible for mailing our newsletter) also happened to be out at Penn State that weekend and stopped by the Test Track for a little while on a beautiful Saturday afternoon. A full report of the 2009 21st CAC will be in a special edition of the EEVC Newsletter, to be mailed out a little later this month.

Alan Arrison charging at the 21st CAC.

NEWS UPDATE

Bright IDEA

On April 21, according to AP, Bright Automotive unveiled its IDEA plug-in hybrid electric van that it claims gets 100 mpg. The company, based in Anderson, IN, hopes to produce 50,000 vehicles a year starting in 2013 and sell them to fleet customers.

The proposed vehicle will have a 30 mile range on battery, which would give the stated 100 mpg based on 50 miles driven per day. No mention was made of other specs, or of price.

New wind turbine maker

Startup wind turbine manufacturer Mariah Power, Inc. recently opened a plant in Manistee, MI, where the company plans to hire 120 employees (mostly ex auto workers) in the next three years. The company's main product is the Windspire, a small-scale vertical axis wind turbine designed to power homes or businesses. Standing 30 feet tall, the unit produces about 2000 kWh of electricity annually in 12 mph average winds, enough to power about 25 percent of the average U.S. home.

Chrysler: New EVs, alliance with A123

On April 6 Chrysler LLC announced that it had formed a strategic alliance with A123Systems for development of advanced nanophosphate lithium ion prismatic battery cells, and joint development of battery modules and battery packs for Chrysler's Range-extended ENVI and its battery-only EV production programs.

Then on April 22 Chrysler showed four EVs based on its Town & Country minivan concept to the U.S. Postal Service. The company says the concept showcases the flexibility of its EV strategy and aims to produce a nationwide demonstration fleet of 250 vehicles with the assistance of a federal grant under the U.S. Department of Energy's Transportation Electrification stimulus program.

Tailored specifically for mail delivery, the EV postal vans have a range of about 20 miles per day and don't require the range extender included in the previously announced 7-passenger Town & Country EV minivan, which promises a 40 mile range.

A123 and GE

On April 11 A123Systems announced that it had raised $69 million from General Electric Co. and other investors to speed the expansion of its U.S. lithium-ion battery manufacturing and smart grid capabilities. A123 said the funding will allow it to expand its facilities in Massachusetts and Michigan, as well as build new factories in Michigan. In addition, the funding will help it develop applications for the grid, such as utility-scale energy storage.

GE provided $15 million of the amount raised by A123, marking its seventh investment in A123 and making it the company's largest cash investor. It also brings GE's cumulative investment to $70 million and increases its ownership stake to more than ten percent.

A123 said its planned production facilities would be capable of producing battery systems for 5 million HEVs or 500,000 PHEVs per year by 2013.

GE plans another battery plant

GE isn't putting all its battery eggs in the lithium basket. On May 12 the company announced that it is investing $100 million in new battery manufacturing plant in Upstate New York. that will serve as the main manufacturing facility for GE's newly formed battery business. The facility is planned to produce approximately 10 million cells per year at full capacity, or 900 MWh of energy storage — concentrating, apparently, on a high energy density, sodium-based chemistry battery for GE's hybrid locomotive, which will be commercialized in 2010, as well as mining, telecommunications and utility, with key applications for heavy service vehicles, backup storage and load leveling for the smart grid.

GE hopes to secure additional federal funding for the new facility later this summer.

Li-ion battery plant planned for Michigan

On April 14 Johnson Controls-Saft announced plans to build its first U.S. cell manufacturing facility for lithium-ion hybrid batteries. Subject to final State and local incentives, the company will use an existing Johnson Controls facility in Holland, Michigan.

The company has partnered with Ford to produce batteries for Ford's PHEVs coming in 2012.

Feds cutting off FCEV funding

A story by Matthew Wald in *The New York Times* for May 7 reported that Energy Secretary Steven Chu has announced that hydrogen fuel cells will not be practical for propelling cars over the next 10 to 20 years, citing the difficulty of developing both the cells and a way to transport the hydrogen.

Instead, said Chu, the government will put its money into projects with a better near-term payoff.

Research into stationary fuel cells for utility service will continue, the story adds.

West Philly High goes after X Prize

Popular Mechanics recently placed the West Philadelphia High School Hybrid X team in the top ten contenders out of 100 teams vying for the $10 million Progressive Auto-

motive X Prize for a hybrid vehicle that gets 100 mpg and can be mass-produced in commercial quantities.

The school team plans to enter two vehicles, both using a drive system from Azure Dynamics on a Toyota Corolla chassis, one with a two-cylinder diesel and one with a gasoline engine, according to Popular Mechanics. Boeing is helping with some of the engineering and the use of a wind tunnel, and Drexel University is working on the business plan for making the car a commercial reality

Once again, those kids from West Philly are showing what grit, determination and dedication can accomplish. Bravo to all.

Siemens plans wind turbine plant in Kansas

An AP story dated May 5 reports that Siemens AG has announced plans to build a wind turbine production plant in Kansas. Construction of the 30,000-square foot facility is expected to begin by August, and when running at full capacity the plant should be able to turn out 650 nacelles a year.

COMING EVENTS

34th IEEE Photovoltaic Specialists Conference (in conjunction with SEIA's PV America Conference)
June 7-12, Philadelphia. For info go to www.34pvsc.org

Solar Energy Conference
June 8-10, Philadelphia. For more info go to www.pvamericaexpo.com or contact Brian Mahar at bmahar@tigercomm.us, 703-302-8393.

Plug-In 2009
August 10-13, Long Beach, CA. For info go to www.plugin2009.com/

Fifth IEEE Vehicle Power and Propulsion Conference
September 7-11, Dearborn, MI. For information go to www.vppc09.org/

Energy Conversion Congress and Expo
September 20-24, 2009. San Jose, CA. Go to www.ecce2009.org/

eCarTech 2009 1st International Fair for Electric Mobility
October 13-15, Munich. For info go to www.ecartec.eu/index.html

The Business of Plugging In
October 19-21, Detroit. For info go to www.pev2009.com or or contact Center for Automotive Research, 734-662-1287, CAR_EVENTS@cargroup.org

Battery Power 2009
October 20-21, Denver, CO. For information go to www.batterypoweronline.com/bpptconf09/bp09_index.php

MEETING SCHEDULE

Meetings are held in Room 49, Plymouth-Whitemarsh High School, 201 East Germantown Pike in Plymouth Meeting, PA, and begin at 7:00 p.m. As in previous years, there will be no July or August meetings.

June 10

August 12

September 9

October 14

*** FOR SALE ***

1974 FIAT X 1/9 Electric Conversion
96 Volt with PMC controller

Currently equipped with two 96 volt battery packs. Battery trays set up to carry 16-6 volt golf cart type batteries. General Electric motor with 120 volt off-board charger Painted "Electric Blue" in 1995 Newer interior, tires, removable top Vehicle has been in storage. Pennsylvania Title. $1400.00. Contact Edward F. Kreibick, 215-396-8341, ekreibick@verizon.net

*** FOR SALE ***

1997 Chevy S-10 Electric Conversion

Interested parties contact Ken Olsen at pickupman2007@nc.rr.com.