

EEVC NEWSLETTER

Published by the Eastern Electric Vehicle Club

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Now affiliated with EAA

PECO FLEET MANAGER ADDRESSES EEVC

P i c t u r e d addressing our members at our November EEVC meeting is Bill Flemming, the fleet manager of PECO. (Philadelphia Electric Company) Bill stopped by to visit our association to, as he said, “get up to speed with electric and hybrid vehicle technology.” He h a p p i l y

responded to our request for an on-the -spot update on what is happening at PECO regarding preparation for the Smart Grid technology.

Bill Flemming informed us that PECO recently was awarded a huge government grant to begin R&D on the smart grid technology in the Philadelphia region. According to Mr. Flemming, it is one of the biggest grants awarded and has sparked moves toward major advancements in making smart meters a reality



PECO fleet manager Bill Fleming addresses the EEVC

in our region. He expressed that the size of the grant has placed Philadelphia on the cutting edge of smart grid technology. His presentation led us to believe that our region could also become a leader in V2G (Vehicle to Grid) applications.

Thus far most of Bill’s experience at PECO has

been with conventional gasoline fueled fleet maintenance. But Flemming knows that the incorporation of electric and plug-in-hybrid vehicles into PECO’s fleet is not far off. He claimed that PECO is looking into preparing a grid that can practically handle more electric and hybrid vehicles in the Delaware Valley. Among other things, it is his business to become more familiar with advanced fleet technology.

MY EV EXPERIENCE

By Todd Toohey

When Oliver Perry asked me to write an article about my electric vehicle I was a little apprehensive since I am so new to the electric vehicle world. However, since it doesn't have to be a technical piece, here goes.

I have wanted to drive an electric car since I stated driving over thirty years ago. Back then, I could barely afford the old Volkswagens I had. The best thing about them for me was that, for the most part, I could fix them myself. And now after all the "fancy" cars I've had since, I never expected to be driving a car that is even easier to work on than those old VWs. However, owning the electric car makes me feel the same way that sailboat owners do about their boats when they say, "It's the most expensive way to go third class."

Oliver Perry summed up the economics of electric cars at the beginning of the first EEVC meeting I attended in the spring of 2008. I was one of the six or eight new people in the room when Mr. Perry commented that, "electric cars are not economically viable at this time." When I came to the next meeting, most of the new people from the prior meeting were not there and a new group of fresh faces had taken their place. This turn-over continued in the Fall, and I think it had a lot to do with the fact that the new folks realized they were not going to beat the high price of gasoline at the time by switching to an electric car. The almost two hour trip each way to the meetings (I drive slow) has discouraged me from continuing to attend the EEVC meetings lately. But I hope to pop in again soon and soak up some more expertise from the members.

So, ignoring the economics, I found a conversion for sale that I liked and was able to convince my wife that we should buy it. James Weirick from Ohio did the conversion. I have not uploaded a listing yet of my own, but James still has it listed on his evalbum page at: www.evalbum.com/1648. He swapped some things out, like the batteries and controller, before selling it to me. In July of 2008, I drove out to Ohio (A 1000 mile round trip) and towed it back home. As you know the price of fuel hit a peak that summer. But I really don't care about fuel prices since I also drive a diesel truck that I convert-

ed in 2005 to run on waste vegetable oil that I get from local restaurants for free. The truck comes in handy for towing the EV.

James Weirick did a very basic conversion and I knew that I would be upgrading things as I went along. Before I put it on the road, I pulled the 21 6-V floodies in order to paint, enclose and insulate the battery racks. Also I replaced the entire brake system except for the steel lines attached to the chassis. I like the old adage that being able to stop is more important than being able to go. The new Del Sol master cylinder that I used has a 13/16 inch bore and I find that it delivers adequate pressure for stopping, even without vacuum assist. While it does require more pedal pressure, it passed the braking test during inspection without issue. As a personal test, I put one foot on top of the other and pressed with both legs on the brake pedal, which locked up the front wheels, so I was satisfied with the rebuilt brake system.

Also, since the clutch was removed, I took the clutch pedal out and bent it so that it can be attached to the brake pedal arm. I am considering that modification in order to have a brake pedal for each foot. I want to research that modification further since I think the brake pedal arm should be reinforced if another pedal is attached.

After that initial work I took on the task of getting it through inspection. That went like this:

- Called the state (Big mistake)
- Shuffled around for over an hour on the phone
- Finally just hung up while on hold for the fifth or sixth time
- Went to local private inspection garage
- They called the state
- State said I needed to have it inspected by their engineer
- Called a special inspection center instead (Winslow, NJ)
- They scheduled an appointment
- Towed it down to them
- They stood around doing more talking than inspecting
- Got the sticker

Then I hit the road for three fun weeks that fall. The car is more than adequate for my 20

mile round trip to work. Unfortunately, the fun only lasted for three weeks before the motor and controller crapped out. I came to find out that the motor's armature was all messed up and it looked like someone took a welder to it. I was told that the armature damage was probably what toasted the controller. I am pretty sure the motor was damaged when I bought it, since I have driven the same way for the past nine months after it was rebuilt, and the armature still looks great. Note to self ... next time, before you buy an electric motor, take a good look at the armature. If you spin it by hand and the brushes are jumping up and down in their guides ... that should be your first clue that the motor has problems.

James liked to talk about the 100 mph top speed that the car has. I have a feeling those kind of speeds may have been what toasted the armature. We hit 75 mph during the test drive in third gear and there were plenty of amps and two more gears available, so I don't doubt it can go 100 mph. But I have no desire to find out. I hit 60 once in a while during my normal commute, but that is more than I usually need.

Electric Vehicles USA in Piedmont, South Carolina (Which I am pretty sure went out of business) rebuilt the Curtis controller and Precision Devices at 20 Lexington Avenue Ewing, NJ, 609-882-2230 rebuilt the motor. Precision Devices in NJ is a satellite shop, their main headquarters is in Wallingford, Connecticut (800-242-2117).

Those repairs took most of the winter to complete. One hold-up was the result of bringing the motor to a local motor shop, where it sat for over a month while the guy tried to find parts. At least that's what he told me anyway. It is an 8 inch ADC, so I finally just called the manufacturer and they referred me to the shop in Ewing. When I dropped it off, the guy asked me if I needed it the next day. I thought he was joking but he was serious. I couldn't make it back for a couple of days but it was ready to go when I got there. Brushes seated and everything. I would highly recommend them for motor work. The controller took over two months to come back but since the company went out of business shortly after that, I'm just glad it came back at all.

Then with most of the other various upgrade parts from Electric Vehicles of America in New Hampshire, I hit the road again in March. The on-board rectifier charger works well but was a pain to monitor and shut off manually. To make the charging easier I installed an automatic Zivan NG-3 charger on the wall in the garage and it has performed flawlessly. I left the on-board rectifier wired up for opportunity charging away from home. I removed the on-board 110 V powered 12 V charger for the auxiliary battery and installed an Iota 45 DC/DC converter, which has also worked well so far. Also, I upgraded the tires to a Sumitomo HTR 200 (51 PSI) which improved the handling dramatically and also lessened the rolling resistance.

Since March I have had the most "rewarding automotive experience" of my life driving the electric car. What fun! And yes, I actually caught myself grinning quite a few times.

Presently, I have the battery pack removed for cleaning and I am going to completely rewire it before I hit the road again. It came with flattened copper tubing bolted to cheap automotive terminals used for the battery interconnect. That set-up worked OK, although, one post did melt away a bit when the connection came loose and got hot. It was an easy fix, but it prompted me to re-do all the connections correctly. The terminals arrived yesterday and the 2/0 welding cable should be here in a few days.

I also have a Zilla controller ordered which I expect in January. The Curtis controller works fine, but primarily I am looking forward to having the improved safety features and better instrumentation available with the Zilla.

The EVDL forum and archives have been a gold mine of practical information and have helped me gain a better understanding of electric vehicles. And although I didn't do the conversion myself, I have had everything out except for some wiring and the battery racks, so I have almost redone the whole thing. That wasn't the original plan, which is why I decided to buy a conversion already done ... but ... ya live and learn.

A VISIT TO GENE LEMIEUX
By Oliver Perry



The Tuesday before Thanksgiving my wife Dottie and I stopped on our way to our daughter’s home near Charlotte, NC, to visit a few minutes with EEVC member Eugene Lemieux. Eugene recently moved from his apartment complex in Middletown, New York, to a newly purchased apartment complex near Martinsville, Virginia. Pictured on his wall is the distinguished EEVC Club



Member of The Year plaque which Eugene was awarded a number of years ago for his contributions to the success of the Olympia (converted Ford Escort) in the Tour de Sol.



Also pictured are Eugene and my wife Dottie Perry standing next to a working “One Armed Bandit” that Eugene picked up in one of his travels. He is presently recovering from cancer of the throat and finds himself greatly limited in energy. Eugene was famous for the large traveling bus which carried a roof-lowered Citi Car in the cargo space. His

last converted bus was in the process of being sold while we were visiting. Eugene told us that his days on the road are over. However, his humor and positive outlook still remain. God bless, Eugene Lemieux.

CLIMATE SCIENCE
“Climategate: Science is Dying”
By Oliver H. Perry



The *Wall Street Journal* posted a challenging and timely article in the Opinion section of Thursday’s, December 3rd, 2009 edition, entitled, “Climategate: Science is Dying.”

The writer, Daniel Henninger, compares today’s scientific and political debate on the truth of the causes of present day climate change to the debacle surrounding Galileo when he dared to challenge the accepted earth-centered view of the solar system of his day. Henninger very well may be making an excellent comparison.

Henninger maintains that the real issue in the global warming (or non-warming) debate may not be as much about the truth behind the cause of global warming as the credibility of science and the scientific community. He points out that the hard sciences of physics, biology, chemistry, electrical engineering etc. came to dominate intellectual life in the last century. The humanities, however, devised the theory of post-modernism, which liberated them from their colleagues in the hard sciences. Henninger suggests that Postmodernism, a self-consciously unprovable theory, replaced formal structures with subjectivity. This has harsh consequences for the credibility of science which up to the present has been one of the few things left in life that has been highly respected by most untrained lay persons.

Putting Science At Risk

Many, beside Henninger, feel that the revelations coming out of East Anglia is an epochal event. The failure of the mainstream media to consider the reported scandal important news and to report the details with regularity supports the conservative camp's claim that a liberal press is not interested in getting at the truth regarding climate change. Politicians who have committed billions of dollars toward solutions to a perceived crisis before both the real cause of that perceived crisis, or the truth of that crisis, have been scientifically verified, do not want information inconvenient to their policies to be reported. But, if it turns out that measurements have been doctored, factual information has been disregarded, scientists who challenged the system have been suppressed, and conclusions have been reached before science proved these conclusions, the respect of the science community in our generation will be greatly weakened. A press reluctant to expose inconsistencies in climate change theory with as much vigor as it has advocated the doom and gloom of the global warming theorists, will also suffer a loss of respect. (And, I might add, so will any of us if we endorse without question the prevailing "so called" scientific consensus.)

A bit of history

For the readers who have not heard the latest news on the climate debate issues, the following information will be helpful. *Wall Street Journal*, December 4th issue, page A16. "Climate Probe Set in the U.K.

"The British university at the heart of a scandal over climate change research announced a wide-ranging probe into allegations that its scientists manipulated data about global warming."

Basically there is a furor over the recent discovery by hackers of thousands of private emails of researchers who have had their findings squelched by those above them who disagree with them. There are now many claiming that these emails prove that there is not as much support for man-made global warming as the proponents for man-made warming have proclaimed. Scientist Dr. Phil Jones is stepping aside as the director of the University of East Anglia's Climatic

Research Unit (CRU) pending the outcome of the investigation. The East Anglia Institute has been the key player building evidence for the United Nation's argument that humans are the cause of global warming.

Respect for science responsible for pre-scient political policy

Daniel Henninger correctly points out that, "Global Warming enlisted the collective reputation of science. Because 'science' said so, the entire world is about to undertake a vast reordering of human behavior at almost unimaginable financial cost. Not every day does the work of scientists lead to galactic events called Kyoto or Copenhagen. At least not since the Manhattan Project."

"The Environmental Protection Agency's dramatic Endangerment Finding in April, that greenhouse gases qualify as an air pollutant, with implications for a vast new regulatory regime, used what the agency called a precautionary approach." The EPA admitted that all of the facts are not in, there is uncertainty, and that there is disagreement among scientists. But Lisa Heinzerling, the new Obama head of administration at EPA, feels that there are consequences of not doing anything, if eventually it is proven that man-made CO₂ does indeed cause global warming and can suddenly tip the balance toward catastrophic warming. Failure to not act now shows a lack of preparedness on her agency's part. Therefore she stated, "Policy formation based on prediction and calculations of expected harm is no longer relevant; the only coherent response to a situation of chaotically worsening outcomes is a precautionary policy. In other words, according to writer Henninger, "'close enough' science is now sufficient to set political agenda in motion."

Results of "Close Enough" Science

The *Burlington County Times* for December 4, 2009 included an article by Associated Press writer Seth Borenstein entitled "Global Warming May Require Higher Dams, Stilts" His opening statement reads, "With the world losing its battle against global warming so far, experts are warning that humans need to follow nature's example: Adapt or die." Borenstein cites nations from England, to the Netherlands, to the U.S. and China, which

have plunged billions of dollars into flood control systems to prevent their costal cities from flooding. Such actions are justified in the minds of taxpayers if our scientists are predicting rise in sea levels because of global warming. But, is everyone aware that many scientists question how soon these predictions will come true, if at all?

What if twenty years from now we find little rise in the sea levels and a reversal of melting of the polar cap ice? What if some of the data and equations upholding forecasted climate change models are not as accurate as their proponents suggested? What if research discovers that the predictions in newspapers and popular magazines were mostly based upon the theories and imaginations of a few scientists and story writers and not the whole science community?

Global temperatures, according to some researchers, have not climbed significantly in the last decade. We are playing a dangerous game by “hyping” the theories and findings of the politically favored scientists who are receiving grants and money to do global warming research, while discrediting fellow scientists who have been challenging the system. In science all honest research should be respected and allowed a hearing. Facts and repeatable experiments should rule the court, not the pressures brought about by either side of the debate. Let scientific procedures provide the proof, not the collective thinking of groups of people, who may or may not be fully qualified to have an opinion...

Galileo challenged the system in his time period. He was eventually put under house arrest by the political officials of his day. Eventually truth won out, but not without an embarrassment for the political system that tried to shut him up.

Conclusion: Feynman on scientific integrity

The following was taken from *The Wall Street Journal*, December 3, 2009, Letters to the Editor. Peter Pearson, Aptos, CA:

“In contemplating the purloined University of East Anglia emails. (The Web Discloses Inconvenient Climate Truths, Information Age, Nov 30) an illuminating and contrasting backdrop is the description of scientific conduct given in 1974 by that scientist’s scientist,

Nobel laureate physicist, Richard P. Feynman: ‘There is one feature I notice that is generally missing in cargo cult science...It’s a kind of scientific integrity, a principle of scientific thought that corresponds to a kind of utter honesty — a kind of leaning over backwards. For example, if you’re doing an experiment, you should report everything that you think might make it invalid — not only what you think is right about it; other causes that could possibly explain your results; and things you thought you eliminated by some other experiment and how they worked... Details that could throw doubt on your interpretation must be given, if you know them. .. If you make a theory then you must also put down all the facts that disagree with it, as well as those that agree with it.’”

Amen, Richard Feynman!

I believe all of us agree that moving toward a carbon-free energy economy is good for the health of our planet in more ways than one. Electric vehicles currently are better for the environment and our good health than vehicles propelled by fossil fuel. However, just as correlations between smoking and cancer, although helpful, did not necessarily provide a complete understanding of all of the science at work in a very complicated biological and chemical system, neither do the present day measurements of various variables in our atmosphere, on our land masses, and in our oceans fully explain the complex climate relationships. Just as it was not fair to suppress any study that shed light on the tobacco vs. cancer debate, even if it violated the views of the American Cancer Society or the tobacco industry, neither is it wise in our present climate debate to suppress studies that support either side of the global warming issue. The same applies to the electric vehicle vs. the fossil fueled vehicle controversy.

Einstein loved the United States because it was a nation that allowed freedom of expression, not government or corporate repression of scientific inquiry. He was severely criticized for speaking out against those in our government who were limiting freedom of individual expression in the interest of national security. Even if the majority of our taxpayers feel that we must initiate carbon

curbs immediately to protect our future climate, those scientists who question the threat should be allowed to communicate their reasons why they disagree.

The problem of providing equal opportunity to both sides in contested theoretical debates presents itself when we have limited funds. Nobody wants to waste resources funding experiments that have little chance of success or providing useful information. How much money should we spend on speculative theories and costly experiments regarding the beginning of the universe? And at this stage in history why should we support an experiment that tries to disprove that the earth is round? But repressing individuals, deleting emails that might be seen as unfavorable to established views, forbidding researchers to publish their findings if they clash with prevailing views, or not allowing ideas to be expressed that conflict with political positions, in my mind, is not supportive to true science. Those who choke the opinions of scientists with opposing views and debunk their theories have no place in science. In the sports arena the winner is decided on the playing field. In science the winner should be determined in the laboratory.

Just in...latest development in the company that has promised us the electric car of the future.

Saturday, December 5th, 2009, *Wall Street Journal*, section B, Money & Investing, headline: "GM Shakes Up Management." "Robert Lutz, 77 years old has canceled his retirement plans to run marketing at GM. He will return somewhat to his old role serving as an advisor on design and product development."

"GM chairman Edward Whitacre Jr. has taken over as an interim CEO. (in place of Fredrick Henderson) Mr. Whitacre. a former chief executive of AT&T, drew up a new management organization in about four hours. The shakeup reveals an effort to dramatically change the culture at GM. The 68-year old Texan has been pushing managers to keep their focus on how to sell more cars and trucks, and to stop putting time into following the old bureaucratic channels."

"Steve Cook, who owns Cook Chevrolet Buick Inc. in Vassar Mich., said he likes the

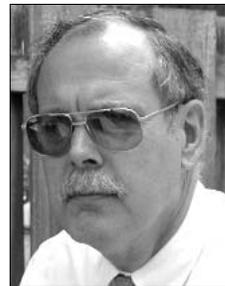
idea of putting the emphasis on selling cars now."

"For the past few years, GM has spent millions of dollars marketing the battery powered Chevrolet Volt, which won't arrive until late next year and will be available only in small quantities."

"We're tired of talking about Volts in 2011," Mr. Cook said, "We want to sell Malibus, Impalas, and pick up trucks in December."

(Robert Lutz, a former vice president of GM stated in New York City to a group of EV enthusiasts a year or so ago that he wanted to kick the butt of Toyota by quickly bringing the Chevy Volt to market and changing the future of cars forever. We covered this story in our April 2008 EEVC newsletter. One of the quotes of Lutz provided in the article was, "Making the decision to bring a car like the Volt to market is the highlight of my career! This car will go down in history as a real game changer!" About a year later Lutz left the Volt program as GM began to be re-organized. Under chief executive Fredrick Henderson Lutz was placed in charge of marketing. Now the new chief of GM, Edward E. Whitacre, has made Lutz one of his key advisors on vehicle design and development.)

WILL TESLA SAVE L.A.? By California Pete



Tesla Motors, after perhaps a little more indecision than necessary, seems to have settled on a site to manufacture the Model S sedan: an ex-NASA plant in the Los Angeles suburb of Downey, although, according to the *San Francisco Chronicle*, "Tesla spokesman Ricardo Reyes would not confirm whether it has chosen Downey." The city council has gotten behind the idea, acting swiftly "to approve an agreement with the owner of the Downey Studios lot to broker a lease deal with Tesla Motors." The town hopes that Tesla will bring in jobs for up to 1500 people and contribute \$21 million in city revenues over 15 years.

Get a charge in SF

San Francisco mayor Gavin Newsom seems to have returned to duty after an extended semi-absence that probably had something to do with his decision, announced a while back, to drop out of the governor's race. The hair-gelled one has announced that the city "will streamline the permitting process required to get a charging station installed at a private home so that permits are issued same-day, over the counter," according to the *Chronicle*. Who knew that a permit was required to charge your car, for goodness' sake? Is it the local politicians' innate desire to control every aspect of life, or just an other way for the cash-strapped city to get some more dollars out of its citizens?

Anyway, this is part of a plan in which SF, Oakland and San Jose are trying to get 150,000 charging stations installed. This seems to have attracted the attention of Nissan, which has announced that it will be selling its new Leaf EV in the Bay Area, starting in 2010.

On top of that, General Motors has announced that the first sales of the Chevy Volt will be in California, and that the company will be cooperating with local utilities to install 500 charging stations around the state and distribute 100 Volts to fleet users.

Step right up

By the way, EEVC members who want to buy a Tesla can get one at their nearby dealer — if you count Washington, DC or New York City as nearby.

NEWS UPDATE

Hybrid NY garbage trucks

The New York Times for December 6 reported that a fleet of experimental hybrid refuse truck is taking to the streets of New York. Using a 120-kW electric motor, a six-cylinder diesel engine and a 500-lb li-ion battery, the truck, built by Mack, have not yet completed testing, so performance figures are unavailable. Aside from the parallel-hybrid Macks the program also is evaluating a series hybrid design from Crane Carrier and a pair of hydraulic hybrids from the same company.

And hybrid buses in Philly

Septa has recently begun running 252 diesel-electric hybrid buses on area roads. The new buses get up to 29 percent better fuel efficiency than conventional buses says SEPTA, and include 40 hybrids being purchased with \$17.8 million in federal grants under the American Recovery and Reinvestment Act (ARRA) of 2009. The hybrid fleet is expected to reach more than 400 vehicles, and by the end of 2011 approximately one of every three SEPTA buses in service is expected to be a hybrid.

Navistar to build electric trucks

Elsewhere on the commercial vehicle front, *TransportTopics Online* reported on December 2 that an affiliate of Navistar International "will create a joint venture with U.K.-based Modec Ltd. to build Class 2 and 3 all-electric commercial trucks in the United States for sale to North, Central and South American markets." The swoopy-looking and aerodynamic trucks will be built in Elkhart County, IN. Payloads are in excess of two tons, and range is projected at 100 miles in stop-and-go urban service. The company plans to produce 400 trucks in 2010, aided by a \$39.2 million DoE grant.

The power of paper

A researchers at Stanford University has developed a way to create flexible batteries simply by coating ordinary paper with a special ink. The ink, made of carbon nanotubes and silver nanowires, transforms the paper into a highly-conductive, lightweight electrode for a battery or supercapacitor. Such a supercapacitor, says researcher Yi Cui, could be folder, rolled up, or even painted on a wall.

Solar plane gets off the ground — a little



On December the Solar Impulse HB-SIA solar-powered airplane got off the ground for the first time, if only by a little bit. Powered for testing purposes by its internal batteries, the plane made a "flea hop," travelling 150 meters at an altitude of 1 meter, following earlier taxi and braking tests.

The plane will now be dismantled and transported to the airfield at Payerne, Switzer-

land, to begin actual flight tests in early 2010.

Electric power from salt?

A November 24 AP story reports that researchers in Norway have shown what they call “the world’s first salt power generator, a system which harnesses the energy produced when fresh water and sea water mix.” Norwegian energy company Statkraft hopes to build “a commercial osmotic power plant within a few years,” and “estimates that globally, salt power could produce 1600-1700 terawatt hours, equivalent to half of the European Union’s total annual power production.”

New pro-EV coalition formed

A November 16 story by AP writer Ken Thomas reports that executives from Nissan, Fedex, PG&E, A123 Systems, Johnson-Control-Saft and more than seven more companies have formed the Electrification Coalition “to urge the federal government to make a major investment in electric transportation, pointing to electric cars as the best way to confront the nation’s dependence on imported oil.” The group has asked Congress to “to pass a series of tax credits and loan guarantees to bring 14 million electric cars to the road by 2020 and more than 100 million by 2030. The group envisions a network of electric vehicles in six to eight cities in the short term and an expansion across the country, making 75 percent of all vehicle miles traveled powered by electricity by 2040.”

Chinese company plans solar panel plant in Phoenix

A November 16 AP story reports that Chinese-owned Suntech Power Holdings plans to build a 100,000-square-foot headquarters and manufacturing plant in the Phoenix area. The facility is expected to start building solar panels by the third quarter of 2010 and will eventually employ 250 or more people.

“Suntech will potentially be the first company eligible under the state’s Renewable Energy Tax Incentive program that provides refundable tax credits and property tax reductions for manufacturers.”

COMING EVENTS

SAE 2010 Government/Industry Meeting
Jan 26-29, Washington, DC. For info go to

www.sae.org/govind.

2010 SAE Hybrid Vehicle Technologies Symposium

Feb 10-11, San Diego, CA. www.sae.org/events/training/symposia/hybrid.

Renewable Energy World Conference & Expo North America, with Photovoltaics World Conference 2010

Feb 23-25, Austin, TX. Go to www.renewableenergyworld-events.com/index.html

CALSTART-NTEA Green Truck Summit

March 9-10, St Louis, Mo. www.calstart.org/events/calstart-events/09-08-01/CALSTART-NTEA_Green_Truck_Summit_2010.aspx?Events=EventItem.

CALSTART-NTEA Green Truck Summit (formerly Clean Heavy Duty Vehicle Conference)

March 9-12, St. Louis, MO. Go to www.calstart.org/Events/CALSTART-Events/Clean-Heavy-Duty-Vehicle-Conference-Now-Green-Truc.aspx

SAE 2010 World Congress

April 13-15, 2010, Detroit, MI. Go to www.sae.org/congress/

NHA Hydrogen Conference & Expo

May 3-6, Long Beach, CA. Go to www.hydrogenconference.org.

International Conference Chassis Electrification

April 21-23, Wiesbaden, Germany. Go to <http://www.chassis-electrification.com/Event.aspx?id=254670>

Alternative Fuels & Vehicles National Conference + Expo 2010

May 9-12, 2Las Vegas. Go to www.afv2010.com/

Energy Efficiency Global Forum & Exposition (EE Global)

May 10-12, Washington DC, www.calstart.org/events/calstart-events/09-07-29/Energy_Efficiency_Global_Forum_Exposition.aspx?Events=EventItem.

The Time Trial eXtreme Grand Prix electric motorcycle race

May 14-16, Sonoma, CA. Go to www.infi-neonraceway.com

SOLAR 2010

May 17-22, Phoenix. Go to http://ases.org/index.php?option=com_content&view=article&id=18&Itemid=147

Advanced Automotive Battery Conference

May 19-21, Orlando, FL. Go to www.

advancedautobat.com/AABC/index.html

10th Challenge Bibendum

May 30- 2 June 2, Rio de Janeiro. Go to www.challengebibendum.com/challenge-Bib/AfficheServlet?Rubrique=20070807132926&Langue=EN

Transports Publics 2010,

June 8-10, Paris. Go to www.transport-publics-expo.com/en/2010/accueil/index.php

Formula Sun Grand Prix

June 16-18, Cresson, TX. Go to <http://americansolarchallenge.org/events/asc2010/formula-sun-grand-prix-2010-2/>

American Solar Challenge

June 19-27, Tulsa, OK to Chicago. Go to <http://americansolarchallenge.org/events/asc2010/american-solar-challenge/>

Southern Electric Vehicle Expo

Oct 29-31, Asheville, NC. Go to http://sev-expo.com/e107_plugins/calendar_menu/event.php?1288378800.event.1

EVS25

November 5-9, Shenzhen, China. Go to www.evs25.org/event/2009ddc-en/index.html

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.

January 13

February 10

March 10

April 14

***** FOR SALE *****



Electric welding cable sizes from 1/0 to 4/0 in various lengths up to 90 feet. Excellent for wiring electric vehicles, very flexible. \$1.00/foot. Also various other electric vehicle components and electric bicycles. 1975 Citi-Car, body was vandalized only driven 1,000 miles, would make a neat dune buggy. \$300

Lester Electrical 12/96 volt Battery Charger, 208/230 volt input, 96 volt 30 amp output, used by Jet Industries in converted trucks. \$50.00

Contact Edward F. Kreibick, 215-396-8341, ekreibick@verizon.net

***** FOR SALE*****

I have 14 Saft NiMH batteries for sale. They are in good condition and would work well for a conversion EV and achieve a much better range than lead acid. 105 Amp hrs and weigh about 40 lbs. I am asking \$350/ battery.

For further info contact Bruce Meland, norsky666@yahoo.com, 541-350-6787.

***** FOR SALE*****

2001 Ford Ranger (detailed photos available), electric build completed in 2006, beautiful, detailed custom job. 120 VDC system, 60-mile range @45-50 mph, 85 mph top speed, insulated/heated battery boxes, 20 deep cycle 6-V batteries, new 4-year 19,000-mile battery pack will be installed 11/09, onboard 120 VAC charger plugs in anywhere, full charge overnight, cab heat and defrost for comfortable winter driving, power brakes and steering, tow package for light loads. Ideal commuter vehicle for any urban dweller, only 4 cents per mile to run. Only maintenance required is a motor brush replacement at 80,000 miles. Runs beautifully, clean, quiet. Valued at \$30,000. Located South Central Oregon. Call Max at 541-943-3353, message or fax to 541-943-3354.