EEVC NEWSLETTER

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INDEPENDENCE FROM GLOBAL POLICIES & POLITICS: UNLIKELY

Oliver Perry

Members of the EEVC are interested in bringing more electric and hybrid vehicles (as well as other alternative fuel vehicles) to our nation's highways. Engineering type members love the electrical and mechanical side of transportation. Non-engineering EEVC members are interested in promoting the greenness aspect. Most EV enthusiasts are energy conservationists, anxious to see our nation become more independent from foreign oil. Since cars make a great environmental impact, as well as consume energy, many of us are both environmentalists and energy conservationists. We have an equal concern for ridding planet Earth of harmful pollutants as well as in constructing green buildings and increasing energy conservation throughout every sector of our economy. From cars to light bulbs we find an interrelationship that unites many differing technologies. Most EEVC members, in one way or another, are energy conscious individuals with avid interest in world wide energy policies. Our meeting discussions frequently involve green building projects as well as EV projects. They are both related to energy politics and policy which have been front page news these last few months.

Electric Car Manufacturing Faces Global & Political Forces

Everyone seems to be asking how soon will we have economical electric cars available for purchase. There seems to be a lot of feverish activity to produce them. Right now almost every major car company wants the public to believe that they have an electric car program in action so that the increasing number of independent startup EV companies will not outshine them. This past summer when we visited Kentucky one of the local newspapers featured the news that Zap, a California electric car company, was coming to Franklin, Kentucky to break ground that week on a plant which would eventually bring 4000 jobs to the state. They were beginning a$176 million dollar project on 200 acres.

As exciting as such news is we must temper our excitement with the reality that electric vehicle companies must compete in the same "Big Top" as the major car corporations of the world and co-exist with them. The carbon cap programs are currently bringing all sorts of odd fellows together in the same circus tent, which finds politicians grinning from ear to ear as they collect tolls from their well positioned ticket booths. All car producers (and some energy providers) in that tent have to deal with governmental regulations and deal with similar economic forces in the market place. It might be feasible to create a petroleum free vehicle but it is not feasible to become totally independent from governmen-

tal regulations and economic restraints that the corporate car companies and energy providers of the world face. What we do in the EV world affects major car companies, and what they do (or do not do) affects us. We have to co-exist. That is why some electric vehicle enthusiasts have shifted gears to becoming more involved in governmental policy making. Availability of affordable EVs for the masses to own and drive now, will have to be politically sponsored because they are still too expensive for the average guy to own. The economic investments needed to mass produce affordable batteries are politically dependent, as is our whole economy. Only if some hither-to-be known discovery in battery technology suddenly pops up, can a "Model T" of electric vehicles succeed in a totally free marketplace. Government mandates or subsidies are needed to jump start mass production of electric vehicles. We have not yet made them price competitive with gasoline powered vehicles.

Change arrives in Washington?

Most environmental people are excited about the coming political change. But speaking of change, hold the fort! The huge shoe that thundered to the floor and dramatically altered the final days of the campaign, the financial crisis, now consumes our media headlines. According to the experts the crisis is not going away soon. Many suggest that because of the bailout efforts to resolve the financial mess we are in that we cannot afford to fund the change the newly elected administration wants to bring.

Detroit, Detroit, Detroit … and More Detroit!

The son of an immigrant, a Mr. Anuzis, recently wrote an editorial in the *Wall Street Journal*. He personally found the American Dream in an auto factory in Detroit. He claims that the dream is still alive for others, IF CERTAIN STEPS ARE TAKEN. "It (the American Dream) lives in every city and in every suburb. And it lives in every coal miner, accountant, school teacher, young professional, and auto worker."

What steps should be taken to keep this dream alive and help Michigan avoid the loss that three million auto related jobs throughout the Midwest might create if the Big Three disappear? A bailout of some type supported by the Obama administration seems to be in the offering.

Mr. Anuzis states, "Getting down to the nub of it, the purposed auto-maker bailout is an opportunity for leadership. Along with cash infusion, to really affect a turnaround, Congress must also provide RELIEF FROM CORPORATE AVERAGE FUEL ECONOMY (CAFÉ) STANDARDS. REGULATORY REFORM SHOULD BE A NO BRAINER FOR AN INDUSTRY IN CRISIS. In other words the CAFÉ regulations are too expensive to implement and they prevent more profitable sales. I predict that the Obama led administration will enable these standards to be rolled back.

For those of you who have not kept up with the details of this debate, the rational behind rolling back CAFÉ standards is that car companies cannot make much money selling smaller low fuel consumption cars. Their profits come from the larger SUV and truck business. I am guessing the scenario is somewhat like the house building business in which more profit comes from building larger homes than smaller ones. Even Toyota was sucked into the bigger truck and SUV business for profit reasons.

"Toyota Shifts Plans for U.S.Production"

The *Wall Street Journal*, July 11, 2008, page B1: "Toyota Motor Corp, is starting to show a milder form of the symptoms plaguing Detroit's Big Three: excess manufacturing capacity, fleets of unsold trucks, and a surplus of American workers. Toyota's revamp comes in response to American consumers' abrupt shift away from trucks to cars and other more fuel efficient vehicles. And it exposes a rare stumble by one of the world's most profitable auto makers."

"Earlier this decade, in a bid to boost its U.S. profit shares, Toyota launched a big push into full-size pickup trucks and sports utility vehicles, Detroit's remaining cash cows."

The whole auto industry in the U.S. feels that it cannot immediately, right now, make profits if the CAFÉ standards are strictly enforced because their facilities are not in place to produce large numbers of small cars.

Quoting the *WSJ*, "The changes

announced Thursday in its manufacturing plans show even Toyota is no longer immune to market forces. Toyota has an advantage in that it already has a range of small cars in the U.S. market and simply needs to adjust its manufacturing capabilities. GM, Ford, and Chrysler offer fewer small cars and either need to develop new models or re-engineer for the American market models they make outside the U.S.

When you realize the high costs involved in producing manufacturing facilities for trucks and SUVs you can understand that it is not financially prudent to close them down and build expensive facilities to produce more CAFÉ standard cars. The car companies are in a financial predicament which many say is because of their own failures, not the government's.

There is yet another fly in the ointment for us to consider. Some environmentalists argue that forcing the car companies to switch over to producing more fuel efficient cars, and green cars, if they accept the bailout, has encouraged politicians to set unrealistic goals for safeguarding the environment. If the economy stalls and large groups of workers find themselves on the street, it may be difficult to convince our political leaders not to roll back their regulations to keep business rolling. So being too severe could produce a worse reaction.

However, it has been the high cost of gasoline and a sudden change in consumer demand that has derailed the auto companies, not the government regulations, in this latest crisis.

One can only wonder what is going to happen now that gasoline prices have plunged. And, I am not saying that there are conspirators out there manipulating the price of oil. It is interesting, however, what is happening. Forecasting what will happen next is of even greater interest.

So once again it comes down to money

Another WSJ writer recently asked the question, "Why are the American car companies making a profit in foreign countries but not able to here?" He singled out the CAFÉ standards as one reason and the high cost of the United Auto Workers as the other.

Both parties, Democrat and Republican tried to appease the UAW with plans to keep their members employed. Obama's plan, is to politically sponsor an industry that builds electric and hybrid cars in sufficient number to keep the auto workers employed (In his energy speech, presented in his campaign, Obama suggested spending $150 Billion over ten years to create over 5 million new "green energy jobs." Wall Street Journal 6/19/08 page A13). Just who gets the business was never made clear. I assume the existing corporations and the unions who supported Obama will be the recipients.

Everyone realizes that in our rapid changing global marketplace without government intervention slowness to meet the market needs ends the existence of turtles. In order to survive in a free marketplace, car companies will have to meet today's market needs. Each company will have to find a way to make profits on the turtles they are presently tooled up to make (and which must be phased out) while they build manufacturing facilities for newer cars? The longer it takes to retrofit, the more difficult it is to make profits. It appears as if the Big Three company officials feel that you and I, and Joe the Plumber, must help them make the transition through higher taxes? Obama and Congress seems to sort of agree. But the EV world could argue that if we are going to be taxed to upgrade the Big Three, then why not give the bailout money to the new start up companies instead of the old car companies?

And, there are economists who feel that a government bailout that subsidizes the auto industry in order to RETOOL to build electric and plug electric cars, must at the same time PROVIDE THE ELECTRICAL GRID AND INFRASTRUCTURE to support these vehicles. That adds to the cost of the bailout.

To survive the American car companies should be able to produce large numbers of vehicles AT A PROFIT, not at a loss, without government help. But the Big Three claimed that could not become profitable without government help? Many ask if we let the car companies fail is it realistic to hope that in some magic way the loss of jobs from all of the workers and related service companies will not harm our economy beyond recovery? The liberal and hopeful environmental reply is that new green industry will create enough

new jobs to more than make up for the loss of the old ones.

Newer high tech cars, which will be more expensive in the near term, must have a market. Doubters ask "Will there really be a viable market for millions of electric and high tech hybrid cars after the companies destroy the old factories and spend billions to convert to new ones?"

How many higher priced electric cars can the marketplace take?

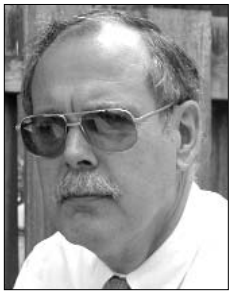
Sales of new high tech cars will depend upon the strength of the economy and how much spending power middle class Americans have. Common men may not be able to afford to purchase more expensive cars in a depressed economy with low pay, fewer jobs, and the higher taxes needed for the massive bail outs. The government may be saddled with even more debt for the cost of modernizing the electrical infrastructure needed for public electrical charging stations. Highly taxed consumers may not be able to keep the expensive high tech car companies in business.

We cannot have technical solutions for producing electric cars without having a business plan that can operate in a "here and now" economy. The economic effect on the whole economy must be considered when advocating change in the auto industry.

We Must Address the Big Picture: Is California a good example?

Californians may feel good about their strict cutting edge green regulations but somebody has to build their power plants and whatever else is needed to fuel their economy today. Somebody has to manufacture cars, airplanes, chemicals and resins, paints and plastic today with the energy sources available. Without a strong manufacturing base and a healthy economy, consumers cannot afford to purchase the more expensive environmentally green machines. It is a circular economy and I am not sure anyone has found a way to spiral outward and upward. Right now we are being told that we are spiraling inward and imploding.

IS THE LEFT COAST A HOAX?
By California Pete



Club president Oliver Perry sent me the following and asked for comment:

California's Energy Colonialism
By Max Schultz

Wall Street Journal, May 3, 2008, critiqued by East Coast Ollie and California Pete

"When you look at the globe, California is a little spot on that globe," Gov Arnold Schwarzenegger said recently at Yale University's Climate Change Conference. "But when it comes to our power of influence, it is the equivalent of a whole continent." (California supposedly has the eighth largest dynamic economy on the planet, with a gross state product of more than $1.6 trillion.) "Not only can we lead California into the future; we can show the nation and the world how to get there."

According to Max Schulz there is a dirty little secret behind California's green image and Schwarzenegger's boast to lead the way to a prosperous clean life. Decades of environmental policies have left California heavily dependent upon neighboring states for power. California mandated aggressive conservation programs and required a certain percentage of the state's electricity to come from renewable sources like wind and solar and to place limits on nuclear power plants. There have been some interesting consequences to these policies. The Rancho Seco nuclear power plant that once could generate 900 megawatts of electricity was shut down and converted to solar power and today produces only 4 megawatts. California now imports lots of energy to make up for having too few power plants. The state now has some of the highest energy prices in the nation, twice the national average. As a result heavy manufacturing and other energy intensive industries have been fleeing the Golden State in droves.

"What thinkest thou of that," California Pete? asks Ollie.

A longer version of Schulz's piece

appeared in the Spring 2008 issue of *City Journal*, www.city-journal.org/2008/18_2_californias_environmentalism.html, which is published by the Manhattan Institute, a conservative think tank of which Schulz is a senior fellow.

As for how well California is doing with alternate energy, on November 25 the *San Francisco Chronicle* reported that "Californians have more than 60 percent of the nation's solar installations, and more than 66 percent of the state's solar applications are in Northern California, according to a report released Monday by the Northern California Solar Energy Association, a nonprofit advocacy group."

There's obviously a long way to go, however: the same *Chronicle* story says that at present, "Solar power accounts for less than 1 percent of California's energy resources."

According to the California Public Utility Commission's CSI Staff Progress Report, in the first nine months of 2008 the CSI (california Solar Initiative) program installed 93 MW of grid-tied distributed PV capacity in the service territories of the state's three investor-owned utilities (IOUs) — far exceeding last year's total statewide installed capacity of 81 MW. Including the 18 MW initiated under a previous incentive program and completed this year, California has installed 111 MW of new solar PV capacity in the IOU territories so far in 2008, an increase of 37 percent over last year's statewide total.

From the program's inception on January 1, 2007, through September 24, 2008, the CSI program installed a total of 121 MW of distributed rooftop solar PV in California, driving growth in the California solar industry at a rate of 40 percent per year.

But that's just the CPI. Southern California Edison (SCE) is working towards a 20% renewable goal; towards that end it has a contract with Australia-based Alta Windpower Development LLC for 1500 MW of new wind power generation capacity from new projects to be located in the Tehachapi area, and should result in 50 square miles of wind parks, triple the area of any existing U.S. wind farm. SCE has also signed a contract to purchase 15 MW of biomass energy from a biomass facility in the Mesquite Lake area of Imperial County.

In August SCE signed a 20-year contract for up to 909 MW of wind power that will involve the installation of 303 wind turbines across 30 square miles in North-Central Oregon between 2011 and 2012. The facility is expected to generate 2 billion kilowatt-hours per year of renewable energy, which is more than one-tenth of SCE's overall renewable portfolio. SCE began purchasing renewable energy in the 1980s and now buys more than 90 percent of all U.S. solar generation. The company's 2700 MW renewable portfolio includes 354 MW of solar power from long-standing contracts with the Solar Energy Generation Station (SEGS) concentrating solar thermal (CST) plants. The 354 MW SEGS is one of two commercial parabolic troughs in the U.S. (Nevada Solar One being the other.) SEGS was built in the Mojave Desert, and as of August was the largest solar power plant in the world.

Also on the renewable energy front, the *Chronicle* reports that BioEnergy Solutions of Bakersfield has reported "that it will build a pipeline network to collect methane generated by cow manure at three Kern County dairies. The methane will be purified and delivered to a nearby Pacific Gas and Electric Co. pipeline so it can be used to heat homes or run power plants."

Oh, and about Rancho Seco: those PVs installed in 1984 generate only 3.2 MW, but they're not the danger that dog of a nuke plant was. And in addition, facility owner Sacramento Municipal Utility District (with the unfortunate acronym SMUD) has eight new wind turbines that generate 24 MW and are the tallest installed turbines operating commercially in North America.

So despite the naysayers, California is walking the walk as far as renewable energy is concerned. In fact, the major constraint on energy at this point is the grid, which needs expansion. Now if the idiots in Sacramento

could pass a budget before the state shuts down completely...

Building an EV infrastructure

One of the more ambitious plans for spreading use of EVs comes from Palo Alto-based Project Better Place. According to the *Chronicle* the company plans to invest $1 billion in a network of electric-vehicle charging stations that will cover the Bay Area by 2012. "In exchange for the investment from Better Place, the mayors of San Francisco, San Jose and Oakland announced plans ... to collectively create cohesive regulations for electric vehicles that will apply to cities and counties throughout the region."

"Better Place has built similar networks in Israel, Denmark and Australia, but the Bay Area infrastructure, which will allow drivers of electric vehicles to make long-distance trips without worrying about finding a place to charge or change a battery, will be the first of its kind in the United States."

EV Inaugural EVents

Jerry Asher of EVADC reports that the group is organizing an event in Washington, DC to coincide with the inauguration:

Currently being organized by the ad hoc EV Inaugural EVents Committee, a national gathering of EV advocates from all around North America and perhaps, Germany, too! It's to start on Monday afternoon, January 19, 2009, and extending through Tuesday evening, January 20, 2009. Hopefully, we'll all be cheering on any Plug-ins, be it PHEVs or EVs in the Inaugural Parade!

This EVfort is a definite work in progress:

WHERE: A suburban-DC gathering spot to be decided on Monday afternoon, January 19, but expecting it to be Takoma Village Cohousing at 6825 4th St, NW, Washington, DC. And Downtown DC with the millions on Tuesday, January 20.

UPDATES COMING: A second more detailed announcement will be sent out to EAA Chapters by mid December, and hopefully a third final one by the first week of the New Year.

ENVISIONED: Contemplated Kick-off EV Social Mixer, 3:00 P.M. on Monday, January 19, prior to a presumable EVADC Holiday Party Lasagna Feast at Takoma Village Cohousing,

WAYS & MEANS: EVADC members are organizing now and will endeavor to host incoming out-of-town sister EAA members by putting them up in EVADC member homes or other accommodations at nearby churches or elsewhere.

SPECIAL NOTE to EAA Member Attendees: Notify your Senators and Congresspersons (a) that you are coming and (b) of the purpose of this EVADC Inaugural Invitational gathering; and (c) request tickets for the Inauguration (it's worth a try, even though chances for tickets are already slim!).

DETAILS TO FOLLOW as more specific plans are made, such as permits granting permission to be in the Inaugural Parade.

IN THE MEANTIME, please alert your EAA Members. We need to start tallying if you're coming alone or sending a Chapter delegation.

Costs should be relatively low; even so, your financial support of this once-in-a- lifetime EVentful opportunity will be appreciated. The greatest anticipated expense is likely transportation, since some would be flying into airports around the vicinity such as Philadelphia, Richmond, Norfolk, Dover, Raleigh, etc., and carpooling to come to DC, perhaps renting RVs and coming in that way.

IF YOU HAVE family, friends, and associates in the Greater DC area, please alert them and then us about providing support to this Inaugural Invitational; they can easily be incorporated into the EAA Family!

Last but not Least: Do Email us: EVisionA2Z@usa.net with your point of contact (POC) information, suggestions, and whatever ideas of support you might have to offer! Or call EVJerry (202) 486-5450

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ZAP DELIVERS NEW 4-WHEEL ELECTRIC TRUCK

On November 25 ZAP (Santa Rosa, CA) delivered the first production model of its

four-wheel Truck XL, a low-speed (25 mph) vehicle with 800 lb payload for industrial and utility fleet purposes, to Ghilotti Construction in Santa Rosa. The vehicle claims a range of thirty miles on a charge, and a full recharge time of about six hours and an 80 percent charge in four hours. MSRP on the truck is $14,950.

NEWS UPDATE

Remember silver-zinc

Years ago there were experiments to develop silver-zinc batteries for EVs, but they didn't get very far. Now ZPower (Camarillo, CA) has announced the development of Ag-Zn batteries for laptop computers that it claims provide 40 percent more runtime than lithium ion.

Long-time club members will recall that the major problem with zinc batteries is that dendrites regular tree-like structures tend to form on the zinc anode during recharge, shorting the cell. The club's resident scientist Mike Manning worked on solving the dendrite problem years ago, using vibrating electrodes, if memory serves.

The ZPower battery, the company says, uses a silver cathode with nano particles, a separator stack with multiple layers, and a zinc cathode with a polymer electrode. The polymer electrode is supposed to inhibit shape change and dendrite growth in the zinc anode, while the separator with multiple layers is designed to block dendrites from shorting the cell while allowing free passage of ions from cathode to anode. The nanoparticles plating the silver cathode enhance conductivity and reduce internal resistance.

Nano coating improves PV efficiency

Also on the nano front, Scientists from the Future Chips Constellation at the Rensselaer Polytechnic Institute in New York have developed a new anti-reflective coating that boosts the efficiency of solar panels and allows sunlight to be absorbed from almost any angle.

An untreated silicon solar cell only absorbs 67.4 percent of incident light; the new coating boosts that to 96.21 percent across the entire spectrum of sunlight, from UV to visible light and infrared.

Solar car completes round-the-world trip

A december 4 AP story by Vanessa Gera reported that Swiss adventurer Louis Palmer had completed a 32,000 mile (52,000 km) trip around the world in a two-seater solar car of his own design. The car has a top speed of to 55 mph (90 kph) and a range of 185 miles (300 km) on a charge.

Power comes from a six square meter solar array mounted on a trailer towed behind, according to *Gizmag*. The solar cells provide 700 W, enough to move the vehicle at 12 mph (20 kph) without the use of the battery.

Average speed for the 17-month journey was 40 mph (65 kph).

GE ships 10,000th wind turbine

On November 17 GE Energy announced the shipment of its 10,000th 1.5-MW wind turbine. Over the past decade, these machines have been installed in 19 countries and have accumulated more than 130 million operating hours, producing more than 78,000 gigawatt-hours of electricity.

The 10,000th unit was shipped to FPL Energy, the largest U.S. generator of wind power, for the Ashtabula Wind Energy Center located in North Dakota.

Sometimes an ill wind...

On November 12 CNNMoney.com reported that T. Boone Pickens announced that, due to the drop in natural gas prices and the tightening credit market have put his energy plan on hold. Pickens remained confident, however, that gas prices and the credit market will return to normal, allowing the Pickens Plan to move ahead.

Pickens was recently interviewed for a news show and gave a good explanation and defense of his plan; the basic idea, for those unfamiliar with it, is that at the moment 22 percent of U.S. electric power is generated from natural gas. If enough wind turbines are deployed (at a cost of $1 trillion for the turbines and $200 billion to improve the grid) this would free up the gas for use as a transportation fuel. At first it would power both

cars and trucks, but as EVs become more available gas would be used to fuel tractor trailers, essentially eliminating petroleum from road transport.

Lots of gas

Huge amounts of natural gas are available in the Marcellus and other shale formations in U.S., although it is only recently that practical ways to recover them have been developed. The Marcellus formation in Pennsylvania alone could yield 50 trillion cubic feet, and the Barnett formation in Texas and the Fayetteville formation in Arkoma Basin also have great potential.

COMING EVENTS

Target 2030: Solutions to Secure California Transportation Energy and Climate Future
Jan. 14-15, Sacramento, CA. For info go to www.calstart.org/programs/2030_index.php
EV Inaugural EVIEVents
January 19-20, Washington DC. RSVP with suggestions to EVisionA2Z@usa.net.
2009 Hybrid Vehicle Technologies Symposium
February 11-12, San Diego. Go to www.sae.org/events/training/symposia/hybrid
Battery Beach Burnout
Feb 21-22, Jupiter, FL. Go to www.batterybeach.com
Renewable Fuels Association, 14th Annual National Ethanol Conference
February 23-25, San Antonio, TX. Go to www.nationalethanolconference.com
2009 Motor, Drive & Automation Systems Conference
March 3-4, Orlando, FL. For info go to www.e-driveonline.com/Conf-09/motors_conf09_index.php
Clean Heavy Duty Vehicle Conference
March 16-18, Long Beach, CA. For information go to www.calstart.org/programs/chdvc
National Hydrogen Association Conference
March 30 - April 3, Columbia, SC. Go to www.hydrogenconference.org
2009 SAE World Congress
April 20-23, 2009, Detroit. For information go to www.sae.org/congress.
Challenge Bibendum 2009
April 26-29, Rio De Janeiro. For information go to www.challengebibendum.com.
BCI 121st Convention & Power Mart
May 3-6, Las Vegas, NV. Go to www.batterycouncil.org/LinkClick.aspx?fileticket=I7sMopAJNpI%3d&tabid=68&mid=497

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 were no July or August meetings.

January 14

February 11

March 12

April 9

*** FOR SALE***

Electric 1981 Bradley kit car
Original owner Walter Dunsmore
Features 19 hp General Electric Motor
Built in Baltimore, Maryland
Modern Curtis 400 ampere controller
New batteries, 96 volt, 8 each-12 volts marine
Always garage kept
White exterior paint shows some age
New tires
All new brakes
Pop up headlights
Drive 75+ mph highway speed
Tire pressure 40 psi
Gull wing doors
Good interior-needs floor carpet
Has AM-FM radio with cassette player
4 speed manual transmission
Charger on board
Historic Maryland tags
Only lap belts
No emissions test

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