E E V C
INDEPENDENT MOTORING

EEVC NEWSLETTER

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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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THE TOYOTA PRIUS JUST KEEPS GETTING BETTER

Tullio Falini, Jr.

My wife Nancy and I just upgraded to our third Toyota Prius (2001, 2006, and now 2011), feeling we wanted to take advantage of the high trade-in value of our 2006 Prius before we get too close to the end of the eight year battery warranty. These cars have served us well, averaging well over 40 mpg. The dealer had a selection of 12 new models on the lot. This was a new experience for me because the first two Priuses we bought there was a waiting list and no selection on the lot. While all three cars were close on fuel, It looks like the 2011 may be the best yet as I got 65 mpg on the 9 mile trip home from the dealer (I was babying the car while driving it in economy mode). The four modes on the 2011 model are really neat. Normal mode drives like the older Prius. Power Mode is like a turbo charger and gives the car the ability to accelerate quickly and pass other cars quickly (which I don't use because it kills the fuel economy). Econo mode is sort of like a governor that the old school buses used to have. It forces you to accelerate slowly and drive easy. We keep the car in Econo mode all the time and have been averaging around 47 mpg per tank full. When the tank full does not include any highway driving, it's more like 42 mpg. EV mode forces the gas engine to stay off and you can drive about 1 mile before it automatically disengages. EV mode does not work very well; if you accelerate to fast or go too fast during that mile, it will disengage (with a message on the screen) and the gas engine kicks on. The EV mode is excellent for going slow in heavy traffic or around parking lots or parking garages.

The 2012 Prius (photo:: Toyota Motor Co.)

No generation gap here, my teenage son loves the car. He was the one who figured out that the reason I could not get the GPS navigator to work is because it does not work if the car is moving and I was trying to figure it out while driving. The keyless system is the same as our 06 Prius was. You rarely have to

ever touch it because the car knows when you want the door unlocked to get in or when you are ready to start the car, so there is no key to touch the remote, you just leave it in your pocket. You then push the power button as if you were starting your computer (actually the car is one big computer). The display is similar to the 06 Prius, however the state of charge of the nickel metal hydride propulsion batteries, and the mpg info is now up on the dash heads-up display, leaving the computer screen in the center of the dash for the GPS, HVAC, and Audio systems only. The car had free satellite radio for one month (no thanks). I'm sort of saving the best for last as there is actually a solar panel on the roof right behind the wonderful sun roof (that opens). The Solar panel powers an inside-the-passenger compartment fan that keeps the car cool when the sun is beating in, so when you go to get into the car (in the summer) you don't have to blast the A/C as the inside is already cool. What I don't understand is Toyota put a button on the keyless remote that starts the A/C before you get into the car. That's real nice but it defeats the purpose of saving energy, in my view, especially with the solar fan feature. The engaging of the gas engine in and out seems smoother on the 2011 model, and the gas engine appears to be off more than on the 2006 model, which is nice. I did not bother looking at the Honda Hybrids (Insight and Civic) because the fuel efficiency is about 8 mpg less than the Prius. I did look at the Chevy Volt but the $43,000 sticker price was a deal breaker for me. (the Prius sticker was $27,000 for a pre-owned 2011 (new in that the 2012s are not out yet) with 9,000 miles on it). The Chevy Volt is really neat and I did not drive it because I was afraid I would end up buying it. I still am getting conflicting answers on this question. Is the Volt's gas engine of the Guy Davis Range Maximizer type the only charges the batteries, or is the gas engine able to power the Volt across country without charging (like the Prius can do). I look forward to another upgrade in 5 years to what I hope will be a plug-in Prius. The 2012 Prius is supposed to have a plug-in feature but the 2012s are still being held up because of the earthquake in Japan and they are not sure when the car will arrive. The dealers do have the 2012 new Station Wagon version of the Prius (Prius V), which may be great for a sales rep carting around materials, but the fuel efficiency is not as good as the standard Prius (about 6 mpg less). It's nice after driving a Priuses for over 10 years to see so many Priuses driving around. It makes me feel like I'm part of the solution rather than part of the problem. My hat's off to all the EEVC members who are driving alternative fuel vehicles. While some may be limited in range, they go a long way in changing the thinking in America re: transportation energy. I really believe people are starting to catch on. The late Guy Davis (EEVC co-founder) would be very proud.

WALL STREET JOURNAL UPDATES
Oliver Perry

The Journal Report: Investing in Energy

Monday, Dec 5th, 2011; several reports from the Energy Section:

Battery Companies in Need of a Boost

They started off with such a promise. Now they are trying to figure out how to survive.

page R7

"Over the past few years domestic companies have entered a global competition to supply the advanced batteries that will power electric vehicles. The start-ups came into the game with big backers and high hopes behind them. Venture capitalists saw a booming market ahead and Washington saw a chance to spur a domestic green manufacturing industry."

"So far, the results have been disappointing. Some high profile battery makers have stumbled, burdened by high manufacturing costs, strong competition from Asian rivals and a slower than expected roll out of electric vehicles. Now the companies are responding by cutting costs, scaling back production and trying to tap other markets such as large scale storage for the electricity grid."

"In 2009 the Obama administration with the 2009 Recovery Act, awarded $2.4 Billion in grants to support companies making battery cells which are assembled into packs for use in autos, and the materials used in battery production. The goal was to reduced the cost of batteries and spur adoption of electric vehicles."

"Enerl Inc. received about $55 million of

the $118 million Recovery Act grant for which it qualified. The company was recently delisted from Nasdaq after its chief customer Think Global missed sales targets for its small electric car and filed for bankruptcy protection."

"Johnson Controls Inc, the worlds largest producer of conventional lead acid automotive batteries, has also had to scale back its advanced-battery ambitions. Funded by a federal grant, the company committed to building factories capable of producing 30 million lithium-ion cells a year for automotive sales. But demand has not been there."

"A123 Systems Inc. had to scale back its production because Fisker Automotive Holdings delayed battery purchases. A123 also lost a bid to provide batteries for the GM Volt to LG Chem Ltd **of South Korea. In addition a joint venture between Samsung Group and Robert Bosch pushed A123 out of the bidding for a Chrysler Group LLC bidding. A123's cost of building batteries is about $1,000 per kilowatt-hour while some Asian companies are bidding as low as $400 per kwh."

In defense of their price A123 says that they can squeeze more energy out of their batteries than competitors can, allowing for smaller packs for the same range as larger ones.

Dan Borgasano, spokesman for A123, notes that 116 electric vehicle models are currently planned by the auto industry and A123 has contracts for 21 of them, enough work for seven years.

**LG Chem has built the world's largest battery plant for electric cars and has said it will spend about $1.84 billion on a plant in Korea and one in the U.S.

A Green Course

Dec 5, 2011 *WSJ* p. R5

A 250 foot tall wind turbine and classrooms at the North American Wind Research and Training Center in Tucumcari, New Mexico, attracts students from across the nation and overseas. They come for a two-year degree that prepares them for jobs as wind turbine technicians.

The Danish company Vestas Wind Systems A/S, claims to have 500 jobs open across the U.S.

A grant from the state of California helped a consortium of colleges and research institutions in San Diego to launch a program in algae bio-technology, the business of turning algae into fuel. In Reno, NV, Trukee Meadows Community College used state funds and private investment to launch classes in solar technology and energy-efficient auditing. And, in Aurora, CO, a former Sam's Club has been converted into the Ecotech Institute, billed as the first and only college in the United States dedicated exclusively to preparing students for careers in renewable energy.

Communities across the nation are looking to renewable energy to open up new job opportunities. However the outlook for green jobs is uncertain. Skeptics wonder whether there will be enough green jobs for all of the green graduates. "We have had patchy to non-existent information about what occupations will be important and what type of jobs there will be," says Mark Muro, a senior fellow at the Brookings Institution and co-author of a new report on green jobs, "Sizing the Clean Economy."

The green industry is developing unevenly across the country and unpredictably leading to mismatches between available jobs and skilled labor. An agency that received $500 million in the 2009 Stimulus Act for a Green Jobs program aimed at training 115,000 workers. As of June 30th 2011 only 26,000 had completed training and of them only 8000 had actually found work, according to Elliot Lewis, an auditor with the department's Office of Inspector General.

Fred Lucero, who runs a green job training program in Richmond, CA, says he has had trouble placing some of his graduates in stable jobs. "The market is glutted with people with solar certification and energy-efficiency certification."

The Natural Resources Defense Council, an environmental advocacy group, recently launched a Web site that tracks green-energy job announcements. Many are small, such as a wind farm in Illinois which will create up to 10 full time jobs and the expansion of a solar-panel component factory in California that will add 30 positions. General Electric's plan to build a $300 million solar thin film plant in Aurora will create about 300 jobs.

"The green job numbers fall short of President Obama's campaign pledge to create five

million green jobs."

Meanwhile….. BIG OIL HEADS BACK HOME

ENERGY COMPANIES ARE SHIFTING THEIR FOCUS AWAY FROM THE MIDDLE EAST AND TOWARD THE WEST with profound implications for companies, global politics,and consumers.

Page R1 WSJ Dec 5th 2011

Oil Sands: This mix of bitumen and quartz sands that lies just beneath Alberta's boreal forest has catapulted Canada into the ranks of big oil producers. Only Saudi Arabia has larger proven oil reserves than Albert's estimated 170 billion barrels.

Shale Gas: Natural gas tapped by hydraulic fracturing in shale formations accounts for 23% of total gas production in the U.S., a figure expected to rise to 42% by 2020, according to PFC Energy. Europe is also beginning to explore its large shale deposits.

Deep water oil: Oil production from deep water drilling has nearly doubled in the past five years and now makes up 8% of the total global output. A lot of the world's deep water deposits are in the West (offshore Brazil and in the U.S. Gulf of Mexico).

Shale oil: Shale oil and gas-liquids production in the US could reach 3 million barrels a day by 2020, exceeding the output of the Gulf of Mexico.

Full Page Ads- *WSJ* Dec 6h and Dec 13

Exxon Mobil: "Oil Sands — Good for our energy security and our economy."

"North America has one of the largest oil reserves in the world. This resource has the ability to create hundreds of thousands of jobs right here at home."

Full Page Color Ad — *WSJ* Dec 5

ConocoPhilips: America needs affordable energy — America needs cleaner energy.

We are helping to power America's economy by safely accessing one of America's most abundant energy resources, natural gas.

A Chicken -and - Egg Pact

WSJ Dec 5th, 2011 page R2

"As plug in electric vehicles begin to roll out, in some cases more slowly than first expected, Better Place Inc, a company that sets battery charging and replacement stations has secured $200 million in new financing from investors, including new backers General Electric Co. and UBS AG. "

"The development of an electric-vehicle market has been hampered by a chicken and egg problem. Consumers need a place to charge up their cars before they commit to buying one but building charging stations can only be cost-effective when plug-in vehicles find a big market. Better Place and Renault Group have crafted an agreement. The French auto maker will produce 100,000 electric vehicles over the course of five years for sale in Denmark and Israel, and Better Place will build charging stations in those countries." ***

***(Editors comment…Many electric vehicle enthusiasts do not subscribe to the need for public charging stations to be in place before electric cars are sold. Most charging will be done at home where electric costs are lower and the car will be parked for long periods of time.)

The first boatload of luxury plug-in hybrids from Fisker Automotive Holdings has arrived on U.S. shores, albeit after a delay. The auto maker based in Anaheim, CA recently raised $58 million from investors including Kleiner Perkins Caufield & Byers, toward a target of $150 million in new funding.

Fuel Cell Investment

WSJ Dec 5th , 2011 p. R2

Fuel Cell developer Bloom Energy Corp raised $150 million in new funding, according to a person close to the company. Bloom didn't respond to a request for comment. This was the largest venture capital investment in a U.S.-based clean-tech company in the third quarter. Bloom's power generators, designed for residential and commercial use, convert natural gas or bio-fuel into electricity.

Global Warming Policy Update

Wall Street Journal, Dec 13, 2011

Op Ed section page A 20

The global warming conference in Durban, South Africa, ended Sunday Dec 11th. The COP-17 meeting, so named by the United Nations bureaucracy to indicate that this is the 17th go-around, was supposed to come up

with a successor to the 1997 Kyoto Protocol, which expires next year. The Protocol was never ratified by the U.S. The extension will be ignored by Russia and Japan. Canada said it is quitting the Kyoto agreement entirely.

Rich countries are supposed to provide poor ones with $100 billion a year for climate mitigation as agreed in 2009. This latest meeting in Durban offered few details as to how that fund might be collected or disbursed.

"All of this raises the question what purpose did this conference serve."

(Editor's comment … The lack of enthusiastic public and media discussion of global warming issues and the lackluster Durban conference indicates that global warming concerns have slipped to the back pages. The world's economic woes have made the hard to see rises in sea level of much lesser importance. Any policy that raises the price of fossil fuel or the price of electricity in order to curb carbon emissions does not currently have wide spread appeal, at least here in the U.S.)

Outraged at Politicians?

If we want to relieve collective stress by expressing our frustrations, let us attack a common thug.

The Cellulosic Ethanol Debacle

Wall Street Journal Dec 13, 2011

Op Ed page A 20

George Bush, 2006, State of the Union Address: "We'll fund additional research in cutting edge methods of producing ethanol, not just from corn but from wood chips and stalks of switch grass. Our goal is to make this new kind of ethanol practical and competitive within six years."

(Ethanol made from corn is much simpler to produce and is not considered to be a cellulosic fuel.)

Mr. Bush assured the nation that by 2012 the cars and trucks would be running on cellulosic fuels from switch grass and other plant life.

To launch this wonder-fuel industry, the feds, under Mr. Bush and president Obama, have pumped at least $1.5 billion of grants and subsidies into fledgling producers. Mr. Bush signed an energy bill in 2007 that established a tax credit of $1.01 per gallon of cellulosic fuel produced. Most importantly, Nancy Pelosi and Mr. Bush signed a law imposing mandates on oil companies to blend cellulosic fuel into conventional gasoline. The mandate went from 100 million barrels in 2010 to 500 million in 2012. By the end of this decade the requirements leap to 10.5 billion gallons a year. All of this guarantees producers a market.

However, in spite of the mandate, NO companies produced viable cellulosic fuel. The EPA has already quietly announced that the mandate is unattainable.

The reason is that the half dozen companies that received the first round of subsidies to produce cellulosic fuel never got off the ground. 70 million gallons were supposed to come from Alabama-based Cello Energy. The projections were made before Cello had built its plant and before the technology had been proven to work.

Because there was no cellulosic fuel to be purchased, oil companies were forced purchase "waiver credits" for failing to comply with the mandate. In 2010 and this year the EPA has forced oil companies to pay about $10 million for these credits. Those costs have been passed on to consumers through an invisible tax at the gas pump.

(Don't ask me what rules can be forced on the oil companies to make them purchase a product that does not exist.)

An October 2011 report on biofuels by the National Academy of Sciences concluded that the mandates "may be an ineffective way to reduce global greenhouse emissions." The report notes that "currently no commercially viable biorefineries exist to convert cellulosic biomass to fuel."

Still the subsidies roll on. In August 2011 The Obama Administration funded a $510 million program in partnership with the Navy to produce advanced biofuels for the military. In September the feds loaned $134 million to Abengoa Bioenergy to build a cellulosic plant in Kansas.

(Editor's comment: I do not know enough about the prospects of this technology to weigh in with an opinion. Similar to funding for nuclear fusion and stars wars technology, there will be those who feel cellulosic ethanol research will pay off over the long term and those who disagree. I am sure the electric

vehicle enthusiasts would love to have similar mandates and financial support from Uncle Sam.)

The 16 dollar Muffin

"Muffingate and the Media's Big Fat Mistake"

The Wall Street Journal, Dec 2011

Dottie and I were recently sitting on the couch watching the NBC nightly news and just happened to see the scathing report that the Office of the Inspector General provided against the Justice department for extravagant wastes of money spent on conference food. The press, from the *Washington Post*, *New York Times*, and *USA Today*, to NBC, ABC, and CBS, reported that at one breakfast meeting the Department of Justice had spent 16 dollars per breakfast muffin for its attendees. Like all of the Americans who heard this news, we were disgusted with this reminder of greedy politicians literally eating up our taxes.

The Wall Street Journal article sheds more light on the report. "There were never $16 muffins. Two days after the Washington Post story about the misleading report, Hilton Hotels, which supplied the food, said that the $16 fee was for a whole breakfast, not just the muffins."

The sad part of the story is (according the *WSJ* article) most of the leading newspapers and TV broadcasters never retracted their erroneous reports.

From sex scandals to financial improprieties and to dirty politics our press is quick to be first to grab attention with startling news. However, individuals, corporations, and organizations can be unfairly destroyed with hasty reporting, in addition to the loss of media credibility.

This story is a reminder to myself to try to objectively and accurately report what is happening on the EV circuit.

COMMUNITY ECO-EXPO 2012

Sunday, Jan 22, 2012, 10 am to 3:30 pm at the Rosenfeld Social Hall at Congregation Beth Or, 239 Welsh Road, Maple Glen, PA.

Join us for this community event that is free and open to the public.

The Eco-Expo will help you learn about the many ways — large and small — that you can help protect the environment. Our Expo focuses on resources here in our own community that will help YOU make a difference.

Keynote Speaker: Michael Krancer, PA Secretary of Environmental Protection

Meet exhibitors from more than 30 businesses and organizations who will showcase ways to live a more sustainable lifestyle through everything from renewable energy to electric bikes and more.

Learn from local experts about key issues, including the Marcellus Shale, solar energy, personal transportation, electricity deregulation and more.

Recycle packing Styrofoam and those dead alkaline batteries at the Eco Expo

Enjoy family friendly activities

For more information go to www.bethor.org/article.aspx?id=34359741148

NEWS UPDATE

EV sharing in Paris

A Dec 5 AP article by Jamey Keaten reports that the city of Paris is launching an EV sharing program with the aim of reducing air and noise pollution.

The program, called Autolib, is planned to put 250 vehicles on the road immediately, 2000 by next summer and 3000 within two years.

The vehicles themselves will be the four-seat compact Bluecar, "a collaboration of Italian car designer Pininfarina and French conglomerate Groupe Bollore, which hopes to showcase its lithium metal polymer battery that powers the car."

Volt gets a black eye

The latest kerfuffle about EVs has been the announcement by the National Highway Traffic Safety Administration that a Chevy Volt that had been crash-tested caught fire several weeks later. Later reports said that General Motors believed that leaking battery coolant had crystallized and created a short circuit that started the fire. In the mean time GM offered loaner cars to worried Volt owners and later extended that to an offer to buy

back cars from any one truly alarmed. A December 6 CNN story by Peter Valdes-Dapena reported that about 24 people had inquired.

Aptera bites the dust

Aptera Motors, maker of the somewhat idiosyncratic three-wheeler of the same name, has closed up shop, according to a December 5 story by AP automotive writer Dee-Ann Durbin. Despite good intentions the project turned out to require more capital than expected, and federal loans didn't come through.

EV startup in L.A.

A November AP story by Robert Jablin reports that "Electric carmaker CODA Automotive opened its global headquarters in Los Angeles on [November 10], strengthening California's bid to become the hub of clean-energy business the state hopes will create thousands of new jobs.

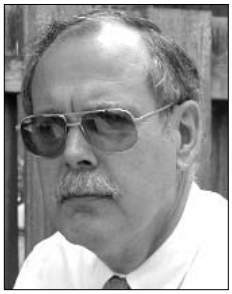
"CODA, a startup company that began in Santa Monica, officially unveiled a 100,000-square-foot engineering, research and sales center that has more than 200 employees."

Navy fuel cell vehicles

In this photo by U.S. Navy photographer Scott Brierely two Office of Naval Research (ONR)-sponsored Fuel Cell Vehicles are operating at the Marine Corps base at Camp Pendleton, CA.

ONR and its partners across the Department of Defense and private industry are looking at fuel cell power to expand warfighter capabilities, whether to reduce the size and weight of man-portable devices or to meet the megawattage requirements for shipboard power.

A SERIES OF FIRSTS
By California Pete



The Bay Area, which has long boasted about being first in every new thing, has some more things to claim. On the EV front, say the *San Francisco Chronicle*, "Mitsubishi Motors North America delivered its new Mitsubishi i to City CarShare in San Francisco, the first fleet delivery of the electric subcompact in the United States. The 2012 i, whose most basic version sells for $29,125, will be available nationwide by July. City CarShare has ordered nine. The Bay Area nonprofit auto-sharing service has set a goal of having 50 percent of its fleet run on alternative fuels."

In another first, San Francisco has become the first city in the country to mandate a minimum wage greater than $10 per hour: $10.24, to be exact, which is more than $2 higher than the California state minimum and almost $3 more than the federal number.

This is on top of the "$1.23 to $1.85 an hour per employee for health-care coverage if they don't offer health insurance," according to AP — not to mention the payroll tax of 1.5 percent and nine mandated sick days per year. San Francisco is an expensive place in many ways.

Bad news for Tesla

Shares of Tesla Motors, of Palo Alto, were recently downgraded to "Underweight" from "Overweight" byMorgan Stanley, which put a price target of $44 on the stock. Tesla (TSLA) closed on December 13 at $30.41, about $4.00 below where it was trading before the downgrade.

At least Tesla may get some closure about the February, 2010 plane crash that killed three of the company's employees. A National Transportation Safety Board report says that the pilot and owner of the plane, also a Tesla employee, took off despite warnings from the control tower that visibility was too low to do so.

Revenge of the Happy Meal

Faced with a San Francisco ordinance that

banned the inclusion of a free toy in fast food meals for children that did not meet strict nutritional guidelines, McDonald's announced that it would charge ten cents for the toy, and then donate the proceeds to charity. Burger King quickly followed suit.

Overpriced renewables

A November 12 AP story by Ganarnce Burke reports that the "dozens of renewable energy plants being built to meet Califoirnia's tough global warming law ... are so overpriced that they will increase consumers' energy bills for decades, according to the independent watchdog arm of the state's utility regulator." Oh, well — more incentive to use less power. Or you could do as my son did: He installed solar panels on his roof and is paying so little for his power that he figures they system will pay for itself in about six years.

Occupy the port

Occupy Oakland, arguably the most militant of the Occupy groups around the country, succeeded in shutting down the Port of Oakland for one shift, along with a number of other ports along the West Coast. The cost to shippers was minimal, but hundreds of truckers and dock workers lost a day's pay. I hadn't realized that those guys were all millionaires.

COMING EVENTS

Community EcoExpo
Jan 22, Maple Glen, PA. For info call Lisa Brown at 215-628-9970 or go to http://www.bethor.org/article.aspx?id=34359741148

2nd Annual 10X Advanced Battery R&D
Jan 23-24, Santa Clarita, CA. Go to http://informationforecastnet.com/index.php/conference/battery12

Solar POWER-GEN Conf & Exhibition
Feb 14-16, Long Beach, CA. Go to www.solar-powergen.com/index.html

SAE 2012 Hybrid Vehicle Technologies Symposium
Feb 21-22, San Diego, CA. Go to www.sae.org/events/training/symposia/hybrid/

SAE 2012 Electric Vehicle Technologies Symposium
Feb 23, San Diego, CA. Go to www.sae.org/events/training/symposia/evt/

SAE 2012 Powertrain Electric Motors Symposium for Electric and Hybrid Electric Vehicles
Apr 23, Held in conjunction with SAE 2012 World Congress, Detroit, MI. Go to www.sae.org/events/emotorusa

EVS26
May 6-9, Los Angeles. www.evs26.org/

2012 Drag Racing Expo Event
May 18, Lebanon Valley Dragway, West Lebanon, NY. For info go to www.ecedra.com/2012evdragracingexpo.html

SAE Convergence 2012
Oct 16-17, Detroit. Go to www.sae.org/events/convergence/

ADVERTISEMENTS

For Sale

Unfinished Jeep Conversion

This is a 1998 Jeep Grand Cherokee. All gasoline equipment is removed. Electric motor, adaptor plate and five speed trans installed. I also have additional parts to complete the conversion. This car only weighed 3180 lbs. prior to conversion.

If you are interested or you know anyone who would be interested in taking on this project, please email me for more details and to talk price.

Vehicle is located in Phoenixville, PA

Contact Bill Miley, wcmiley@yahoo.com

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.

January 11

February 8

March 14

April 11

May 9