

EEVC NEWSLETTER

Published by the Eastern Electric Vehicle Club

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PLUG-IN HYBRIDS AND OTHERS GAINING ACCEPTANCE

With the recent increase in gasoline prices, plug-in hybrid vehicles (PHEVs) are gaining more publicity.

The concept of a plug-in Prius was pioneered by CalCars, the California Cars Initiative (www.calcars.org), and now EDrive Systems (www.edrivesystems.com), a joint venture of Clean-Tech LLC, a Los-Angeles based automotive system integration firm, (310-642-8500, www.clean-tech.com) and now Energy Control Systems Engineering (EnergyCS, www.energycs.com) is getting ready to put them out in numbers (starting next year). EDrive will pull out the original Prius Ni-MH battery and replace it with a Lithium one from Valence Technology, Inc. (www.valence.com, 512 527-2900) and make the hardware and software changes necessary to make it all work. The anticipated price is \$10-\$12,000.

While regular hybrids and plug-in hybrids getting all this publicity, regular EVs are starting to gain some public notice as well. A week ago the CNBC program *Street*



Back view of the prototype Prius+, CalCars' first plug-in hybrid.

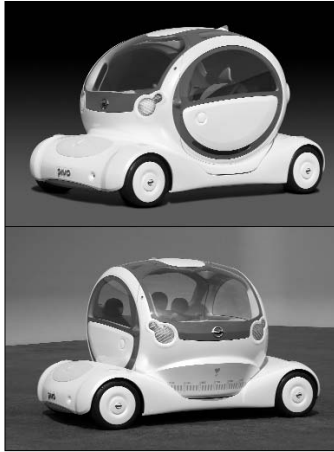
Signs aired an interview with Tom Gage, president of AC Propulsion (San Dimas, CA, at www.acpropulsion.com).

The program asked what it would take for EVs to gain acceptance, given both the limitations on range and speed and the organized resistance of the auto companies and oil companies.

Gage said that EVs now have practical ranges of 100 to 150 miles, can look like regular cars, and have all the performance you could ask, citing his trip to the studio at speeds of 80 mph in the car pool lane. He mentioned that commercially-built EVs like the EV1 and Electric RAV4 went for about \$30,000; he also made casual mention of his company's tzero, which is not yet in production and will be very expensive when it is. The company quotes a price "somewhere between a Porsche and a Ferrari." He did say that once EV production ramps up the prices will decrease. In the mean time, the NEVs shown during the broadcast, as well as the Corbin, are all that's available.

EVs at the Tokyo show

While Detroit dithers, several Japanese manufacturers are showing some innovative things at the Tokyo Auto Show, which begins October 22.



Nissan will be showing its PIVO concept car, which has to be one of the strangest-looking cars ever made. It resembled nothing so much as a volleyball sitting in a slipper. The innovative part is not that the car is electric, but that the spherical passenger compartment can pivot 360 degrees, which should make parking pretty simple.



Also at the Tokyo show will be the Premacy Hybrid concept car from Mazda, which combines a

dual-fuel, hydrogen/gasoline rotary engine with an electric motor. The power unit is transversely mounted at the front in a front-wheel drive layout. Mazda will also show an RX-8 equipped with the hydrogen RE engine that is viable for practical uses, with plans for commercial leasing in the future.



Honda will have 25 vehicles on display at the Tokyo show, but one is of particular interest to EVers: the E4-01 motorcycle. All

Honda will say about it is that it's a "concept vehicle which offers customers a new take on motorcycling lifestyles," but *Gizmag* speculates (based on a tip) that it may be "the first electric mass-produced motorcycle."



Yamaha will be at the show with three prototype bikes of interest: two hybrids, a straight EV and a fuel cell

model. The first hybrid is the Gen-Ryu (above), based on Yamaha's "Genesis" design ideal. It has a 600 cc engine and a high output, high efficiency electric motor. The idea, according to Yamaha, is "to offer both the joy of handling of a motorcycle and the comfort and carrying capacity of a scooter." Features include a lightweight aluminum die-cast body, large diameter wheels and long wheelbase to give what is claimed to be performance and handling similar to a 1000 cc class machine.

The second hybrid is a gasoline/electric parallel hybrid scooter called the HV-01. Two interesting features are a "quiet mode" (running only on the electric motor) and a "push mode" that makes it easier to push the bike in places like parking lots (super low-power drive when off the bike).



Yamaha's pure electric is the DEINONYCHUS (left), which has a hub-type motor in each wheel and features "Stretch & Shrink" functions in the vertical and horizontal directions,

which makes it possible to adjust not only the riding position but also the silhouette of the chassis to fit the rider's body size, riding environment, road surface conditions and personal preference.

The Yamaha fuel cell model is a scooter called the FC-me, which is powered by a fuel cell running on a methanol-water solution, which eliminates the need for a converter and a pressurized fuel tank and thus makes it possible to create a lightweight system for a small vehicle requiring power in the 1 kW range without compromising on power output characteristics. Yamaha has signed a contract with Shizuoka Prefecture to put this model in practical use on a lease basis as of September 16 of this year.

PRESIDENT'S MESSAGE Oliver Perry

“The Earth is Round”

“And What Goes Around, Comes Around, If you Wait Long Enough!”

My son-in-law has been reading one of the recent thought-provoking books on the market, *The World is Flat*, by Thomas L. Friedman of the *New York Times*. Friedman has seized upon the concept of the level playing field, frequently used in business, economics, politics, and sports, to describe equal opportunity for all, and written a book about its application to our modern world. Cleverly the author begins with the voyage of Columbus, who sailed over a rounded ocean to a civilization far away, and investigates how tremendous changes in technology have made the world of Columbus smaller and flatter. Now people all over the world, significant and insignificant, can do business on the same “level playing field.” Because of rapidly expanding technology the world in the author’s eyes has become flat.

While I was sleeping.

In chapter one, entitled “While I was sleeping,” Friedman states that while he was sleeping Globalization happened. It took off about the year 2000 and shrank our world rapidly. One of the key factors in making the playing field level, he claims, and unique to the present globalization process, is that we now have new-found power, not available in the day of Columbus, power that empowers individuals to collaborate and compete in the world market. Communication and information technology now place all people on earth as close together as those who once lived in Italy and perceived their world to be flat.

When Thomas Friedman first comprehended that our world was flat he decided to drop all of his activities and write a book that would describe how the flattening process occurred and what its implications might be for countries, companies, and individuals. His second chapter includes the ten forces that flattened the world. If you are curious as to what these forces are I suggest going to your local library and borrowing the book.

We don’t have to read Friedman’s book to

understand that the way we do business today is rapidly changing from what it was yesterday. *The World is Flat* contains many fascinating illustrations, taken from settings all over the world, conveying the methods by which business is currently being conducted in many differing sectors and what the implications of this globalization are to you and me who live on this portion of the playing field. It is in light of the message in Friedman’s book that I would like to address several issues important to electric vehicle enthusiasts. Things are quite different now from the way they were a few years ago.

Has globalization affected the electric car?

We all can quickly rattle off three or four good reasons for advancing the electric car movement. But in the process we almost as quickly become “Bush Bashers,” to use the most current phase. Electric cars reduce global warming, reduce air pollution by reducing fossil fuel consumption, conserve energy, and lessen our dependence on foreign oil. To many electric car enthusiasts, Bush and his friends are anathema to the environment, slow to reduce our dependence on foreign oil, and overly supportive of the car companies that crush electric vehicles.

Quoting from Friedman, “China is a threat, China is a customer, and China is an opportunity.” I suggest that we remember this statement. For our threat could become our opportunity.

There are many views on environmental and energy related issues afloat in our flat world. Before one can rightly draw conclusions regarding some of these issues we must sort through a lot of information increasingly being made available to us. Everything is not as cut and dried as we might like. We live in a complex and quickly changing world and although our access to information is excessive, the time we have to sort it all out is not. Do we want to become known as flatlanders on a world that is really round? If not we must be careful not to be linked with those who, perhaps history will have shown, were not accurate in their assessment of things.

Would you have dreamed of ever seeing Presidents Bush (Senior) and Clinton working together and appearing as close friends? We should be careful whom we bash,

because our enemy today can be our ally tomorrow. And above all we need to be sure of our facts before we reason.

Our positions in regard to Detroit auto makers, the Republican administration, and the petroleum industry cannot remain the same. Everything has changed and is changing by the instant.

True, we have taken what I believe to be sensible positions when it comes to the environment, electric and hybrid car development, and related issues. But with new discoveries every day, enormous amounts of information available at our fingertips, and strong differences of opinions as to how to best manage people and resources it is very challenging to always be on top of our game. Others may be more correct than we are on some issues; more pragmatic approaches to earth's problems than ours may exist.

Stop Global Whining!

Consider the following letter to the editor in the Sunday October 2, 2005 edition of the Glens Falls New York *Post Star*.

“Editor:

Bernice Mennis (Sept, 23) ‘Stop global whining.’ You teach your students to analyze facts; you should do the same.

“Europe has small cars, not for any altruistic reasons to save the planet, but because their governments have been taxing them to death. European gasoline has been more than \$5 dollars per gallon for years when we had global cooling and before global warming became fashionable.”

Edward Binder, who wrote the letter to the editor, goes on to point out that Europeans cannot afford large cars and most European streets are so narrow that large cars are not practical. Fear of global warming is not the reason Europeans have small cars. And as a side note, our crowded highways and cities may eventually force us into smaller cars.

The letter continues; “Did you hear the report from NASA? Mars is undergoing global warming! The polar caps are melting. Does this mean that the evil oil companies have a pipe line to Mars and are pumping CO₂ into the atmosphere? Oh yes, Mars's atmosphere already has at least 10 times as much CO₂ as does Earth.”

“Why is Mars warming up? According to

NASA, the sun's output has increased since 1940.”

If this is so, then what percentage of global warming on earth is due to the increased energy output of the sun and what percentage is due to increased CO₂ levels? Can we blame Bush for adding to the global warming concern? Should we spend billions on reducing CO₂ in the atmosphere?

I do not believe that any of us know for sure what all of the factors are that cause global warming and we certainly cannot quantitatively measure the affect that switching to electric cars would make on the net global warming affect. It may be best for us to remain objective on the global warming issue until more convincing evidence is gathered.

Switching to electric and hybrid cars will save on fuel

Assuming that saving fuel is a good thing, couldn't we more accurately say, having more small and lighter cars on our highways, as well as improving the driving habits of drivers will make a significant savings in fuel consumption? Is the *only* solution more electric and hybrid cars to make a large improvement in fuel savings? No. There are other means to reducing our gasoline consumption. We set ourselves up for embarrassment when we indicate that electrics and hybrids give incredible savings that traditional cars cannot.

Recently complaints have been raised that the high gas mileage claimed by the companies selling hybrids are misleading. A woman complained that she was actually only getting 35 mpg with her new Prius. Toyota and Ford dealerships are attempting to inform their hybrid buyers how they can get the gas mileage that the sticker on the vehicle claims they ought to be getting. Simply put, the advice given to the customer is, “Learn to drive more conservatively!”

How much fuel would we save if all Americans drove more conservatively? Maybe emphasizing conservative driving could save as much if not more fuel than the sale of electric and hybrid cars!

Is the primary reason anyone gets “out of the ordinary” fuel economy in an electric or hybrid car is because the vehicle itself is smaller and lighter to begin with? Getting the

weight out of any vehicle will help that vehicle to conserve on fuel. It does not necessarily have to be an electric or hybrid vehicle to conserve energy.

How many Americans really want a fuel efficient vehicle if it has to be small?

We tend to maintain that the time has come for more electric and hybrid cars to become more mainstream. But until we have bigger and roomier electric and hybrid cars most American car buyers will not be interested in purchasing one. Yet, often I hear someone blame Bush and his cronies for the fact that we don't have more alternative fuel cars on the road.

The truth is electric cars are not big enough, nor fast enough, nor do they go far enough for most Americans. And I might add they are not adequate for most EEVC members either. So blaming Bush for the fact that we don't have more electric cars and clean air may be unproductive. We live in a democracy not a dictatorship. There are advantages to living under either form of government. But also disadvantages.

In our Democracy that group called THE MOST places a candidate in office. Our leaders, elected by THE MOST have supported the oil and big car company lobbies. When we bash Bush we bash the Americans who elected him. Many Americans are for the big companies that control transportation. In their minds are there valid reasons for those who favor the big car companies and big oil to act as they do?

If we feel strongly that our nation has taken the wrong turn when it comes to our transportation system can we honestly place the blame on a few men? I don't think so. Maybe our form of government, like many things in life, has a good side and a bad side to it. If we feel that the masses don't know what is best for them perhaps we should change our form of government. A dictator could force us to drive electric cars.

Some of us hoped that the Chinese would show the rest of the world that the right way to travel is with electric and hybrid cars. The Chinese government can dictate such a policy. Chinese leaders do not have to listen to any powerful lobby group, or do they? For now they are following in our footsteps.

Why? Maybe because they understand competition, the economy, and how to best make quick returns for their investment. I am not sure why they are following our lead and trusting in the internal combustion engine. It is already too late for them to turn around. They have and are rapidly laying a petroleum foundation for an exploding automobile economy. At least one of the leading Chinese Auto Company CEOs has publicly stated that he intends to lead the biggest car company in the world.

“Boycott the Gas Companies”

It has been purposed from time to time that all Americans unite and boycott the gas companies to send a message to them to stop gouging us. But from your point of view, and my point of view, does this make sense? If we want electric cars we ought to be in favor of higher and higher gas prices, shouldn't we? I am not sure that we want to unite with those who are bashing Bush for the high price of gas. High gas prices provide the very force which is best for promoting the electric car!

In a weekly feature, writer Mark Freeman of the Glens Falls, New York, *Post Star* (same issue that I referred to above) makes the following statement. (In times past I have written Mr. Freeman and once suggested he tone it down for everyone's good. He bashed both Bush and me in his reply.) “Americans are too selfish and wimpy to unite in a boycott, just as they're too dumb to stop voting for politicians like Bush and Cheney who allow the oil companies to gouge us, and who, by odd coincidence make more money every time the price of oil goes up.”

Mr. Freeman would also bash the oil companies for polluting and raping our environment. But Mr. Freeman, you can't have it both ways! Cheap gasoline and expensive batteries don't mix.

“Where do the windfall profits from the oil Companies go?”

Lest we cheer Mr. Freeman (and his provocative conclusion) and go lynch Mr. Bush and Mr. Cheney, think about where the “sudden” profits from the oil companies end up. The Wall Street Journal recently reported that our stock market, which has been sliding downwards as of late due to Hurricanes and

other events, has been thankfully strengthened by an inflow of cash from the oil company profits. The *Wall Street Journal* acknowledged that there have indeed been large profits from the high prices at the pump, but pointed out that without those profits going back into Wall Street investments, our whole economy could be suffering far more than it is. And on top of that, Americans remain angry that there are not more refineries to produce more fuel, but never stop to consider that oil companies need money to build the newer and more environmental restrictive refineries (due to the demands of the environmentalists). New refineries require money. Large profits at the pump motivate companies to spend on more refineries.

In a democracy with free enterprise people are allowed to make large profits. Do we want our government to build refineries for us instead? Experience has shown that allowing private companies to make large profits at our expense is still better than allowing the government to tax us at our expense.

Do we really have a gas crisis to begin with?

And how much are we really hurting at the gas pump? With all of the complaining one would expect traffic at a standstill. Drivers have admitted that they do not plan on cutting back too much on driving. Some have claimed that they intend to keep on trucking with their big SUVs. So for much of America, driving remains somewhat the same as usual, although some feel we may be coming close to a breaking point. I read somewhere that the feeling is that most Americans will accept price rises in gasoline up to \$3.50 per gallon before they become seriously reactive. Why then shouldn't the oil cartel raise prices almost to that point?

But because of the price hikes at the pump there is now a significant scurry to smaller and more fuel efficient cars. The values of SUVs have slumped and the auto makers are ready to make changes in their offerings. If we blame Bush for the higher gasoline prices could we not credit him for being responsible for the trend toward smaller more fuel efficient vehicles? In this flattened world the man that the Most decided to hate for causing high gasoline prices, could end up being the one

that we salute for making the alternative fuel vehicle more competitive in a free market.

“No Blood for oil”

In another letter to the editor, this time to the *Wall Street Journal*, Wednesday, September 21st, Ralph Nader refers to the *WSJ* Sept 14 editorial “No Blood for Oil.” The thrust of that article (written by the *WSJ* staff) was that blood was being spilt on our American highways in accidents with cars designed to get more gasoline mileage. The fear is that if the government tries to push the auto companies to design cars with better fuel economy as they did in the 70s, that we will have more unsafe cars on the road and more carnage on the highway, just to save oil. In the 70s when car companies were forced by congress to achieve higher fuel mileage ratings the car companies responded by constructing lighter and more dangerous vehicles. “A 2001 National Research Council study concluded that CAFE contributed to 2000 additional deaths on the highways each year. Raising the standards to 40 mpg could raise to 5000 the number of annual CAFE-related fatalities, according to a study by the Competitive Enterprise Institute.”

The above editorial quoted Ralph Nader.

“Ralph Nader also knows that lighter cars are more dangerous, though he too is a CAFE advocate. His 1972 book, “Small on Safety,” described the lightweight Volkswagen Beetle as a death trap. One of the Beetle's primary attractions was its ultra-fuel efficiency.”

Ralph Nader's response, “Fuel efficiency and safer cars: It can be done”

Ralph Nader responded quickly to the *WSJ* editorial.

“Your September, 14th editorial “No Blood for Oil” is unsophisticated on the relationship between vehicle weight, fuel economy and automotive safety after Congress enacted the Corporate Average Fuel Economy (CAFE) law. You avoided the fact that the highway death rate dropped 56% from 3.35 deaths per 100 million vehicle miles traveled in 1975 to 1.46 in 2004.”

“According to the Department of Energy, more than 85% of the fuel economy gains since 1975 were achieved through technology, not weight reduction.” And, Nader adds,

the heaviest vehicles are actually more dangerous because they cause deaths in the vehicles that they hit!

Lastly, Nader points out in his response that the Detroit automakers have only pushed the agenda that has made them money, big engines for jackrabbit starts.

So Round and Round We Go

There are safety issues, weight issues, and other matters that we go “round and round” on. You read one expert and then another, ending up wondering who to believe. I guess that makes life interesting and our EEVC meetings worth attending.

In conclusion I would like to come around (in our round world) to the point I made earlier: Detroit seems to make cars for the most who do not want to conserve. We blame Detroit (and in my opinion sometimes rightly so) for squelching the electric car, dragging their feet on what is really best for us, and for being greedy, stupid, and a host of other things. But we must remember that the folks who buy Detroit’s cars are the same people who vote for presidents. Until we give up the democracy the Most will continue to rule, that is until the gas runs out and our economy fails. But I suggest that we ease up on blaming and beating the Bushes, the Fords, or the Oiles, lest we sit on a treeless desert without any shade.

Our present day leaders didn’t start us on the petroleum trail. It may be more difficult to get us unhooked than we realize. And in this battle for truth we don’t want to be guilty of making untrue statements about global warming, fossil fuels, or automotive company failures. If a genie gave us our instantaneous wish, one that we made from our present bias, we might later discover that clean air and a broke economy might not be what we prefer after all. Gasoline now is better than horse manure once was. And a full wallet in tainted air is better than an empty stomach in perfect air. Edison had his opportunity to further the electric car with his battery. Unfortunately it couldn’t deliver what gasoline could. There were problems with it. Gasoline cars outperformed Edison’s electric dreams in ways that both you and I would agree were superior.

It is a big round world that we live on,

even though some perceive it as increasingly smaller and flatter. The moment we think we know what we are talking about we can get hit in the back of the head with something we erroneously shouted ten years earlier. At the time we were sure that we were correct. Maybe it took ten years for the sound of our voice to make the trip around the globe, and maybe that long for our opinion to change. In the meantime the world changed so fast that what we considered important then became irrelevant later.

There are many sides to changing issues. Some of our fellow citizens see things differently. Electric car enthusiasts have been often linked with “tree huggers,” “anti-nukes,” and “greenies” in the minds of more conservative voices. We may not want to appear to be totally aligned with these groups, especially if some of their claims lack credibility. Let us try to be fact finders and discoverers, rightly making assessments. Standing against corporate and political greed is one thing, seeing the other side of an issue and respecting the advocates, quite different.

Let us try to keep abreast of all of the latest happenings in the EV world and maintain a balanced view. The world has become flat, according to Friedman. But whether flat or round, it sure is different and changing by the moment. In five years time we may be surprised as to what type of vehicle THE MOST prefer. The car companies that we complain about today may be gone tomorrow. Look what is happening to them! Their stocks have suddenly become junk stocks. There is a revolution going on in the auto industry. The place for the electric car may be soon realized. Empowerment to develop it is here now. Maybe things are going to finally change after all.

So that is how I see it in my round flat world. Keep coming to the monthly meetings where we can assist one another in our global thinking.

ELECTION OF OFFICERS

Nominations for the next election of officers will be accepted at the November meeting, with candidates selected at the October meeting. Results will be announced in the December newsletter.

MINUTES OF SEPTEMBER MEETING

For the benefit of members who didn't make it to the last meeting, here are the highlights.

We discussed dropping our club insurance that provided us with liability coverage at car shows. We decided to save \$350 per year and drop the coverage.

We agreed to select a slate of officers at next month's meeting. All those now holding offices have agreed to be on that slate.

Ron Groening discussed the Web site and asked for suggestions. He was given the green light to proceed full speed ahead.

Pete Cleveland provided an interesting article on an alliance of large power corporations, world wide, that will be attempting to produce cheaper and zero emission electrical energy from coal. One of the byproducts will be hydrogen to operate fuel cells. The report sounded very promising for another century of coal as our primary source of electrical energy. There were some signs of distrust and disgust of the wisdom behind this plan from members in attendance.

Oliver Perry reported on the progress of a wind powered electrical generating company in Vermont. The towers would close to 300 feet high and the individual blades about 150 feet in length. Those interested in maintaining the natural beauty of Vermont were in slight opposition.

Mike Deliso reported on the new battery pack that Wayne Knight put in his electric Volksbaker. Much improved performance, at least double the range with Trojan batteries which had the same output production stats as the inferior original Interstate batteries. Mike Manning indicated that the inter-cell connections were less resistive in the more expensive Trojans.

Mike Manning went into great detail discussing his new project, a sports car being made from an RV. It appeared to this reporter [Oliver Perry] to be a huge sports car performing more like a lumber wagon.

Oliver Perry briefly mentioned the recent article in the Philadelphia Inquirer discussing a prototype backpack that generates electricity from the hip motion of the person carrying the pack. Mike Manning said that a professor that he knew had developed a human powered electrical system developed for the army

that created electricity pneumatically from air cushions in shoes.

A question was asked regarding current education and the No Child Left Behind movement. We discussed that for a few minutes.

Brief update on Paul Kydd's upcoming electric boat competition.

A new member from South Jersey attended our meeting for the first time and told us about his solar powered (photovoltaic) home. He wishes to eventually acquire or construct an electric vehicle because after his newest solar panels are installed he will have excess electrical power to charge a vehicle. At present his system provides enough power to alleviate his electric bill.

CHINESE ASK CALIFORNIA FOR ADVICE ON CONSERVATION By California Pete



California in many ways merits its reputation as the home of wretched excess (the *San Francisco Chronicle* recently reported that David Duffield, who last year sold PeopleSoft Inc., "has submitted plans for a 72,000-square-foot home that would eclipse the mammoth mansions custom-made for his more famous peers, Bill Gates and Larry Ellison.") Yet in some ways the state is frugal; it is the most energy-efficient state, for example, and this has garnered attention in some unlikely places.

In September, according to the *Chronicle*, representatives of the state Public Utilities Commission, the Energy Commission and Pacific Gas and Electric Co. signed a pact with Jiangsu province in China, plus informal agreements with Shanghai province and the central government in Beijing, to provide expertise and training to Chinese regulators and utility companies. The goal is to help the Chinese do something about their country's "abysmal air pollution, its surging need for energy—which has helped drive up international prices for petroleum, natural gas and coal to record highs—and its fast-growing

output of the greenhouse gases that are linked to global warming.”

The Chinese are considering a practice used in California called Demand Side Management (DSM), which uses use pricing mechanisms and subsidies to reduce energy consumption. There was also talk of duplicating the 1% fee on California electric bills that goes to fund “about \$500 million annually in conservation programs carried out by the state and the utility companies.”

The *Chronicle* reports that a study by the Natural Resources Defense Council found that California-style conservation programs could reduce China’s electricity consumption growth by 10 percent over the next decade, saving enough electricity to avoid building 26 coal-fired power plants, and at one-quarter the cost of what it would take to build those plants.

BURNING RUBBER ELECTRICALLY



This photo, from a year ago, shows the Duane Gergich/Steve Kiser/Father Time motorcycle “Dragon Rose” at the start of a run at the 2004 Woodburn Nationals

in Oregon at which it entered the 100 mph+ club with a speed of 100.7 mph and an elapsed time of 12.497 seconds. The bike runs on 156 volts with an 8-inch Advanced D.C. motor, 16 A-hr Hawker Genesis batteries and a Raptor 1200 controller

NEWS UPDATE

Mack shows hybrid truck



On September 28 Mack Trucks, Inc., in conjunction with the United States Air Force Advanced Power Technology

Office (APTO), displayed on Capitol Hill a prototype hybrid electric powertrain for Class 8 heavy-duty trucks. The powertrain is mounted in an Air Force R-11 6000 gallon

capacity refueler truck built on a Mack RD 6x4 chassis. Developed under a \$1.2 million Department of Defense contract Mack received through Southwest Research Institute in 2003, the truck uses a motor, motor control, and battery system from Enova Systems.

Classed as a mild hybrid, the electric motor is used only to assist in launching the vehicle and to recover braking energy. Additional work is ongoing to develop a full hybrid system that can launch a heavy-duty truck with only electric power.

Mack hopes eventually to use the technology in such commercial applications as a refuse hauler.

Hot for fusion

Machine Design magazine reports that China, the EU, Japan, Korea, Russia, Switzerland and the U.S. are collaborating on the design and construction of a new fusion research facility to be called the International Thermonuclear Experimental Reactor (ITER).

Construction on the reactor, which will be variation on the familiar Tokamak design, will begin in 2007 at a site in Cadarache, France, with the \$5 billion plant expected to be up and running in 2016, according to the magazine.

Ethanol worth another look?

A recent broadcast on *The History Channel* pointed out that Brazil, by large-scale use of sugar-derived ethanol, has rendered itself nearly self-sufficient in energy. The program also pointed out that Henry Ford, when he began building his Model T, believed that ethanol would quickly replace gasoline as the motor fuel of choice, simply because the latter would quickly become too expensive, and took steps to adapt to it, including modifying the Model T’s carburetor to work on alcohol and investigating what would be needed to produce sufficient quantities.

Ashok Goyal, Director, Product Development, Ford Asia Pacific Hiroshima, speaking at at the Alternative Fuels Seminar, 26th Bangkok International Motor Show, told the same story. He quoted Ford, who said in 1916, “There’s simply no two ways about this fuel question. Gasoline is going — alco-

hol is coming. It's coming to stay, too, for it's in unlimited supply. And we might as well get ready for it now. All the world is waiting for a substitute to gasoline. When that is gone, there will be no more gasoline, and long before that time, the price of gasoline will have risen to a point where it will be too expensive to burn as a motor fuel. The day is not far distant when, for every one of those barrels of gasoline, a barrel of alcohol must be substituted."

While it has taken longer than Henry anticipated, Goyal said, that time is getting close, and he had a solution for his Thai audience: take twenty percent of the \$12 billion that Thailand spends annually on imported oil and use it to develop sugar cultivation in the country's impoverished Northeast.

Goyal estimated that by planting the appropriate crops, it would be possible for Thailand to produce enough ethanol — 960,000 kiloliters — from an area 34 km on a side to allow everyone in the country to switch to 20 percent ethanol fuel and replace 600,000 kiloliters of imported fuel. The left-over plant material, he continued, could be used as animal feed.

Key to the change, he went on, would be the introduction of flex-fuel vehicles, which automatically adjust to the fuel they're given. Such vehicles already exist, of course: GM, Ford and everyone else selling into the Brazilian market has to provide cars that will run on any mixture from straight gasoline to 85% ethanol, according to *The History Channel*.

Perhaps the time has come for the U.S. to look at the same plan.

COMING EVENTS

2005 Fuel Cell Seminar Nov 14-18, Palm Springs, CA. For information call 202-973-8671, fuelcell@courtesyassoc.com, www.fuelcellseminar.com.

Hybrid Truck Users Forum

October 19th- 21st, Near Toledo, OH. Con Bill Van Amburg, bvanamburg@calstart.org or Monica Alcaraz, malcaraz@weststart.org, 626-744-5655.

ITS America 12th World Congress on Intelligent Transportation Systems

Nov. 6-10, San Francisco, CA. Call 202-484-4847, www.itsa.org.

California's Transportation Energy Future

Dec. 1, Los Angeles, CA. Contact Matt Peak, 626-744-5601, mpeak@weststart.org.

Electric Drive Transportation Association Conference & Exposition 2005

Dec 6-8, Vancouver, BC. Call Pam Turner, EDTA Conference Manager, 408-395-0059, pturner@firstoptionevents.com.

Hybrid Vehicle Technologies 2006 Symposium

February 1-2, San Diego, CA. Contact Nancy Eiben, SAE International, 724-772-8525, naneiben@sae.org.

Motor & Drive Systems Conference

February 15-16, Miami. Contact Jeremy Martin at jeremym@infowebcom.com.

Clean Heavy Duty Vehicle 2006

Feb 22-24, San Diego, CA. Contact: Susan Romeo or Monica Alcaraz, 626-744-5600, Sromeo@weststart.org or Malcaraz@weststart.org, www.weststart.org.

2006 SAE World Congress

April 3-7, 2006, Detroit, MI. Contact Nancy Lewis or Shawn Andreassi, both of SAE International at 724-772-4068 or pr@sae.org.

Michelin Challenge Bibendum 2006

June 9-12, Paris. Contact at <http://www.challengebibendum.com/challenge/front/affich.jsp?codeRubrique=45&lang=EN>, or go to www.challengebibendum.com.

Convergence 2006

October 16-18, 20, Detroit, MI. Check www.sae.org.

MEETING SCHEDULE

Meetings are held in Room 35, Plymouth-Whitmarsh High School, 201 East Germantown Pike in Plymouth Meeting, PA, and begin at 7:00 p.m.

November 9
Election of officers

December 14

January 11

February 14