



EEVC NEWSLETTER

Published by the Eastern Electric Vehicle Club

Peter Cleaveland, Editor

Club Address: P.O. Box 134, Valley Forge, PA 19481-0134

email: easternev@aol.com. Web site: www.eevc.info

President: Oliver Perry, 5 Old Stagecoach Turn

Shamong, NJ 08088, (609) 268-0944

Copyright © 2010, Eastern Electric Vehicle Club, all rights reserved

Vol 30 No 1
JANUARY, 2010



Now affiliated with EAA

THE 2009 EEVC MEMBER OF THE YEAR AWARD GOES TO MICHAEL MANNING Oliver Perry

As 2010 begins, The EEVC salutes Michael Manning. He is most deserving of the 2009 EEVC Member of the Year Award. Michael is a rare and unique individual whom we all have come to respect, appreciate, love and admire. We are proud to claim him as a fellow member of the EEVC. He has been with us from the beginning. Mike has always been helpful and willing to share his knowledge and expertise with any and all members. This distinguished award is long overdue.

At the beginning of each new year the EEVC Newsletter traditionally features an EEVC member whom we feel deserves special recognition for their contributions to the EEVC for the previous year. Frequently the



Michael Manning, EEVC Member of the Year

person selected not only has made outstanding contributions for that year, but for many years.

Most of our members have come to rely on Michael's 40 years of experience as a physicist, materials scientist, and researcher to clarify and make clearer to us highly technical

information related to electric vehicles. Michael's work experience has included experimental therapeutic apparatus design, scientific data organization, battery research, computer applications, automotive repair, and electric car building expertise. From providing the chemical workings of batteries to explaining how electrical, mechanical, and electromagnetic devices work, Michael has been an encyclopedia of knowledge for the

EEVC membership for many years. Michael is an expert in the automotive field as well as in the electronic side of futuristic gadgets. Michael can inform us where a junk yard for rare auto parts can be found as well as where we can look on line for the latest information regarding a new type of electric motor. He can locate information on a computer and assemble almost anything mechanical with his hands. Michael is one of those hard to find “renaissance men.” He is a member of our “think tank” EEVC team.

2009 Was an Active Year for Michael Manning and the EEVC

The year 2009 was a very busy year for the EEVC. Michael was ready, willing and able to assist us in every EEVC presentation and activity. The EEVC was asked to participate in electric vehicle events at the Moore School of Art, The Green Expo in Philadelphia, the 21st Century Automotive Challenge at Penn State, the presentation for the Southeastern Pennsylvania Physics teachers Association at Villanova University, the green car expo at Mungie Park (near Allentown, PA), a Sunday afternoon electric car rally in Mullica Hill, New Jersey, the Sustainable Energy Festival at Kempton, PA, and the presentation to the Audubon Society in Audubon, Pennsylvania. In addition to attending all of these events, Michael continued to make his many contributions to our monthly meetings at the Plymouth Whitemarsh High School. Michael Manning definitely earned the 2009 EEVC member of the year award.

Working for BG Corporation.

In the late spring of 2008, a gentleman by the name of Bernie Bernstein came to one of our monthly EEVC meetings. Bernie, who had made his mark in the steel business, informed us that he intended to start an electric car company in Philadelphia. He planned to produce a small neighborhood type vehicle called an NEV for his first entry into what he believed was going to soon become a viable market. Bernie was hoping that someone in our organization would join his company, called BG (Be Green), as an engineer/design manager and build his first prototype electric car by converting a gasoline car, from China, to electric. Michael

Manning applied. He was quickly hired in June of 2008.

Barry commissioned Mike to convert three of four newly purchased gasoline powered Chinese vehicles. Mike incorporated a 44 pound three phase motor into the design. He was forced to use lead acid batteries because of price restrictions. Bernie did not want the cost of the vehicle to exceed 25,000 dollars. During a period of approximately six months Michael almost single handedly designed the electric drive train for the stripped vehicle. With the help of a few others Mike quickly constructed a great working prototype for BG. Using a 48 volt system Mike was able to obtain a range of 60 miles at an average speed of 37 mph. He was able to incorporate eight six volt, 435 ampere-hour industrial floor scrubber batteries without intruding into the vehicle’s five passenger seating space. There is probably not a better running NEV prototype anywhere in the world according to Mike. One of the vehicles can be viewed in action by addressing “BG Electric Car” on U-tube.

Unfortunately changes in the economic climate, along with dropping gasoline prices and a growing recession caused bankers to withdraw their promises. The money needed to set up vehicle production became impossible to acquire. Bernie declared bankruptcy and closed down the project. Michael’s employment was terminated toward the end of 2008. However, the desire to produce a well working vehicle kept Michael and his skeleton crew at work even without full payment. The company may have folded but Mike feels that his work was a success.

Out of a Job and Available for the 21st CAC

Because Mike did not have permanent employment this past year, he was available to attend the 21st Century Automotive Challenge at Penn State last April. Without Mike’s help and assistance it would have been almost impossible for us to take the Burlington County Institute of Technology’s Electric Car, The Olympian, a converted Ford Escort, to the competition and compete as well as we did. With Michael’s help we were able to compete in all categories, finish all events, and earn a highly respected second



Mike Manning with the Olympian at Penn State in April, 2009.

place when the final tallies were made.

Hoping For a Grant at Rowan Energy Inc.

For some individuals the bitterness of experiencing the bankruptcy of B G Corporation and the loss of a job in a down economy could place them on the street looking for a homeless shelter. But Michael, always a creative and a persistent soldier, managed to keep his home and property, (minus some furniture, electricity, and phone service), afloat through short term and part time jobs. It has not been easy for him in this present economy however.

Recently, Dennis Rowan of Rowan Energy Inc., at Mardinly Enterprises Inc., invited Mike to form a cooperative group (on a volunteer no payment basis) to invent and engineer a unique battery connection technique for the bi-directional charging and discharging of electric vehicles into and out of the National Power Grid. Michael is still hoping for one of six government grant applications to come through to enable the company to follow through on at least one of their proposals, and for Mike to be paid for his services. In the meantime the company occasionally finds Michael to be a useful mechanic for minimum wage. Michael sometimes finds himself in the shop, turning wrenches and twisting screwdrivers. (Which is far better than turning bar stools and drinking screwdrivers?)

Michael Manning's Academic History

Michael Manning attended La Salle High

School in Philadelphia. It was here that he became involved with his first electric vehicle project. A former elementary school bus driver, by the name of Jim Sutton, contacted Mike and asked him to help restore two non-functional antique electric cars which he had inherited from his father. One vehicle was a Baker Electric and the other a Detroit Electric. With the help of a local machine shop owned by Paul Retloff, Sr., Michael was able to reconstruct both drum speed controllers on each car using copper plates and wooden cylinders. He installed new wiring and a 72 volt system in each vehicle using twelve six volt 145 amp-hr lead acid batteries. Mike utilized a local generator, alternator, and starter rebuilding shop owned by a schoolmate's father, Frances Destephano senior, to rebuild both main drive motors. He was able to achieve a driving range of 45 miles at an average speed of 20 mph with each car when the project was finished.

After high school graduation Mike attended Temple University where he earned both an Associates degree in electronics and a BA in physics. The Temple degree was followed by an MS degree in physics from the University of Pennsylvania.

Work History: WCAU-TV

The first job listed (1960-67) on Michael's résumé is that of a telecommunications engineer at WCAU TV and FM Station in Philadelphia, where Mike helped to engineer the conversion of WCAU-TV and FM transmitting facilities from electron tube technology to transistor technology equipment.

Exide Research Lab

From 1967 to 1981 Michael took a challenging job in battery research and development at the Exide Research Center in Yardley, Pennsylvania.

At Exide Michael was involved in the testing of all sorts of new and old battery concepts. Even back then Mike said that Exide was experimenting with lithium ion batteries. One unusual battery that Mike remembers experimenting with was a nickel-zinc chemistry battery whose plates constantly grew interfering zinc tentacles. A solution to preventing these tentacles from growing was to apply a steady mechanical shaking device to

the battery.

While at Exide Mike was also involved in the construction of several electric vehicles that management wanted built in order to demonstrate the maximum performance of lead acid batteries. They desired vehicles that would demonstrate instant vehicle recharging using quick exchange batteries. In 1967 Michael designed two cars that used a T shaped battery compartment allowing batteries to be easily removed. The batteries rested on caster-roller style conveyer belt rollerbeds. The car bodies utilized Monique style frames made from welded aluminum plates. The construction was done by McKee Engineering in Chicago, Illinois, a company Mike selected because of their good reputation in the fabrication of Indianapolis style racecar bodies. Upon completion of the cars in late 1967 Mike was able to demonstrate a range of 120 miles at an average speed of 60 mph on the Trenton Speedway. The cars are supposedly still able to be seen on the internet by looking up Exide Sundancer on Google.

Michael's next electric vehicle for Exide was the conversion of a half-ton mail delivery van for the United States Post Office. He incorporated the vibrating electrolyte nickel-zinc battery of his own invention into the vehicle and was able to achieve a 60 mile range at an average speed of 45 mph. By the end of the project the battery had been tested for 900 complete discharge cycles with only 10 % loss of capacity.

Sperry

When Exide decided to move their research facilities from Yardley to Reading, Pennsylvania in 1981, Mike decided to leave the company in order to remain closer to his home in Philadelphia. He picked up a great job with Sperry-Univac.

Aircraft Armaments International

Unfortunately, in 1986, Sperry changed direction and ownership. Michael was forced to make a move from Sperry to Aircraft Armaments International, (formerly SETI) in Montgomeryville, PA., a company that specialized in the design and prototype production of state-of-the-art infrared emission fuses and missile guidance systems. There he found himself working on the design of a self

directed Howitzer shell. According to Mike much of the project was top secret and he is not free to share the details. Much of what he did involved classified information.

Temple University

From September, 1993 to November, 2004 Michael worked in the Biomedical Physics Department of Temple University as a physicist. Among many of his projects at Temple was that of trying to discover the minimum energy necessary for immune systems to fight cancer.

Michael eventually found himself in Russia, all expenses paid by Temple University. Older EEVC members may remember seeing Mike at our meetings wearing his distinguished Russian winter hat that he picked up while working over there. Mike was sent to Russia to procure millimeter microwave devices which were available to those who found the tricks for locating them. Some of these devices had been used by the Russian Medical community for stimulating immune system responses in humans. At Temple Michael was involved in designing and execution of experiments investigating the biological mechanisms responsible for this effect.

Langhorne Speed Shop

In 2004 Michael's director at Temple ran into a funding crisis and released Mike. In order to keep his home and shop Michael took a basic "no frills" job at the Langhorne Speed Shop, in Langhorne, PA., as an automotive electrical engineer. The employment required rebuilding engines for race cars and transmissions as well. On the side Michael led the Speed Shop in converting a few golf carts to electric neighborhood vehicles, hoping that this aspect of the business would grow. At this point it has not flourished.

Mike Manning's Latest Creative Idea

In Mike's own words, "Since I have been waiting for grant money for nine months and have yet to receive a dollar in salary and have run completely out of savings, I am now ready to start a new electric vehicle project. I have carefully studied the design of the financially successful Tesla electric car and have discovered many flaws in its engineering.

First the battery design is far too complicated and inaccessible for repairs by the owner. It requires 6130 cylindrical lap top computer lithium iron phosphate cells for its construction. These cells require liquid cooling to work properly. This arrangement costs \$64,000 dollars to build and it is not field serviceable. The sealed battery assembly must be sent back to Tesla for repair.”

“I have designed a much simpler battery which is composed of prismatic cells, is air cooled and not hermetically sealed. This means it can be repaired anywhere. Furthermore, my battery design, while allowing reasonable acceleration and vehicle top speed, also incorporates one-third more battery capacity, allowing an extension of the vehicle’s operating range from 240 miles to 360 miles.”

“In addition, I have designed a planetary type two speed transmission to replace the single speed transmission of the Tesla. This transmission is capable of handling the maximum torque of the main drive motor without failure.”

“Anyone who wishes to be a partner in this project and finance it, please get in contact with me at my e-mail address: michaelmanning.manning@Gmail.com.”

A listing of a Few of Michael’s Vocational Achievements

1. Designed and developed a millimeter wave bridge, built in Russia, to effect the determination of resonances in biological fluids and colloidal solutions containing living cells.

2. Designed and installed an incubator and coil system capable of producing ELF electronic fields of 100 gauss minimum strength in a temperature, humidity and carbon dioxide environment for incubation of living cells in electromagnetic field environments.

3. Designed and setup a polarized light microspectrofluorometer for the determination of the changes in the micro viscosity of living cell membranes which may take place under the influence of pulsed and continuous wave millimeter energy sources.

4. Investigated molten salt electrochemistry energy storage systems for public utility load leveling

5. Developed lithium-organic electrolyte

systems for watch battery and pacemaker systems.

6. Initiated and developed a solid electrolyte synthesis for both military and medical battery applications.

7. Invented a bioelectromagnetic device to heal both hard and soft bone tissue.

8. Investigated nuclear magnetic resonance, electron spin resonance, and did physics studies of battery electrode materials.

9. Designed original electrochemical research instrumentation

10. Proposal, design and construction of safe/arm mechanism employing novel activation techniques, obviating the need for many forms of stored energy.

11. Development of a manufacturing and test procedure for a matched-pair discriminator filter for application in Doppler-shift radar detection circuits.

12. Co-author or contributor to many patents and patent applications at Sperry Corporation and Exide Corporation.

13. U.S. Patent #3,893,462; July 8, 1975 “Bioelectrochemical Regenerator and Stimulator Devices and Methods for Applying Electrical Energy to Cells and/or Tissue in a living body.”

14. British Patent #3,390,965; April 16 1975 “Crystallographic growth and identification of Silver Rubidium De Iodide from an Aqueous Media”

15. Publications in the Journal of the E.C.S in December of 1971 and in Science in May of 74. The first article dealt with identification of crystals and the second with the augmentation of bone repairs using inductively coupled electromagnetic fields.

16. Design and development of a turbo generator capable of operating at 20 atmospheres stagnation pressure, which served multiple purposes in the arming and detonation of missiles.

17. Design of the electronic and optic mechanisms for Project Deadeye... a replacement for the Sidewinder missile guidance system.

Michael Manning: The person

Everyone appreciates Michael Manning’s friendly smile and pleasant disposition. He has never married and does not have a family of his own. Michael devoted himself to car-

ing for his mother until her death after his father, a medical doctor, died. He owns a small home and a sizeable garage in Bensalem, Pennsylvania. He has been gracious over the years to share his humble home and facilities with various individuals, some of whom have taken advantage of his good natured spirit.

Those who get to know Michael recognize him as being a very unique, very talented, and a very caring individual. He exhibits characteristics similar to men of genius like Albert Einstein. Mike's interests are not in maintaining appearances or keeping pace with the society around him. A pile of used automotive parts to some may be an unsightly pile of junk, but to Mike it is a useful pile of wonderfully created toys. His goal in life seems to be to satisfy his curiosity, invent, develop, and do research, not to make tons of money. He can tell you plenty of stories about the many big fish that got away. Some fish he almost caught and would have caught had others not stolen them off of his hook. His creative ideas, insight, and labor have helped others to claim fame and fortune. Yet to those who have taken advantage of him, Mike has always been overly gracious, never been spiteful or harbored a revengeful attitude. Mike is a peace loving person, interested in doing science and in helping others. He deserves to land a big fish some day.

A Mike Manning Story for the Road.

A number of years ago founder of the EEVC Guy Davis expected Mike Manning to bring a hard to get electric motor for a Boyertown Museum restoration project, to our monthly meeting. Mike promised Guy he would bring the motor to the meeting on his way from his job at Temple University. Guy was pacing around the room waiting for Mike to arrive, hoping that Mike had not forgotten to bring the motor with him, since absent minded genius type people like Mike often seem to forget the obvious. I remember Mike entering the room empty handed and facing Guy who raised his hands and yelled across the room, "Where is my motor?"

Mike replied in the most excited voice that I have ever heard him use. "It was stolen out of the trunk of my car!"

Guy exploded, looked around in disbelief,

lifted his hands in the air, and then began to wander around the room as if his whole world had crashed. As Guy began to verbally express his dissatisfaction with Mike's reliability, Mike, looking equally shocked, finally yelled back, "How do you think I feel? You lost your motor but I lost all of my tools, the stereo system, and both of my car doors!"

EVENTS OF NOTE

EDTA conference

Plug In America invites all to attend the EDTA (Electric Drive Transportation Authority) Conference, January 26 to 28 at the Washington Auto Show in Washington D.C. Plug In America members will receive a special discounted rate of \$450; a savings of \$250 to \$300 on registration rates available between now and the conference.

To register, complete the registration form (available at www.pluginamerica.org/images/Plug%20In%20America%20Member%20Registration%20Form.pdf) and return it by fax to 202-408-7610 or email registration to Lynnica Johnson, Ljohnson@electricdrive.org.

Plug In America nonmembers can join for \$25 at https://salsa.democracyinaction.org/o/2711/shop/shop.jsp?storefront_KEY=524.

The EDTA Conference is an opportunity to listen to and rub elbows with automakers, utilities, battery suppliers, technology experts, media, and policy makers. There will be 12 different conference sessions, plus an Advanced Technology Super Highway on the auto show floor.

For further information call Lynnica Johnson at (202) 408-0774 x303.

EVS25

The 25th World Battery, Hybrid and Fuel Cell Electric Vehicle Symposium & Exhibition (EVS25) will be held on November 5-9, 2010 in Shenzhen, Guangdong, China. EVS is the major event of the World Electric Vehicles Association (WEVA) which has three regional members: Electric Vehicle Association of Asia Pacific (EVAAP), European Association for Battery, Hybrid and Fuel Cell Electric Vehicles (AVERE) and Electric Drive Transportation Association of Americas (EDTA). The EVS series is recognized as

the global electric transportation industry's premier and largest forum, showcasing all forms of technologies in the market place and on the drawing boards — from low speed battery electric vehicles to fuel cell electric buses. The event attracts academic, government and industry leaders from around the world who are interested in exploring and understanding the technical, policy and market challenges to a paradigm shift towards the use of electric transportation technologies. EV commercialization and industrialization, and innovation of high-end industry and leading technologies related will be some of the major topics deliberated.

The organizers of EVS25 have issued a call for papers. For instructions on how to submit an abstract or a paper, go to www.evs25.org. The deadline for abstracts is April 30, notification of acceptance is June 25, and the deadline for the full paper is August 10. For questions, suggestions or requests, email weifeng@evaap.org or weifengces@yahoo.com.cn.

EV BUSINESS IN CA By California Pete



Despite economic conditions, California EV companies keep on keeping on; a case in point is ZAP Inc., which has been selling a line of low-speed and industrial EVs for some years now. While Tesla has been getting all the attention, ZAP announced on Dec 16 that it had established a joint venture in China with Holley Group, the world's largest volume producer of electric power meters to target the electric vehicle market in China. The venture is backed by the venture capital firm Better World International.

In addition, UPS for the third year in a row has leased a fleet of electric trucks from ZAP to help with deliveries to urban and residential communities in the Bay Area.

The 25 ZAP electric trucks enable drivers to more easily schedule delivery routes in neighborhoods and dense urban areas where congestion and parking restrictions present potential problems for larger UPS vans. UPS has leased 92 electric vehicles from ZAP

since 2007.

Solar moves ahead fitfully

Solar energy projects in California recently suffered a setback when at least one large plant set for the Mojave was cancelled due to opposition from environmentalists, but other projects continue. A January 4 article by *San Francisco Chronicle* writer David Baker reports that engineer and energy consultant Bill Powers is advocating "that California should cover every available rooftop with photovoltaic solar panels, especially commercial buildings. The panels can be installed quickly, unlike large solar power plants that take years to win government permits. They don't require big new power lines. And their price has dropped about 40 percent in the past year."

PGE&E, of course, argues that large-scale installations make more sense, because small ones will not have sufficient capacity and large-scale thermal solar plans are both more economical and more efficient. But the article then quotes another consultant who maintains that photovoltaic and solar thermal have comparable costs — as long as they're 20 MW or more, which doesn't look encouraging for small-scale solar.

On the other hand, solar panels have never been more easily available. A December 11 story by AP energy writer Chris Kahn reports that solar panels are beginning to show up in home improvement stores. Lowes stores in California, the story goes, are now stocking the panels, and the company "plans to roll them out across the country next year."

It's not all that easy, of course, the article goes on, with lots of paperwork added to the cost of the panels (\$893 per 175-watt panel) and materials required for installation, but it looks like a pretty straightforward deal otherwise.

But utility-scale solar is advancing too; On December 21 First Solar and NRG Energy announced the start of commercial operation for the largest photovoltaic (PV) solar project in California. First Solar developed and built the 21-MW power plant in Blythe, Calif., which was acquired last month by NRG through its wholly owned subsidiary NRG Solar. Electricity generated by the solar facility is being sold to Southern California Edison under a 20-year power purchase agreement.

Located in Riverside County about 200 miles east of Los Angeles, the Blythe plant is the largest thin film PV project in the United States and is five times the size of the next largest PV project in California.

Where have all the sea lions gone?

A few years ago many of the docks at Pier 39, along San Francisco's Embarcadero tourist strip, were taken over by seal lions, which clambered out of the water to rest, bark at each other and generally hang out, much to the distress of dock owners who lost their use and were forbidden from driving the creatures away. Of course the tourists liked them, but the fishermen didn't. At one point as many as 1200 of the smelly pinnacleds had taken up residence.

But a week or so ago they decamped en masse. To where? Theories abounded. One popular one was that the herring population in the Bay had dropped recently, and the sea lions had gone to follow the fish. Those of us who like conspiracies noted that in the months leading up to the seal lions' departure there had been an inexplicable 50 percent drop in the city's homicide rate; could they have been responsible for all those killings, leaving the gang bangers to be unjustly accused? Had they decided that their task was complete and it was time to move on? Inquiring minds wanted to know.

Then came news that large numbers of sea lions had been spotted 500 miles up the coast, near the Oregon border, right about the time that a 4.2 magnitude earthquake hit to the southeast of San Francisco. And then a 6.5 temblor struck a couple of hundred miles up the coast, breaking lots of crockery in Eureka and environs. Did the sea lions know something? They had to pass Bodega Bay on their way up the coast, after all, and we all remember some strange wildlife behavior there a few decades back, don't we?

WSJ REPORT ON THE UPCOMING DETROIT AUTO SHOW

By Oliver H. Perry



The following Headline appeared in the Friday January 8th 2010 edition of *The Wall Street Journal*, page B2 under Corporate News.

Electrics, Hybrids Star at Car Show

According to an article, written by Kate Linebaugh (with contributors Sharon Terlep and Jeff Bennett), electric vehicles, hybrids and small cars are slated to take center stage at the well known Detroit auto show beginning the week of January 11th. Fiat SpA, Volkswagen AG's Audi, BMW AG and Chinese Auto maker BYD Auto Co. all plan to show new electric vehicles in various stages of development. Nissan Motor Co. will display its small Leaf electric car. Toyota Motor Corp., Honda Motor Co. and Volkswagen will show new gas-electric hybrids while GM and Ford plan to promote new gasoline powered subcompacts and compacts.

The space usually reserved for the Hummer, Saturn, Pontiac, and Saab will boast "Electric Avenue," a place for electric cars, instead. And, for the first time in recent memory Chrysler won't unveil a new vehicle at the Detroit auto show.

Some say that the emphasis on these pricier "green" models is out of synch with consumers.

The article points out that these new green cars will cost significantly more than similar gas powered versions and that many consumers have begun to move back to the larger vehicles, flocking to the smaller cars only during the period when gasoline prices exceeded \$4.00 a gallon. Hybrid vehicles which have

been sold in the U.S. for ten years account for only 2.7% of all vehicles sold in this country according to Autodata Corp. Sales from small cars fell from the number sold in 2008 while sport utility vehicles gained slightly under 4% of market share.

Rebecca Lindland, an analyst at IHS Global Insight, claims that we are seeing more and more small cars being made available to the public but we are not seeing significant demand from consumers for these smaller, greener vehicles. A report released Thursday, January 7th, 2010 by Boston Consulting Group casts doubt on the mass appeal for electric cars unless there is a major breakthrough in battery technology. Battery costs are still too high.

Boston Consulting Group estimates that fully electric vehicles will make up only 2.8% of the global market by 2020, while hybrids and range extended vehicles will account for 23%. But even so, according to the *WSJ* article, car makers are charging ahead with electric vehicle plans.

As for the GM volt, according to the article, GM began production last Thursday, Jan 7th, 2010 on the lithium-ion battery pack for the Volt. The GM board is considering an earlier launch of the long awaited vehicle which was initially set to come out late this fall of 2010. Maybe GM will have a few cars for limited lease or corporate fleets as early as late summer or the beginning of fall. GM would like to beat the Nissan Leaf to market. Rumors have it that the Leaf might be available in December. There is also speculation that maybe GM might be able to sell the volt for less than its expected \$40,000 price, according to Jon Lauckner, GM's head of global program management.

BMW, which put out a limited fleet of two-seat electric Mini Coopers last year, plans to display a four seat BMW electric concept car at the Detroit auto show, based upon its 1-Series that will be leased to fleet owners next year.

Meanwhile Audi's head of North American operations, Johan de Nysschen, was quoted as saying, "It is popular at the moment to think batter powered cars hold the solution. We have a long way to go before it is a reality."

Mr. Nysschen expects the electric vehicle

market to go in two directions. On the one hand there will be the small limited range electric vehicles, on the other, high performance cars with equally high prices to help recoup the investment costs. Audi's first electric vehicle most likely will be in the high end category.

The article ends with the statement that consumer anxiety over the limited range of electric vehicles continues to be the stumbling block.

In India, "Green Cars" Look Like a Hard Sell,

Page B2 *WSJ*, Jan 8, 2010

WSJ writer Eric Bellman points out in his article that Toyota Motor Corp's Prius and a number of other green-themed vehicles made their India debut the first week in January, 2010 at the New Delhi Auto Expo, but auto experts and auto executives agree it will be years before many people buy the cars.

Even India's Tata Motors Ltd., South Korea's Hyundai Motor Corp., General Motors Co. and France's Renault SA, who all have their electric and or hybrid vehicles on display, may not be able to sell them. Even India's largest auto maker, Maruti Suzuki India Ltd., who unveiled its answer to the Prius, called Eeco Charge, said it won't mass produce the car until 2015, if ever.

Reason? One major reason; research indicates that India's infrastructure does not have the ability to utilize electric cars. Few cities have regulated electric power and few homes have parking spaces near electric outlets.

Secondly, the higher cost of cars like the Prius do not sell among the very price sensitive Indians. One consulting company person was quoted as saying that the cost of battery packs made abroad (and subject to high Indian tariffs), placed in some of the vehicles will cost as much as the vehicles themselves. Adding the green element in India simply costs too much.

Electric scooters and motorcycles have been on the roads in India for a few years. But after initial interest, sales of the battery powered two-wheelers (made by two of India's top manufacturers) have plunged over the past two years. 12,000 vehicles were sold last year compared to 22,000 the previous year.

India is big on compressed natural gas transportation. According to the article India is one of the biggest user of CNG vehicles in the world. Natural gas is close to the same price as gasoline and it is inexpensive to switch a regular car or truck to CNG.

OLIVER PERRY TO BE HONORED BY EAA

Breaking News: The Electric Auto Association (EAA) plans to present the EAA Lifetime Achievement Award to EEVC president Oliver Perry, in recognition of his many years of service to the EEVC, EAA and the world of electric vehicles in general. The award will be presented at the EAA Annual Members Meeting at 10:00 on Saturday, February 20, in Palo Alto, CA. We'll provide more details in the next issue.

NEWS UPDATE

Toyota debuts pint-sized hybrid

An AP story dated January 11 reports Toyota unveiled a new hybrid concept car that is smaller than the Prius and geared toward younger buyers at the Detroit Auto Show. The FT-CH compact is part of the company's plan to expand the Prius "brand from a single vehicle to a family of hybrids." The TH-CH is "22 inches shorter than the Prius, is lighter and more fuel efficient and its styling, inspired by 8-bit video games popular during the 1980s, is intended to appeal to younger buyers."

No production plans were announced for the concept vehicle.

Toyota to send HEVs to U.S.

Toyota has announced plans to send more than 100 hydrogen fuel-cell vehicles to universities, companies and government agencies in California and New York.

Toyota To Sell Plug-In Hybrids In 2011

A story by AP business writer Yuri Kageyama dated December 14 reports that Toyota had shown "its new plug-in hybrid available for leasing this month in Japan, the U.S. and Europe, and promised the green vehicle for sale to regular consumers in 2011 at an 'affordable' price."

Plans call for about 600 vehicles to be distributed in Japan, the U.S. and Europe in the next six months. The car has a range of 23.4 km (14.5 miles) on battery alone, "and gets 57 kilometers (35.42 miles) a liter in mileage, the equivalent of about 135 miles a gallon." Top speed is about 100 kph (62 mph).

Bill introduced to electrify postal delivery fleet

On December Congressman José E. Serrano (D, NY) introduced H.R. 4399, The American Electric Vehicle Manufacturing Act or "e-Drive" bill, which would begin a process of testing and deploying 20,000 electric-drive delivery vehicles for the U.S. Postal Service, operator of the nation's largest civilian fleet. The bill envisions both fuel savings and the possibility of using the fleet the ability to act as an energy storage asset for the power grid through 'vehicle-to-grid' technology. The legislation would allocate up to \$2 billion for a two-phase, multi-track testing and manufacturing program, administered by DOE, for the design, deployment, and assessment of EVs.

Indiana RV plant reopens to make EVs

An AP story dated January 6 reports that Think North America has announced plans to open a factory in an Elkhart, IN that once made parts for recreational vehicles. This, the company's first U.S. plant, could have 415 full-time jobs by 2013. Production is expected to begin in early 2011 and eventually exceed 20,000 cars per year. Parent company Think Global currently makes its compact, two-door electric passenger cars in Finland.

The plant will receive a 10-year tax abatement.

The story adds that two other companies have EV plans in Indiana: Navistar International Corp. plans to build electric delivery trucks this year and Electric Motors Corp. plans to build hybrid drivetrains.

Converting farm tractors to electric drive

A December 15 story by AP writer Jeff Barnard reported that organic farmers around the country have begun converting old farm tractors like the 1940s-vintage Allis-Chalmers Model G to electric drive. Claimed advantages, aside from less pollution, include

improved reliability.

Not all electric tractors are old

A December 23 AP story reports that Caterpillar Inc. has unveiled an electric drive track-type tractor. A new D7E “was presented to its new owner, Dan Klingberg, president of T.J. Lambrecht, a Joliet-based contractor. Klingberg says his company plans to put the new tractor to work on projects like the O’Hare International Airport modernization project.”

GM starts EV battery production

An AP story dated January 6 reports that General Motors “has made its first mass-produced electric car battery ... as it gears up to sell the new Chevrolet Volt to the general public later this year. The lithium-ion battery was made at GM’s Brownstown Battery Pack Assembly Plant that will produce the batteries for the automaker’s Volt assembly line in Detroit. Regular production at both facilities is expected to begin in the fourth quarter.

A123 Systems in joint venture

On December 17 A123 Systems Inc. and General Motors Co. partner SAIC Motor Corp. announced plans for a joint venture in China called Shanghai Advanced Traction Battery Systems Co. to produce EV batteries. SAIC, which is owned by the government, “will hold a 51 percent stake in the joint venture, which will focus on developing battery systems for electric and hybrid cars, trucks and buses, A123 said in a statement.”

Colorado working on EV batteries

A January 11 story by AP writer Tom McGhee reports that a “company created in Colorado State University laboratories is preparing to enter a potentially lucrative market to provide batteries for electric vehicles.” The startup, Prieto Battery, was launched by Cenergy. The university formed Cenergy, formed by the university “to move clean-energy innovations from research laboratories into the commercial marketplace.” The company has developed new technology that promises to help produce “batteries that are more powerful, longer-lasting and cheaper than lithium-ion rechargeable batteries now available.”

The new Li-ion batteries use bundles of polymer-coated nanowires on the anode that then surround the cathode to improve energy transfer.

Ford consolidating EV Program in MI

A January 11 AP story reports that Ford Motor Co. plans to consolidate its EV program under a tax incentive agreement approved by a state economic development board. There will be new jobs in advanced lithium ion battery production. And in May Ford announced “that it plans to build its next-generation Focus, including an electric version, in a facility near Detroit.”

Charging infrastructure in Seattle

A story by the AP’s Katie Zemtseff, dated December 11, reported that a partnership between Nissan North America and the Electric Transportation Engineering Corp., or (eTec) plan to set up 2500 EV charging stations in the Seattle area over the next two years. “Most stations will take eight hours to fully charge a car, but 40 stations will give a substantial charge in 15 minutes. Nissan wants to have all the stations constructed by the fall of 2011.” Both in-home and commercial charging stations will be included.

GLOBAL WARMING GOOD FOR BUSINESS?

Kimberly B. Keilbach has written a book entitled *Global Warming is Good for Business: How Savvy Entrepreneurs, Large Corporations, and Others are Making Money While Saving the Planet*, which makes the case that global warming can be seen as an opportunity to do things to help save the planet and make some money in the process (few things are as satisfying as doing well by doing good). For more on the book go to www.globalwarmingisgoodforbusiness.com. The list price is \$24.95, but EEVC members get a \$4.99 discount (plus \$4 S&H for the first book and \$1 for each additional book). Orders can be sent to K.B. Keilbach, 1 Fulton, Irvine, CA 92620.

COMING EVENTS

EDTA Conference

Jan 26 - 28, Washington D.C. For information go to www.electricdrive.org. For a registration form, go to www.pluginamerica.org/images/Plug%20In%20America%20Member%20Registration%20Form.pdf.

SAE 2010 Government/Industry Meeting

Jan 26-29, Washington, DC. For info go to www.sae.org/govind.

2010 SAE Hybrid Vehicle Technologies Symposium

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

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

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

RPA-E Energy Innovation Summit

March 1-3, Washington, DC. For more information and to register, go to www.ctsi.org/events/EnergyInnovation. Hotel reservation deadline is January 18.

CALSTART-NTEA Green Truck Summit

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

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

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

SAE 2010 World Congress

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

NHA Hydrogen Conference & Expo

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

International Conference Chassis Electrification

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

Alternative Fuels & Vehicles National Conference + Expo 2010

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

Energy Efficiency Global Forum & Expo-

sition (EE Global)

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

The Time Trial eXtreme Grand Prix electric motorcycle race

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

SOLAR 2010

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

Advanced Automotive Battery Conference

May 19-21, Orlando, FL. Go to www.advancedautobat.com/AABC/index.html

10th Challenge Bibendum

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

Transports Publics 2010,

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

Formula Sun Grand Prix

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

American Solar Challenge

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

Southern Electric Vehicle Expo

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

EVS25

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

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.

February 10

March 10

April 14