FOX VALLEY ELECTRIC AUTO ASSOCIATION NEWSLETTER FOR MARCH, 2001

NEXT MEETING: Friday, March 16 at 7:30 PM in the Triton INDUSTRIAL CAREERS BUILDING, (East Campus), Room 108

DISCUSSION TOPICS: 1. Modifying an automatic transmission for EV applications. 2.Starting the Triton Project. 3. Open Topics.

MEMBERSHIP INFORMATION

Any person interested in electric cars is welcome to join the FVEAA. The cost for a full year's dues is $ 20 which will entitle members to receive our monthly Newsletter that contains useful information about electric car conversions, construction, news, policies, and events. Membership is not required to attend our meetings. Dues for NEW members joining in March will be $ 16.

To obtain info about the FVEAA you may contact either Past-President Ken Woods or President Shafer

Past President Ken Woods
1264 Harvest Court
Naperville, IL 60564-8956
(630) 420-1118
E-Mail: CasaZeus2@aol.com

President and Newsletter Editor Bill Shafer
1522 Clinton Place
River Forest, IL 60305-1208
(708) 771-5202
E-Mail: Assessorbill@cs.com

PRESSEZ

The first topic will be a discussion of adapting the Ranger automatic transmission for an electric motor. It will be led by Gabe Murphy, a Triton Professor and transmission specialist.

The Triton Project will begin on Saturday, May 19. Ray Oviyach, Bob Munroe, and I had a meeting with Triton personnel where we agreed on some final details. Ray Oviyach will be appointed an adjunct Professor of Triton and become the Triton Project Manager. Setting up the Project and FVEAA participation will be the second item on the meeting agenda. .

The FVEAA wishes a good recovery for Dr. George Jorndt, FVEAA Member and Triton President. He recently suffered a heart attack. Dr. Jorndt was enthusiastic about our request to move our meeting location to Triton. His vision and support initiated the TRITON project.

BILL

Telephone and e-mail updates for paid members

Bob Munroe's phone number is (630) 653-7077. George Krajanovich's e-mail is now **GRKRAN@email.msn.com**. New member Ken Simmerland's e-mail is **junkman@owc.net** .New member Scott Repplingers's e-mail is **S.Repplinger@motorola.com**

I was informed of the death of long-time member John Einhorning of Ludington, MI. Like most of our out-of-state members, John was unable to attend a monthly meeting but continued his membership.

MINUTES OF THE FEBRUARY, 2001 MEETING

The meeting at Triton was called to order by President Shafer at 7:20 PM. Sixteen members and one guest attended. We welcomed new members Ken Simmerling of Lake Villa and Scott Replinger of Lake Zurich who joined the FVEAA at the meeting. Ken is the owner of the Emde-Hendrickson Suburau and intends to refurbish the vehicle this summer.

Treasurer Corel reported no change in the Savings account and $ 2882.31 in the Checking Account. His report was accepted. Shafer stated that membership renewal rate was 84% of last year. He observed that webmaster Mather's belief that making our monthly newsletter freely available on the FVEAA website would not adversely affect our renewals has been vindicated.

Member John Emde reported the conversion of Paul Harris' Mazda RX-7 is moving along well. The former owner cut many of the car's wires for custom modifications. This complicated the conversion work. John passed around photos of the project. Anyone wishing to inspect the project in John's Lyons Shop may do so by calling John for an appointment.

Member Doug Mather has purchased a US Electricar from a Florida seller. The car was listed on eBay. He had his brother, who lives in Florida about 10 miles away from the seller check out the car. It would not start. Doug had his brother charge the 12-volt auxiliary battery after which it started. Doug sent a $ 2500 check to the seller and his brother drove the car to his home, talking with Doug on a cell phone saying, "This is really great. I'm going 70 mph on the freeway and there is no noise".

President Shafer called for a break to allow members to inspect the Ford Range that Ray Oviyach placed on a lift in the AutoTech shop, a much better place than the "snowdrift" inspection last month. During the inspection Member Rob Bohnivert, a Certified Ford Transmission Specialist and Member Doug Mather were heard discussing the control modification. A typical exchange went, (Rob) " We will have to give the unit a shifting signal here" (Doug) "No problem". This gave me confidence that this part of the project will be ok.

After the meeting was reconvened Member Oviyach reported that Ford has no objection for Triton to use the pickup for conversion. He also noted that Triton will require that the vehicle will have to be pushed into an AutoTech shop for a conversion session and moved back out for storage so the project will not interfere with Triton's instructional program. This was acceptable to members present.

Marsha Hudson, a ComEd community relations person presented the program on electricity deregulation. It featured a tape of a program originated by Public Television Station WTTW where deregulation was discussed. There were two highlights in that program; The Illinois deregulation Legislation differs from California's, ComEd is determined to be the low-cost electricity provider, and soon all customers will be able to choose a energy provider, including purchase of "green power".

President Shafer stated that Member Ted Lowe had purchased a commercially converted Chevy S-10 pickup truck from a seller in Florida. Ted called e before the meeting to say the truck would be delivered to him this evening. He looks forward to driving it to Triton for a future meeting where members can inspect the vehicle.

The meeting was adjourned at 10 PM and informal discussions continued until 10:45.

Submitted by Secretary Dick Ness February 16, 2001

From other EV Newsletters and articles affecting EV's

DEVC, the Newsletter from the Denver Group, in their February Issue reports that Corbin has 143 of their 3-wheeeled *SPARROWS* are on the road. They also note that 20 Postal Service delivery vehicles with a **Ford** electric drivetrain have been placed in service in Alameda, CA. San Jose and Sacramento are next in line. It is interesting to note that each of these cities have active EV hobby groups.

DEVC also reported that a senior scientist at the National Renewable Energy Lab analyzed were a hydrogen supply could be obtained. He recommends electrolysis with the electrical energy derived from solar and wind sources. John Turner estimates that 10,000 square miles of solar cells could provide all the electric energy in the US. The area equals 9% of the total area in Arizona. Today's cost about $3-trillion.

The EEVC Newsletter from the Eastern Group, in their February Issue, featured an article on the aluminum battery. It functions in a manner similar to a primary cell. In this system plates of a special alloy of aluminum are immersed in a potassium hydroxide electrolyte. Al is converted to electrical energy and produces aluminum oxide slurry. The slurry is periodically drained and recycled. The energy density is about 800 wh/kg. Their drawback is an overall efficiency of 30%.

They note that Georgia Power has a program for leasing EVs to employees living in the Atlanta area. Over 140 vehicles have accumulated over one million miles of use.

There was also an article about experiments by Las Vegas based Power Technology with reticulated lead foam use in lead acid batteries. The technology was developed by Vancouver-based BCRI. Test results indicate a significant increase in both energy and power values. (Also see later article)

EEVC reports that Delco Remy has obtained a license agreement from Lynx Motion Technology for use of their patented Segmented Electromagnetic Array (SEMA) motor. The "pancake" motor has an efficiency of 95%. Delco has the exclusive right to use the motor for on-road drive applications. The two companies are developing 15 and 30 kW motors.

It was interesting to note that the EPA new refining rules require a 97% reduction in the sulfur in gasoline. It is not surprising that refiners are rebelling. (Also see later article in this newsletter)

VEVA, the Vancouver group in their February issue provided data on the Honda *INSIGHT* electric drive. It uses a 10 kW, 300-rpm permanent magnet motor. The 144-volt NiMH battery uses 120 series connected cells, each rated at 1.2 volts. The battery is rated at 6.5 amp-hours. The aluminum-bodied car weighs 1847 pounds. The 3-cylinder engine develops 73 hp @ 7300 rpm.

If you want to buy a resurrected version of the 1970's *Henny Kilowatt* you can get it from Vancouver-based Feel Good Cars. The vehicle is based on a Renault Dauphine. Further information is available at website **www.feelgoodcars.com** .

The February Issue of EV News had lots of articles about hybrids from every auto company at the Detroit Auto Show. An energy efficiency simulation by Toyota concluded wellhead-road efficiency for EVs is 21%, 25% for hybrids, and 13% for ICE alone.

From other EV Newsletters and articles affecting EV's – Continued

The same issue of **EV News** noted Congress voted $ 143 million for hybrid and EV programs, an 18% increase over last year.

Vancouver-based Lightyear Technologies is developing a proprietary thin film method of storing hydrogen they claim will increase storage capacity 2.2 times over present methods.

AC Propulsion put a survey on its website in November that listed 16 electric vehicles. A 4-passenger, 4-door sedan with lead-acid batteries, a range of 80 miles, and a conductive charger connection, receiving 87 votes of the 400 responses. Ford's TH!NK got 34, and their T-zero prototype received 47. Their website is **www.acpropulstion.com** .

Northeast Sustainable Energy Association will for the 13th time have its annual event May 19-26, but the new name, replaces the venerable *Tour de Sol*. Their new handle is *US Electric Vehicle Championship*. Interesting, because their ad retains the original name and the event includes a hybrid category. There was an ad for EV electric motors used for Ohio University's racer. Info is available on website **www.rotarymotion.com** .

The January issue of **IEEE Spectrum Magazine** has an article titled *Fuel Cells for the Long Haul, Batteries for the Spurts.* It observes that the motor portion of a hybrid serve as a peak leveler, providing short bursts of power for acceleration and hill climbing. Fuel cells are inherently a constant power device and should work well in this combination.

The April issue of Discover magazine contains an interesting article on page 14 about formation of oil. The author, Wayne Ahr, Professor of Petroleum Geology at Texas A&M notes it began hundreds of millions of years ago with microscopic plankton. When they died their bodies sank to the ocean bottom. In deep waters or sheltered basins with still water the remains were covered by sediment that sealed them off from oxidation. Annual accumulations were probably a few tenths of an inch.

Once the accumulation reached a depth of about 1000 feet the plankton remains were pressure-converted to a waxy compound called kerogen. The layer continued to sink to a point where the earth's internal heat transformed the kerogen into oil and gas and the sediment was converted into porous shale or sandstone "traps" that contained the fossil fuel.

Nearly ideal conditions for accumulation were found in an ancient ocean called the Tethus Seaway, located where the Middle East is now situated. The oil was formed hundred of millions of years ago. Makes one aware of the rapid depletion rate for these fuels.

Battelle Research Group in their Fall 2000 issue listed their "Top Ten" energy innovations for 2010. They are; Restructuring the Energy Industry, Hybrid Vehicles, Smart Energy Management Systems, Distributed Energy Generation, Fuel Cells, Gas to Liquid Conversion, Advanced Batteries, Energy "Farms" growing biomass, Solar Energy, and, (# 10) Methane Hydrate Crystal Mining.

The January 11 issue of Machine Design on Page 56 has an article about the use of "foamed" metal to increase lead acid battery capacity. These plates are fabricated of rigid, reticulated foam lead that has orders of magnitude more surface area than standard pasted plates. Dr. Towle, Research Director at Johnson Controls told me twenty years ago the key to increasing battery power and energy storage was to increase the amount of active material. This could be a really significant development.

From other EV Newsletters and articles affecting EV's – Concluded

An article written by **John O'Dell of the Los Angeles Times,** and appearing in a local paper, reports that General Motors stated this is the "Wrong time for electric car production". They stated before the California Air Resources Board that it would be folly in the midst of electricity shortages to require electric vehicle production. A spokesman for the California Energy Commission dismissed the argument, saying that the mandated annual 10,000 zero-emission vehicles would use only 0.06% of the state's energy input. It was pointed out that most recharging would be overnight.

A press release from **Argonne National Laboratory** on 12/12/00 stated their Chemical Technology Division and Sud-Chemie have signed a licensing agreement for Sud to manufacture and distribute a partial oxidation catalyst patented by Argronne. The novel catalyst material can be used to reform gasoline and extract hydrogen for fuel cell use. Additional information is available at **cfoster@anlgov**

A partnership between Shell Oil and United Technologies has been formed to develop, manufacture, and sell fuel reformers for gasoline used by fuel cells.

The Energy Exchange issue for December 2000 notes that BP has introduced a low-sulfur gasoline in several Eastern Cities. The new gasoline has 80% less sulfur than present premium gasoline. Mandatory sulfur reduction will be required nationwide in 2004. The move will help fuel cell reformers operate as well as assisting catalytic converters now on vehicles. The change will require refineries to make expensive modifications to existing plants and probably increase gasoline prices.

MIT's March issue of Technology Review had a short article entitled **Fuel Cells: A Lot of Hot Air?** It points out that auto companies have already spent about $ 2 billion to develop cars powered by fuel cells that use hydrogen as a fuel. A MIT study has found fuel cells are only slightly more environmentally friendly than advanced versions of internal combustion engines. The deployment of hybrid vehicles such as the *Insight and Prius* is more likely to lower energy consumption and emissions.

A computer simulation used for the study examined various combinations of fuels and engines. It included life cycle energy costs of building the engines and producing fuels. The study concluded that by 2020 IC hybrids would consume 55-65% of the energy required by an advanced gasoline car. Fuel cell hybrids would consume 72-104%.

The Toyota publication AFVision had an article about EV rentals at the Los Angeles airport. EV Rental Connection teamed up with Budget Car Rental to offer EV rentals at Budget's facility in the airport. Their "fleet" includes 10 Toyota RAV-4EV, 10 Ford Ranger conversions, 9 GM EV-1, and 5 Honda EV+ vehicles. There has been a good response. EV Connection-Budget will open similar facilities in Sacramento and six other California locations this year.

Move over SMART car, It's time to TH!NK. Machine Design 01/11/01. The Ford Motor Company's TH!NK Division delivered the first production vehicle in Canada to the CEO of Ballard Power Systems (Fuel Cells) in Vancouver, BC. The vehicle carries two adults, has an 85-km range, 0-50 km/hr in 7 seconds, and a top speed of 90 kph. It has a 3-phase AC induction motor and 19 NiCAD batteries that store 11.5 kWh of energy. Recharging requires a 220-volt, single-phase 16-amp outlet. A North American launch is expected in two years.

NOTE – The last three pages of this newsletter are handouts not appearing in the e-mail version.