

## FVEAA NEWSLETTER FOR 2004

An Independent Not-For-Profit Corporation associated with the National Electric Auto Association

**NEXT MEETING: Friday, March 19<sup>th</sup> at 8 PM in the Triton INDUSTRIAL CAREERS BUILDING, (East Campus), and Room 108**

**DISCUSSION TOPICS: 1. Alternative Fuel Day at Morton College. 2. Gasoline @ \$ 1.85 opportunity? 3. Open Topics.**

### MEMBERSHIP INFORMATION

Any person interested in electric cars is welcome to join the Fox Valley Electric Auto Association. 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 information about the FVEAA you may:

Visit the FVEAA Website at [www.fveaa.org](http://www.fveaa.org)

Or contact FVEAA Vice President Steve Grushas

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### PRESEZ

I have heard from Dave Hostert about the Alternative Fuel Day on April 2<sup>nd</sup> at Morton College and changes are needed in our plan to participate. First, it will be on **Friday, April 2<sup>nd</sup>** (The day after April Fool's Day). Vehicles will be placed outside in the Courtyard. Vendor's exhibits will be in the Gym. Several classrooms have been reserved for half-hour presentations.

There will be only two circuits available for opportunity charging so we must limit our vehicles to the Triton Ranger (Doesn't require charging on exhibit) and two others. I have asked Ray Oviyach to tow the Ranger and bring the video he prepared for the Joliet event to show in the Gym. It was effective. I hope we can have Paul Harris' conversion (The latest) and Steve's Ford on display. The RX-7 is showing its age and will not be on display.

I attended the first event Morton had at nearby Sportsman Park (Now closed). The attendees were mostly Morton Students, attracted by the "freebees" offered by vendors and some nearby high school students who were bused to Morton. Very few of the general public attended.

The second item on the agenda will be our discussion of any opportunities the FVEAA may have to exploit the current price of gasoline. It isn't about to go down this summer. Crude is currently priced at \$ 35/barrel and OPEC has cut production to keep the price up.

The Roster of Paid Members is included in this newsletter sent only to paid members for 2004. It is not included in other exchange newsletters. We have 51 paid members. This is an excellent renewal rate.

BILL

## MINUTES OF THE FEBRUARY 20, 2004 MEETING

The meeting at Triton was called to order by President Shafer at 7:45 PM. Twenty-one members attended. Minutes were approved from the Jan. 2004 meeting.

Bill clarified that the newsletter will be sent via email to all who register their email, but those who pay \$20 will get a hard copy, and in the same context, Bill noted that we have at present 45 paid members with three more planning to pay that evening. Bill updated us on the possible club project and said Chris Sharp of Yorkville is interested in our club project and would participate by buying a participation unit.

A variety of vehicles was brought up as possible club projects, Bill mentioned a plug-in hybrid that is being tested and designed in Mannheim Germany. Bill noted that George Krajanovich built the Club's first in his Mechanix Illustrated custom-build vehicle. Peter spoke of a desire to make that hybrid a bio-diesel. John Emde pointed out that the bio-diesel craze of vegetable is really a retreat back to the early diesel engine invented by Rudolph Diesel. It was decided that we needed to further explore this suggestion.

Bill put on the table the idea of hosting another seminar in the summer with the hope of getting Com Ed to sponsor the seminar. Rob and Peter volunteers to go with Bill to ComEd to present the idea.

In a similar vane, Bill mentioned that Morton College will be having its alternative fuel event on April 2<sup>nd</sup> and we have accepted the invitation to participate in the Friday day- time event. Similar gatherings are being held nationally.

John Emde sparked a lively discussion by saying he found research by a major battery manufacturer that says a cold battery will accept a charge better than a warm. Bill said he was skeptical because any chemical reaction is speeded up with higher temperatures. He will check further.

Heat in the compartment passenger chamber was next on the discussion. A great of discussion was centered on the use of nichrome wire heaters, and PTC (ceramic) heaters. It was decided that when we retreated to the garage an investigation of Peter's failing heater might shed some light on the topic.

Cars available were the next discussion. Peter mentioned that a Fiero is available as a donor car but the particulars were unavailable. George Gladic announced that his club built car will be leaving the state as he is selling his car and planning to do another conversion. John Emde is doing a 30 battery (12volt optima) with his Ford Ranger conversion. John showed a new method of buddy pairing regulators so as to cut the cost of the regulators in half. Tim Moore mentioned that Todd Dore is planning on selling his conversion and has Rudman charger with, professional battery boxes, an Emde plate and a 9" Warp motor.

A discussion about tires was mentioned next and it was mentioned that the best tires for our heavy weight cars are the C, D and E tires, which can withstand higher pressures. Jim showed pictures of his Model T conversion which is sporting the 11" WARP motor and a Chevy S-10 chassis. Jim also mentioned that he was quite successful in eliminating and bonding the rust of the Model T with POR15. Maybe Cal Christen will think of converting his father's Model T truck.

Dale Corel closed out the meeting with the treasurers reports \$3528.79 in checking and \$2768.10 in savings. The meeting recessed to the garage at 9:22 and was adjourned at 10:45 PM.

Submitted by Secretary Tim Moore

## FROM OTHER EV NEWSLETTERS AND ARTICLES AFFECTING EV'S

The Jan-Feb issue of *Current Events*, from the National EAA, front-page story was about electric lawnmowers, written by Dave Robie, a member of the New England EAA Chapter. The irrepressible, *Plasma Boy*, John Wayland authored an article about the Woodburn, OR annual race event. Once again the electricians stunned the V8 gearheads during the Saturday night street drags.

Bob Oldham, a member of the Central Virginia Association (CVEAA), had an article about a newly developed "Wavecrest" adaptive motor system. It utilizes the latest technology developments in microprocessors, power electronics, software, and advanced materials. The motor is a multi-phase DC brushless system using rare-earth magnets. The motor is designed for mounting directly on car wheels. Presently the 750-watt system is being tested on electric bicycles for the military and will later be applied to motorcycles.

Part 20 of Mike Brown's conversion manual, "Care and feeding of your new EV" was included in the issue.

There was extensive reporting of the Electric Vehicle 20<sup>th</sup> Symposium in Long Beach. It was interesting to note that manufacturers in India exhibited their concept EV's at the event.

The Phoenix EAA Chapter illuminated EVs for a nighttime parade of their electric cars, similar to Chicago's "Venetian Night" for boats. They were well received.

The February Newsletter from the Eastern Chapter featured an experimental vehicle built by a French inventor that runs on compressed air. The air is stored in at 4350 psi in four tanks and expanded into a 4-cylinder engine resembling the familiar steam engine. The editor wrote an expansion of his "Working in Donkey Land" after receiving several responses to his initial article about being a public school science teacher.

The Reverend W. Christopher wrote an article pleading for commercial production of an electric vehicle.

The issue also notes that on March 22 the Discovery Channel will inaugurate a new feature about Electric Drag Racing. The Program will be called, "Sucking amps".

**DEVA**, the Denver group, in their November Newsletter noted Ohio University's student-built EV recorded a speed of 256.894 mph during a 1-mile run each direction at the Bonneville Salt Flats. This is not an official world's record because the International Automobile Federation did not sanction the event. Previous recognized top speed was 11.377 mph slower. The car is back at Ohio U for improvements and another trial this year.

**VEVA**, the Vancouver group, in their January Newsletter contained a photo of a restored 1902 Baker electric. One of the most interesting things is its fenders. They were made from water buffalo hide! The transmission has 5 speeds forward and 3 in reverse.

The issue also had an article about the conversion of a 1979 OMNI. The conversion has twelve 6-volt batteries in the hatchback area and uses a forklift truck SCR controller. Not surprising because the owner worked for a forklift truck company.

## CHARGING A COLD BATTERY

I have researched this topic since it was brought up at February meeting. It is true the cell's terminal voltage is reduced a bit at cold temperatures and should produce a slight recharging current increase.

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This is not the whole story. Wally Ripple, a member of the MIT team competing in the first cross-county electric car race 30 years ago, published a paper, "Charge Acceptance of the Lead-Acid Battery" that might be relevant. After searching of my files I finally located the paper. All his testing was done at 30° C.

I recall that my college chemistry of fifty years ago made a point that any chemical reaction is speeded up with increasing temperatures. Recharging a lead-acid battery involves a chemical reaction. When a battery is discharged, lead sulfate is formed from lead oxide. During charging, the lead sulfate, brownish substance, is converted back to lead oxide. Since lead sulfate has a larger volume than a lead oxide molecule it "clogs" the pores of the plate and impedes further action.

In recharging the lead sulfate is converted back into lead oxide. Pulse-charging is a useful technique to help dislodge lead sulfate molecules from the plate surface. A charged capacitor provides a mild "shock". Former member Jerry Mitchell was interested in this process.

The most successful means to improve battery capacity and cure electrolyte stratification is electrolyte circulation. Moed Said used this technique about 20 years ago. If there is interest I will try to locate the article describing his system and include it a future newsletter.

## **REGENERATIVE BRAKING**

Member George Gladic sold his car to a person who wanted to experiment with regenerative braking using a proven vehicle. In 1978 General Electric and Chrysler built an electric vehicle called the ETV-1. The vehicle used a battery pack made up of 18 deep-discharge batteries.

They conducted a series of tests and published the results in a technical paper. The diagram below shows the test result energy flow on the Federal J-227a, Schedule D (Urban) driving cycle. The overall energy ac energy input to the battery was 24.6 Kwh. 3.82 kWh (11%) of the input energy was returned)