

**FOX VALLEY ELECTRIC AUTO ASSOCIATION NEWSLETTER FOR
June 2002**

**NEXT MEETING: Friday, JUNE 21 at 7:30 PM in the Triton INDUSTRIAL
CAREERS BUILDING, (East Campus), Room 108**

DISCUSSION TOPICS: I have a question about my electric conversion project.

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 July will be \$8.

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

PRESEZ

I was asked how the FVEAA got its name. Twenty-seven years, ago after the first gasoline crisis, co-founder John Stockberger decided to convert an electric car for his daily commute and avoid the gas lines. He lived in a rural area west of Batavia, about 6 miles from the station where he rode a train into Chicago for his job as an AT&T Engineer. His friend and co-founder Ken Meyer lived in neighboring Geneva and had an auto commute to his job as an Engineer at Furnas Electric. Both were radio 'Hams and converted cars. John's was a Pinto and Ken's a NSU Prinz.

Their cars created a lot of interest and they organized the FVEAA. It was named that because both Batavia and Geneva are towns along the Fox River. The area was known as the *Fox River Valley*. A lot of the early membership came from this area. Hence the name.

The founders established our meeting date on the third Friday evening of each month. Saturday was out for both John and Ken because the local radio club met on Saturday mornings.

At our next meeting we will have a session entitled, "I have a question about my project". This will allow an opportunity to bring the collective wisdom of members attending to discuss the question and provide advice. The discussion topics can be anything related to electric cars.

There is nothing later to report about the future of the EPA rebate program that expires on June 20th, but payments are expected to continue through the end of year.

Paperwork submitted for rebate application should exclude sales taxes paid on material or shipping charges for out-of state orders. You can help the EPA by subtracting these in your application. (Info provided by Steve Grushas)

Bill Shafer

MINUTES OF THE MAY 17 MEETING

The meeting at Triton was called to order by President Shafer at 7:31 PM. Thirteen members and one guest attended. We were honored and surprised that long-time member, Ben Schmidt drove across Indiana to attend our meeting. Eighteen percent of our membership have out of state addresses. The Newsletter is their usual means of contact.

President Shafer reported that Triton has agreed to host the Summer Seminar in the 400-set auditorium and waive the usual rental fee in return for half of the \$5/head admission fee. Triton has also agreed to help the FVEAA find a sponsor who would do the advertising for the event. Our preferred organization is ComEd, who could include a notice of the event in their monthly electric bill inserts.

Participation in the Elmhurst "CoolCarsUnderTheStars" auto rally held every Wednesday evening in the Downtown CitiCenter. Each week has a theme. The August 21 theme is Custom-modified cars. Member Woodie Bessler who lives in Elmhurst was selected to make arrangements for exhibition of five cars. Providing opportunity charging for cars driven to the event must still be arranged.

President Shafer invited Ben to talk about his experience driving a 1991 converted Escort. He has accumulated 50,000 miles on three sets of batteries. Ben's car was professionally made in California and shipped to Indiana. Recently Ben's battery charger went bad and he was at the meeting to get some advice. Also Ben shared his good fortune with batteries and keeping them for several years by opportunity charging, regular level checks and commercial products to equalize the acid content.

Tim Moore reported that Cal Christen had removed Tim's engine from his Escort donor, with John Emde's assistance after one stubborn bolt that was holding the engine was taken care of. . Tim also reported it has been a real learning experience for him as a shop teacher. Member Rob Glowacki, who has a donor Escort, reported that there was considerable rusting of the floorboard that made it undesirable as a donor. There are five projects underway. President Shafer advised that the conversion paperwork for the Illinois EPA Rebate should be completed by June 30th.

During the intermission several guys crowded around Ben's battery charger with a wealth of advice and a lot of expertise in the area of electricity and electronics (only at an FVEAA meeting could you get such a wealth of knowledge). Ben's charger is a Pulse-Tech that charges capacitors in parallel and then discharges them connected in series to produce a short burst of high current.

Another bit of knowledge was give by member John Emde after the intermission when he gave a presentation about adapter plates and the machining and measuring that is it requires. John pointed out that due to the loss of KTA's contractor for adapter plates there is real need for professional machinist work in this area of the conversion process

New member Dave Lewis has a Dodge Colt, but would rather convert a pickup truck if a suitable donor can be located. This is important for him because he lives in Byron, 100-miles east of Chicago and his driving requires more miles/charge than the Colt can provide.

The meeting was adjourned at 10:12 PM

Submitted by
Secretary Tim Moore

FROM OTHER EV NEWSLETTERS AND ARTICLES AFFECTING EV'S

This is catch-up month for this feature that did not appear in the May Newsletter because of the Triton Project Report.

The Mar-April issue of Current Events from the National EAA Group cover story was about driving a Corbin *Sparrow* as far as possible in three days. A 410 mile run from San Diego to Hollister CA, the manufacturer's home town. Corporate and personal sponsors pledged a payment for each mile driven. The effort raised \$ 2000 for the *Make A Wish Foundation*. Energy consumption for the trip was about 100 wathours/per mile.

EAA Chairman Ron Freund stated three EAA principles; Focus on sound science, Encourage innovation by members, and Promote teamwork among Chapters, members, and the public.

Victor Tikhonov, owner of a Honda CRX EV, authored an article on a LED system status display he devised. He uses a plug circuit board containing 280 red LED's in a rectangular matrix. The display is visible on the rear of the vehicle. Images can be found on his website <http://www.metricmind.com> Click on "Example of the EV conversion.

Mike Brown had Step 6 in his Conversion Workshop series that described Part 2 of battery rack design.

The May-June issue was mostly about NEDRA electric drag racing at the Las Vegas Motor Speedway. Dennis Berube's dragster, *Current Eliminator*, was there but the owner was on duty in Afghanistan with the Air Force. The vehicle, minus the Boulder Batteries that are no longer available, recorded 11.586 second time. A Prosche 914 conversion with a Godzilla controller logged 14.427 seconds. A converted '85 Fiero made the course in 16.997 seconds. The NEDRA National Finals will be in Woodburn, Oregon September 1st.

Victor Tikhnov had an article about battery heater controls for an Optima battery pack. Input voltage to the heaters is ac. Editor's comment – since Optima batteries have a sequestered electrolyte, how effective is heat distributed throughout the cell with a bottom heater?

Mike Brown had Step 10 in his Conversion Workshop series. It was about battery hold-down design.

Bill Palmer had an article about a hybrid electric car auxiliary power unit using a standard 28-volt, 290 Amp truck alternator that produces 140 volts, 290 amps (40 kW). The truck alternator is built by Presolite and used on buses and fire trucks. It was driven by an English rotary engine.

The Denver April Newsletter reports that the Budget car rental fleet of 350 hybrids has accumulated 5 million miles of travel. Budget also rents electric cars in the Los Angeles area.

An editorial in the Dallas (TX) Morning News calls for the state to take the lead in renewable energy. Presently only 0.1% of electricity is produced from these sources. There is a lot of potential for wind power in the State.

FROM OTHER EV NEWSLETTERS AND ARTICLES AFFECTING EV'S - Continued

The DEVC May Newsletter had an interesting account of car sharing in Portland OR. This is basically a membership group of 15-18 persons. When a member wishes to use a car he calls the registration phone number. A touch-tone registration system reserves the nearest available vehicle and advises the caller of its location. A 40-cent per mile charge is made and there also is a \$1.50 per hour charge. The driver records the mileage driven. Car sharing is more prevalent in Europe.

DEVC has posted a video of the Las Vegas NEDRA event on their website, www.devc.org, follow the link.

EV Circuit from the Ottawa Group in their March/April Newsletter had an article about a battery-charging algorithm that reportedly extends the life of a lead-acid battery. It was a 2001 R&D Magazine Award Winner. The technique provides high inrush currents, high finishing currents, and a current-interrupting technique used during periodic equalization. In this mode, there is a 5-second current application followed by a 5-second rest period. Tests on an Optima battery extended the life to 700 deep-discharge cycles. Information may be found on website www.ctts.nrel.gov/BTM

EEVC, the Eastern Group, in their April Newsletter had an article about the Ford Focus fuel-cell car stating the battery pack is 180 individual D-sized batteries used for an acceleration booster only. The car also uses a brake-by-wire system. They note the *Tour de Sol* this year had eight vehicles built by manufacturers, eight hybrids, fourteen battery cars, three solar-electric vehicles, one single-person and one hydrogen fuel cell car entered.

The May issue for this group had an interesting photo of a VW experimental 2-seater, looking similar to the old Messerschmitt with tandem seating. It achieved 100 km on one liter of fuel.

The VEVA group from Vancouver in their April Newsletter had an article about the difficulties with the Corbin *Sparrow*. This is the subject in a story appearing in Autoweek that follows. A Porsche 914 conversion was offered for sale for \$10,000. It has Optima batteries.

The VEVA May Newsletter featured the *Dynasty* EV developed in British Columbia. It has a 72-volt system, a 5hp DC motor, a top speed of 40 km/hr and 50 km range. The car weighs 653 kilograms. They are looking for financial backing.

The June issue of EV News featured electric buses. There are several companies producing these vehicles. *Advanced Vehicle Systems (AVS)* in Chattanooga started with battery-powered buses. Their main customer is the Chattanooga Area Rapid Transit Company. The 22-foot buses are now being used for shuttle service in a number of cities. The latest model to be tried in Manhattan has ultracapacitors, which can deliver and absorb power at a high rate for hundred of thousands of times. Another variation is scheduled for service in Chattanooga uses a 60 kW diesel-fuel Capstone turbine together with a lead-acid battery. An earlier model used two 30 kW Capstone turbines. Neither of these is an *electric* because the energy source is petroleum.

ISE Research in San Diego is a second company. The battery in their vehicle is a nickel-sodium chloride unit. It also is equipped with a diesel engine that extends the range beyond 10-20 miles of battery-only operation. San Bernardino will try three of the buses having 200 kW ultra-low emission gasoline engines.

FROM OTHER EV NEWSLETTERS AND ARTICLES AFFECTING EV'S - Continued

Santa Barbara has been a pioneer in electric bus use. They are used as shuttles carrying passengers along the Downtown-Waterfront route. In five years the buses have logged 90,000 hours of use and have transported 4 million passengers. The City has 73 diesel buses in its fleet and plans to replace 40 with electric buses.

Denver has the world's largest fleet of 116-passenger hybrid buses in service on the 16th street Mall. It serves 55,000 customers a day.

Ballard Power, a fuel-cell manufacturer, furnished three hydrogen-powered buses for a revenue-service test by Chicago. They carried more than 100,000 passengers, logged 30,000 miles during 5000 hours of revenue service. The main competition for this type of application will be CNG-fueled buses that will be considerable less expensive.

Editor's disclosure. In 1969 I presented a paper entitled "End-of-run charging for metropolitan area electrically-powered buses" at the first International Electric Vehicle Symposium. The idea went nowhere. The electric charging installation cost would be substantial and it was a lousy load for an electric utility – high demand and low energy delivered. It was probably ahead of its time.

The issue also reports the US Postal Service had decided against buying more Postal Vans. Ford furnished 500 vehicles for a \$24-million trial. These used the electric drivetrain of the Ford *Ranger* with Grumman-supplied aluminum bodies. The vans performed well but the \$ 46,000/unit cost was more than twice the \$ 22,686 price for a flex-fuel vehicle that can run on ethanol. There was a problem with the vehicle batteries. The initial cost was a factor and the batteries suffered if they were not completely discharged on a regular basis. The test found a 24.4 cents per mile battery cost expense.

Sparrow Hits the Windshield. AutoWeek 5/27/02, Page 8. In four years Corbin has sold 285 vehicles and 215 have been recalled. Dealers and individuals that have made deposits a year ago and are still waiting. Tom Corbin says, "Everyone knows these are hand-produced, proof-of-concept vehicles". The company has had a brutal winter. There have been problems with the DC controller, water gets on electrical components, and the vehicles have a tendency to roll over. Too bad – these cars sell themselves. A gasoline version is in the works. The California EV rebate program could give the company a boost.

Iceland goes for all-hydrogen transportation. IEEE Spectrum 5/02, page 16. This is one place in the world where it will probably work. The island has enormous geothermal resources available that can be tapped for electrolytic hydrogen production. Only about 1% of the available geothermal heat is now used for electrical energy generation and building heating. Iceland imports 34 % of its energy needs for vehicles and fishing fleet oil.

FROM OTHER EV NEWSLETTERS AND ARTICLES AFFECTING EV'S - Concluded

This Digital Car won't Drive! Business Week 4/19/02, Page 56. Nineteen percent of a new vehicle sale price goes for electronics. Typical is BMW's new 7 Series that features adjustable suspension, the ability to retrieve e-mail and many other electronic-controlled functions and gizmo's. The article reports that 32% of car trouble is caused by problems with electrical/electronic systems. In second place are ignition systems (14%), followed by engine problems (11%). No car company is willing to discuss these publicly.

Thousands of rebuilt wrecks are on the road. Chicago Tribune 1/7/02. Consumer Reports states that as many as 400,000 recent-model rebuilt wrecks are put back on the road each year. State laws generally requiring that a car's title disclose that it has been rebuilt vary. Some are very strict while others are lax. Moving a vehicle from state to state can "wash" the title of any trace of its rebuilt status. One government study of passenger cars involved in 41,800 fatal accidents discovered that 8100 cars were rebuilt. About 2500 showed no hint of their wreck history.

Look behind the fuel-cell smoke screen. Chicago Tribune. Dr. Ali Amidi is Director of the Grainger Power Electronics and Motor Drives Lab at the Illinois Institute of Technology. He advises a careful look at auto industry and Bush Administration fuel cell claims. He observes that neither Energy Department Chief, Spencer Abraham, or development chiefs at Ford, GM, or Daimler-Chrysler addressed the practicality of fuel cells for automobiles. Neither did they make the case that a significant number of people would ever buy one.

Transportation accounts for about 70% of US oil consumption. Dr. Amidi says fuel cell technology cannot deliver the fuel economy our country needs in the next several years.

Dr Amidi concludes by saying it is time to stop this sophisticated smokescreen.

The Chicago Tribune in a January 20th editorial swallowed the fuel cell pitch. They did, however, acknowledge that the mass marketing would require a vast, expensive replacement of the existing fueling structure (refineries, pipelines and gas stations) in addition to hydrogen production facilities.

CNG alternative fueled vehicles may be facing a future fuel supply problem. **Business Week on 9/18/2000**, page 149, had an article about natural gas availability. There are about 800 drilling rigs now in operation probing for gas beneath the US. This long-neglected stepsister to crude oil has finally come into its own. Gas heats homes, is used in commercial boilers, and provides heat during manufacturing processes. The biggest new growth area is for new gas-fired electric generating plants.

Utilities have been using about 15% of gas production for electricity generation. The National Petroleum Council estimates that by 2010 new gas-fired generating additions will be 110 **gigawatts**, all with long-term fuel supply contracts.

Gas extraction from existing sources is declining by about 24% annually. Imports from Canada jumped 110% last year and now account for 13% of US gas consumption.

When push comes to shove, there are more homeowner voters with gas heat and no alternative than there are votes from commercial users and gas suppliers. Congress could make home heating a priority use