

**Fox Valley Electric Auto Association
1522 Clinton Place
River Forest, IL 60305-1208**

Address Correction Requested

**NEXT MEETING: Friday, December 18 at 7:30PM in Room K-161 at
The College of Dupage SW Corner of 22nd Street & Lambert Road in Glen Ellen.**

DISCUSSION TOPICS - 1. Bob Larson from Argonne Lab will drive a Toyota Prius to the meeting and present test data. 2. Discussion of Questionnaire Draft

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 the member to receive our monthly Newsletter that contains useful information about electric car components, construction, policies and events. Dues for new members joining in December will be \$ 19.

To obtain information about the FVEAA, you may contact either President Woods or Vice President Shafer:

President - Ken Woods
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DECEMBER, 1998 PRESSEZ

Bob Larson from Argonne will bring a Toyota Prius hybrid to the meeting. Argonne has tested the car in their new dynamometer facility and Bob will present graphics and technical data. If the College of DuPage can arrange garage space during the Christmas break, persons attending will have an opportunity to inspect the car.

After the break, we will discuss the Questionnaire included in this newsletter and help Bill Shafer expand the contents with questions you suggest..

Many members have inactivated their electric cars for the winter. Some will continue to use them until spring returns. Either way, have a **HAPPY HOLIDAY SEASON.**

KEN

MINUTES OF NOVEMBER MEETING

The meeting was called to order at 7:30 PM by Vice President Shafer. Eleven members and five guests attended, including former member Les Stone. A round of introductions was initiated when President Woods arrived.

The minutes of the October meeting were approved as published. Treasurer Corel's report of \$ 1405.02 in checking and \$ 2481.06 in savings was also approved.

President Woods announced that tonight's program about the Future Car Challenge was rescheduled to next January due to a conflict of dates for the Argonne speaker.

He also stated that all present officers and directors were willing to serve another term. Motions to suspend the rules, nominate the existing persons, close the nominations, and elect the present persons for 1999 were unanimously passed.

Next year's Officers and Directors are:

- President - Ken Woods
- VP & Newsletter Editor - Bill Shafer
- Secretary - Dave Aarvold
- Treasurer - Dale Corel
- Directors - Ed Meyer
 - Dana Mock
 - Bob Munroe

Visitor Kevin Zak addressed the meeting. A group of seven individuals in the Joliet are interested on developing and building an electric drag racer. The group was invited to our meeting by member Paul Polster.

They want to achieve a 1/4 mile in under 10 seconds. They have built an electric-powered go-cart using an aircraft starter-generator. The subject was discussed. Group members were invited to join the FVEAA.

Member Ed Meyer reported on his discussion with Tom Stowe regarding the conversion of a restored 1955 Chevy pickup truck that Tom is restoring. A FVEAA delegation consisting of Ed Meyer, Bill Shafer, John Emde, Rod Bohlmann, Paul Polster, and Ray Oviyach was selected to go to Tom's shop on December 5th to look at the pickup and discuss its conversion. Subsequently Ed Meyer found out Tom would be out of town on that date but that Tom intended to join the FVEAA and we would discuss his project.

The subject of Illinois EPA rebates for individual conversion was discussed. A letter from Darwin Burkhart in the Springfield office of the EPA was included with the November Newsletter. It was concluded that the rebate would be an important factor for FVEAA members considering a project. Individual members were encouraged to get their individual copy of the regulations and an application form from the State EPA and draw their own conclusions. Member Ray Oviyach, who has received his certification from the State, will investigate the need and procedure for certifying an electric conversion.

The meeting was adjourned at 10:45 PM

Submitted by Secretary Dave Aarvold

MEMBERSHIP RENEWAL NOTICE

This will be the final Newsletter for any member who has not renewed his FVEAA 1999 membership. Send your \$ 20 RENEWAL check to Treasurer Dale Corel, 595 Gateshead North, Elk Grove Village, IL 60007-3433. Only members paid-up by February 1, 1999 will be listed in our 1999 Directory WE NEED YOUR CONTINUED MEMBERSHIP TO SUPPORT OUR ACTIVITIES.

FROM OTHER EV NEWSLETTERS

Genesee Region Clean Communities (Formerly Electric Grand Prix) in their December issue stated Toyota's *Prius* has achieved a fuel economy of 50 mpg in highway driving tests conducted by the U.S. EPA. They note that ISE research has built and tested an electric-powered tug at Los Angeles Airport based on a Stewart & Stevenson tractor. It has two AC motors, each driving either front or rear wheels. It towed 350,000 pound 777 aircraft and is capable of moving a 747 that weighs 600,000 pounds. (Editor's Note - Member Ed Meyer stated his revised Citicar has towed Cessna-sized aircraft at Clow Airport in Bolingbrook.)

They also report that natural gas (NG) from Alaska's North Slope has been used to provide high-quality diesel fuel (No aromatics, sulfur, or metals).

EEVC published by the Eastern Group in their November Newsletter reported on a fuel cell program presented at their October meeting. A unique application for this technology is for roadway construction information signs that have usually use engine-generators. Future applications may include such consumer items as laptop computers. The issue also has three articles relating to fuel cell developments and contracts.

Bill Visher had an article on electric motor traction control for automobiles. An electric motor has better torque control than an engine-driven car. Motor torque can be changed in just 0.01 second and initiate corrective action. Questions about this application can be directed to him at visher@webTV.net.

EV UPDATE published by the Sacramento Group in their February issue featured Part 3/3 of an article about driving experience with a GM EV1.

VEVA, the Vancouver Organization, in their November issue reported that PIVCO, the Norwegian manufacturer of 40 City Bee minivehicles used for a trial by the San Francisco transit authority, has closed for lack of capital.

The issue also has an article on conversion of a 1989 Ford Festiva to electric power. The unusual feature of this conversion is retention of the automatic transmission. They found the automatic decreased electric drive efficiency by 20%. The conversion has a 112-volt electric system furnished by fourteen 8-volt Trojan batteries, ten in the rear and four in the front.

They report a Las Vegas electric vehicle enthusiast has accumulated 14 EV's. A ZAP electric bicycle is the most-used vehicle, adequate for a daily commute from home to downtown. The issue also has specs for two new motor controllers; T-Rex - a \$ 3500 IGBT unit for 96-336 volts that can handle 1200 amps max for 10 seconds and the DCP 600; an \$ 1800 unit for 48-156 volts with a 600 amps max. Information on these units can be obtained by e-mail fetsmoke@az.com

The issue also features a spec sheet for the OPTIMA, spiral-wound, sealed battery weighing 70 pounds in a 13 x 6 13/16 x 9 5/8 inch case. It stores 78 AH @ 2-hour rate. Internal resistance is a mere 0.0029 ohm.

FROM OTHER EV NEWSLETTERS - Concluded

EV News, in their November issue, featured coverage of EVS-15 held in Brussels in October. Registration was 2614. There were 50 exhibitors showing products related to EVs, including 25 vehicles. Papers were presented and discussed. The EVAA reported that 1546 EVs have been delivered to customers by U.S. manufactures. Europe estimates; that 15,000 EVs are currently now on the road. EDF, the French electric utility, has 1258 EVs in its fleet. The Chairman of California's Air Resources Board stated he expects there will be 40,000 EVs in that state by 2003. A Swiss representative said that country expects to have 200,000 EVs on the road by 2010. This is equivalent to the country's present inventory of conventional vehicles.

(Editor's note - there is lot of hydropower in Switzerland, and no oil)

The Japanese are serious about introduction of minivehicles, primarily intended for use as in-city rentals. Toyota exhibited their e-com, a battery powered 2-seat vehicle, Honda showed their Step Deck - a one seat hybrid and their Citi Pal - a 2 - passenger EV 10.5 feet long, Nissan exhibited their Hypermini - a two seater equipped with lithium-ion batteries.

European companies exhibited their products. Italians exhibited Fiat's Seicento Elettra, an electrified version of their popular subcompact, that has a 216-volt, 30 kw motor in the rear and batteries in the front. French EVs come from three suppliers; Peugeot, Citroen, and Renault. An interesting part of the French program is to decide the residual value of a leased EV, an essential element in setting monthly lease charges.

There were 28 Battery manufacturers represented. They each reported improvements in product performance.

RECENT ARTICLES ABOUT ELECTRIC VEHICLES

Filling up with clean, free wind, and other fantasies. Car & Driver, January, 99, Page 19. This opinion was written by regular contributor Patrick Bedard. In it he says that EV's don't pass the laugh test. Although the GM EV-1 was a "technical moonshot" its subsidized \$ 30,000 price hasn't caught on with the public. Poor return for GM's \$ 1.5 billion expenditure notes the *Wall Street Journal*. . Mega-worriers alarmed about petroleum use environmental effects hail EVs as a way to run cars on **renewable energy** from the sun, wind, energy of raging rivers, and the subterranean heat that makes "Old Faithful" gush.

He then proceeds to dismantle these options. Hydro dam electricity output is now fully-utilized and future additions are unlikely. Windmills are operated at 18% of capacity and have been denounced by the Sierra Club as "Cuisnarts for birds". Photovoltaic power requires 5-17 acres of land for each megawatt compared with 0.04 of an acre for a gas turbine plant. No one is interested in drilling for thermal power in Yellowstone. As for nuclear, he dismisses this option saying, "Oops, forgot about that doggone laugh test".

The remainder of this feature is on the following page, an article about Member Fred Kitsch's car.

It's electric

By Valerie Kunz

A peek under the hood of Fred Kitch's brand new pickup surprises even this non-mechanic. "See those orange-colored items in the engine? Don't touch them. They carry a jolt of 300 volts," explained Kitch.

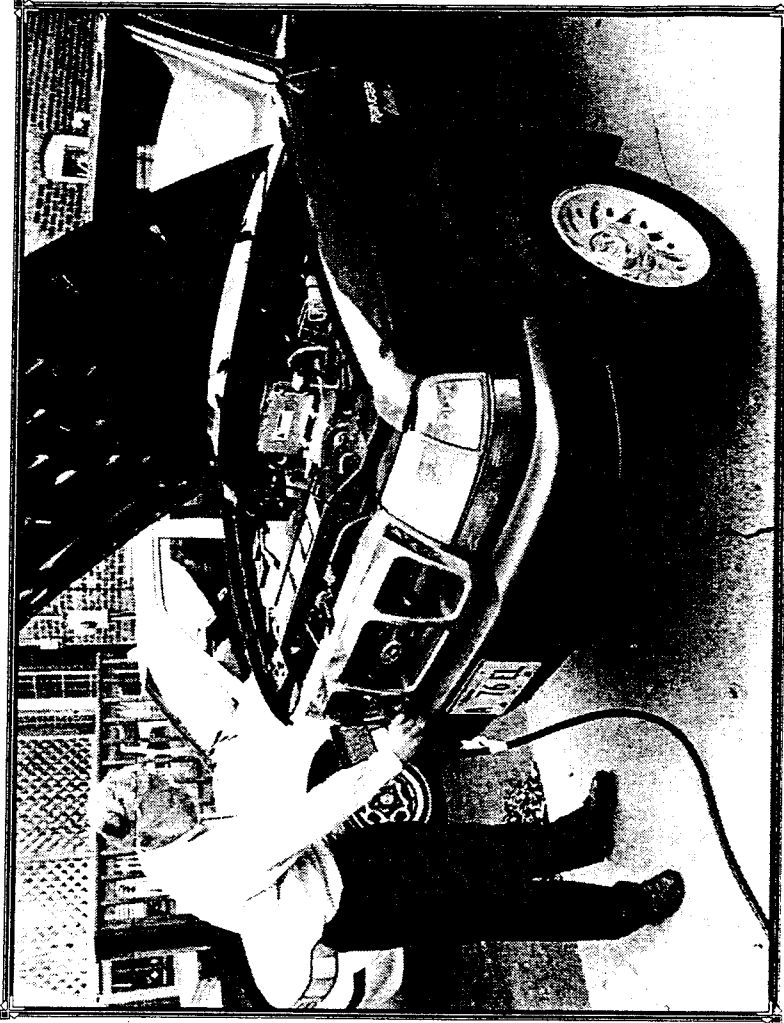
His new pickup is an electric Ford Ranger, quiet as a dirigible when on the road and guaranteed to cut U.S. dependency on foreign oil. Kitch plunked down less than \$40,000 for this car, which Ford claims to cost them \$47,000. Harry Parker, a fleet salesman at Freeway Ford in Lyons, explained that in 1998 Ford turned out only 258 of these non-polluting vehicles, one of which is now owned by Kitch.

The purchase price was \$34,900, with Kitch purchasing a power pack for \$2,000 to recharge the vehicle.

"I plug it in each night," he explained, "although it takes a complete charge in six to eight hours." Kitch drives the truck to and from his workplace in Hillside, with 39 batteries supplying the power. The truck cannot be serviced by any other garage; Freeway Ford is the only place in the Midwest capable of maintaining the engine.

Kitch has air-conditioning, heater, bug deflector and the range of 50 miles on a charge. He stands in line to receive around \$5,000 in rebates: \$1,000 from Ford and another \$4,000 from the state of Illinois, Parker noted.

Kitch is a member of the Fox Valley Electric Auto Association, which loathes how imported oil supplies hold America "hostage."



Recharging his Ford Ranger may strike the gasoline-dependent as strange, but for Fred Kitch of Riverside it's a simple errand that's complete overnight. LIFE photo by Andrew Westel

"Electric cars are simple," writes William Shafer, vice president and newsletter editor of the electric car association's newsletter. "A motor, controller and batteries make up the drive train. This simplicity contributes to a 15-year life and low annual depreciation costs."

Statistics are troubling. In the October issue of "National Geographic" magazine, it states the U.S. and Canada use about twice as much energy per capita as Europeans, 10 times more than Asians, and 20 times more than Africans. The U.S. uses more than one-fourth of the world's oil.

Shafer converted his first car shortly after the 1970s energy

moratorium. "I converted a little Dutch Daf and drove it until it was 'retired' in 1990. Then in 1990 I converted a 1980 Mazda which I use for short trips. This saves wear and tear on a gasoline-driven car. The annual cost for an electric car, including insurance and depreciation, is about \$1,600. Converting a car costs \$6,000 to \$8,000."

Kitch has found the investment in his truck worthwhile.

"I've had this vehicle up to speed limits on toll roads, but driving to work daily and sticking to the speed limit conserves energy," Kitch said.

Kitch is a man of many interests: he's involved with the

Oshkosh, Wis., Experimental Aircraft Association's annual show, has participated in "The Medford Trek" across New Zealand, visited the World War I battle fields and grave sites in Normandy, and was part of a group that visited the exact place where Germany's "Red Baron," Baron Manfred von Richthofen, crashed after being shot down in 1918. He is also on the board of directors of the Riverside Chapter of Lyric Opera of Chicago.

The Fox Valley Electric Auto Association (1522 Clinton Place, River Forest, IL, 60305; phone: (708) 771-5202) meets the third Friday of each month at 7:30 p.m. in Room 161, Building K, College of DuPage, 22nd Street and Lambert Road, Glen Ellyn.

SO YOU ARE INTERESTED IN AN ELECTRIC CAR

You like the idea of having an electric car. There are probably a number of reasons:

1. They are non-polluting and you want to do your part to save the environment.
2. An electric car would give you energy independence and free you from using petroleum.
3. You believe an electric car will save you money. You are tired of spending several hundred dollars to replace an engine-control module or exhaust system.
4. You want something unique that your neighbor does not have.

A converted car can have an acceleration and top speed that can keep up with urban traffic, but it lacks range and heat for winter operation. . A conversion is probably the only realistic option to acquire an electric car in the near future at a reasonable cost. Before you begin a conversion project, consider the following questions.

1. How do you plan to use an electric car (EV) ?
2. If you to use it for commuting, how far is the round trip. Do you have plug-in facilities at work?
3. Would you be satisfied with a converted car that has a single-charge range of about 30 miles? (The same range as a conventional car with a one-gallon gas tank) This has been the experience of about 30 FVEAA members who have built and used converted electric cars.
4. Do you have space in a garage to charge an electric car? Apartment dwellers and condo owners who park on the street are not EV candidates.
5. What type of car would you like to convert? Large-sized family sedans, Sport-Utes, and heavy cars are not candidates for conversion. The typical car our members have converted have been compacts such as an Escort or Omni. The best buy is a compact car, 5 or more years old that has a blown engine but otherwise in good condition (NO RUST). These can be purchased for about \$ 400 because the owner (or dealer) doesn't want to spend the money to install a new engine in an older car. The car should have a gross vehicle rating of about 3000 pounds to be able to carry the extra weight of batteries without extensive modifications.
6. Are you prepared to spend \$ 6-7 thousand to convert a car? This is a realistic project budget.
7. Are you prepared to put in about 3 months of weekend work on the conversion?

12/17/1998 DRAFT FOR DISCUSSION PURPOSES AT FVEAA DECEMBER MEETING

William H. Shafer

CONVERTED ELECTRIC VEHICLE ECONOMICS

A neglected area of electric cars is their economic value. The following is an annual cost analysis for my Mazda RX-7 conversion completed in 1991. It follows the format developed for the AAA annual survey conducted by Runzheimer Associates. They assumed 10,000 miles of driving. Insurance cost was based on personal use, driven less than 10 miles/day, with no youthful driver. Gasoline cost was \$ 1.20 per gallon. Operating costs include gasoline, oil, maintenance and tires. Fixed costs include insurance, license, registration fees, depreciation, and finance charges. The annual cost for driving an Escort 10,000 miles last year was \$ 4380. Fixed costs accounted for \$ 3580 and Operating costs were \$ 800. The following table lists similar items for my 1980 Mazda RX-7 converted in 1991.

| Conversion Cost | Annual Cost | Battery Amortization @ 11 cents/mile | Electricity 767 kWh @ 10 cents/kWh | Maintenance Costs | Operating Costs (Col 3+4+5) | Annual Fixed Costs See Note A |
|-----------------|-------------|--------------------------------------|------------------------------------|-------------------|-----------------------------|-------------------------------|
| \$ 5624 | \$ 1286 | \$ 121 | \$ 77 | \$ 4 | \$ 202 | \$ 1084 |

Note A - \$ 375 of the annual fixed costs include depreciation = project cost/ 15 years expected life, \$ 450 annual finance charge = 8% of project cost, \$ 210 liability insurance, and \$ 49 license and local vehicle taxes. Driven 1100 miles.

The Mazda costs must be adjusted for the difference in driving mileage in the AAA analysis and Mazda use. Using the AAA insurance assumption for personal use that daily driving is limited to 10 miles, the electric could be substituted for 3300 of the 10,000 annual mileage. This is well within the car's 25-mile range capability.

| Car Type | Operating Cost for 10 k miles | Operating Cost for 3.3 k miles | Fixed Costs | Annual Cost for 10 k miles | Annual Cost for 3.3 k miles |
|----------|-------------------------------|--------------------------------|-------------|----------------------------|-----------------------------|
| Mazda | - | \$ 606 | \$ 1084 | - | \$ 1690 |
| Escort | \$ 800 | 264 | 3580 | \$ 4480 | 3844 |

Multiplying the Mazda annual operating costs of \$ 202 by three yields an adjusted annual operating cost of \$ 606 for 3300 miles (5.5 cents/mile). The adjusted total annual cost for the Mazda becomes \$ 1690.

The electric car's long life contributes to its economic advantage. An electric motor does not experience the wear that an internal combustion engine experiences during short trip driving. The motor, controller and other electrical components of my first conversion (A 1966 DAF in service for 15 years after conversion from 1976-1991) were recycled for conversion of a Ford Escort by another FVEAA member after I retired the DAF due to body terminal rust.

The life of my other IC engine car has been extended by Mazda use. My new car purchases were reduced by the substitution for short trips. This may be a factor in car manufacturers' skepticism about electric cars. Their plans seem to envision a 7-year replacement cycle or a 3-4 year lease.

Economics aside, converting and using an electric car is a unique and rewarding hobby.

Bill Shafer
December 10, 1998



FVEAA MEMBERSHIP APPLICATION

1999

PLEASE PRINT

NAME _____

DATE _____

ADDRESS _____

PHONE () _____ - _____

FAX () _____ - _____

E-MAIL _____

CITY _____

STATE _____

ZIP _____

SUBZIP _____

RENEWAL? (Check)

NEW APPLICATION ? (Check)

What is your principal interest in electric cars?

- General
- I would like to convert a car.
- I own an EV Make? _____ Yr _____ Year acquired _____
- EV public policy and environmental applications.
- Other (Please describe below)

LIST BELOW YOUR COMMENTS, QUESTIONS, OR SUGGESTED EV TOPICS FOR DISCUSSION

Exclude my name from the next published list of members

FVEAA annual membership is \$ 20. The fiscal year begins November 1. Dues for new members joining after that date is adjusted according to the following schedule:

| Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct |
|----------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| \$ 20.00 | 19.00 | 18.00 | 17.00 | 16.00 | 14.00 | 12.00 | 10.00 | 8.00 | 6.00 | 4.00 | 2.00 |

Make your check payable to the FVEAA and mail to :

DALE COREL , FVEAA Treasurer
395 Gateshead North
Elk Grove, IL 60007-3433