

**Fox Valley Electric Auto Association**  
PO Box 214  
Wheaton, IL 60189-0214

**ATTENTION: NEW MEETING PLACE!**

*Meeting: Friday, July 20th*

**Doors open at 7:00PM**

**Meeting starts at 7:30PM**

**Packer Engineering**

**1976 N Washington St, Naperville, IL 60563**

Directions: Packer Engineering is the east East side of Washington St, just North of the I-88 Tollway (North of Diehl, South of Warrenville Rd). Turn off of Washington onto Bighorn at the Packer Engineering sign, then take the first right into Packer Engineering and then an immediate left. Park in the lot between the buildings. 1976 is the new building up the hill. Enter the building in the middle of the North side.

**July  
2007**

**FVEAA NEWSLETTER**

**Fox Valley Electric Auto Association**

A Not-For-Profit IL Corporation & Chapter of the Electric Auto Association (eaaev.org)



**Meeting Agenda**

*Ted Lowe*

**Call to Order** – Ted Lowe

**Expression of Gratitude to Packer Engineering** – Ted Lowe and FVEAA

**Introductions** – 15 seconds from all attendees

**Approval of Minutes**

**Treasurer's Report** – Dale Corel

**Old Business**

- ➔ Charging Infrastructure Update – Todd Martin
- ➔ Midwest AFV Expo Update – Rich Hirschberg
- ➔ Club Car Project 2007 Update – Tim Moore

**New Business**

- ➔ Tweaking Meeting Format – Ted Lowe
- ➔ Ken Simmermon's "permanent loan" of Talking Charger to Packer Engineering and charger technology demonstration

**EXTENDED INTERMISSION – Networking, Refreshments, Raffle and RIDE AND DRIVE! Have you ridden in and/or driven an EV ? If not, this is your chance!**

**Show/Tell/Ask** – Anyone can show, tell, and/or ask something for 1-2 minutes.

**Programs**

**Rich Carroll – Pioneer Conversions Overview and Plans**

Rich will talk about the new company that has been formed by six FVEAAers (see separate article below) and what there exciting plans are.

**Ted Lowe – The ever evolving battery charger**

Ted will discuss battery chargers (for rechargeable consumer electronics batteries) and how they continue to get smarter every day. He will show about 3 decades worth of such chargers and end with the latest and greatest.

**Jim Dawson – Transmissions Overview and Going Clutchless**

Jim will share his extensive knowledge of manual and automatic transmissions and talk about his experiences Going Clutchless.

**President's Words – Share Your Grins**

*Ted Lowe*



We have a good reasons to grin. Our mission has never been more relevant than it is today! Many of us buy very little (or no) expensive global-warming gasoline thanks to our EVs. Other FVEAAers will soon be driving their new projects past the petrol station with a big ear-to-ear EV Grin!

In the last week i had the opportunity to share my EV Grin with a number of strangers. Perhaps it's the times or perhaps people have a sense of being welcomed, but two different groups of people rang my home doorbell last weekend wanting to talk. They had either seen my solar panels, EV and/or gardens here and wanted to know more. We spent a good amount of quality time talking about things that matter and when they left, i couldn't call them strangers anymore, actually more like kindred spirits. Grins are contagious, share yours today!

**June 2007 Meeting Minutes**

*Todd Dore*

Call to order – 8:07pm at Clow International airport, 6/15/07. There were 54 members and guests in attendance at the beginning and more later on. Introductions of 10-15 seconds each due to the number of people present. Minutes from the last meeting were accepted. Treasurer Dale Corel gave report: there is \$400 in the checking account and \$5,000 in the savings account. The club has paid out money for 2 AVCON Charging stations which will be reimbursed by the National EAA. Old Business: Ted Lowe spoke about the new meeting location – Packard Engineering in Naperville – starting next meeting (July 2007). Ted Lowe gave an update on the AVCON charging stations – 1 has

been installed at the Aurora train station for the BNSF line. Tim Moore spoke about the update for the Club EV Conversion – Eric Schoonveld’s Porsche 944. The first session will be held on Tuesday evening, 6/19/07 at 6:30pm at Eric’s garage. Please see the website for more details. We are awaiting a press release by the City of Aurora. Rich Hirschberg discussed the AFV Expo and the IL Renewable Energy Fair in August. Note: The expo has since been canceled by the IL Renewable Energy folks, for reasons that Rich will explain. A new AFV Expo is tentatively scheduled for Spring 2008. Rich Hirschberg gave an update on the next public showing of “Who Killed the Electric Car” at 6/28/07, Thursday evening, 6:30pm at the Elgin Public Library. New Business: Joes Sites spoke about the Chicago water taxi company and handed out coupons for downtown fun. Ted Lowe spoke briefly about effective use of email. Ted Lowe spoke about bulk orders for FVEAA t shirts and business cards. Ted Lowe mentioned our updated members – 137! Patrick volunteered to run the raffle. Items to win are: (1) Two copies of Solar Today magazine and (2) A nifty Netgain Technologies bag (Thanks George Hamstra!). For show and tell, Ted Lowe spoke about LED dome lights, John Jeide spoke about Pioneer EV Conversions, Bob spoke about the debate on AC vs. DC motors, and John Emde demonstrated battery watering techniques. At 9:15 we took a break. The raffle was drawn - \$47 raised for the club. Andy won the Solar Today magazine and Dale Corel won the Netgain bag. Program: Todd Dore spoke about his recent Wash DC trip for PHEV lobbying efforts. Ryan Brandys of Brandmuffin Industries spoke about Lithium batteries and his software to assist in designing battery packs for EVs and PHEVs. Chuck Carrington spoke about bio fuels and his bio-diesel VW. The meeting was adjourned at 11:10 pm.

Newsletter Editor

*Rich Carroll*

I stopped by a local cruise last month, and found it full of interesting and interested people. Certainly, there are lots of Corvettes and lots of really neat street rods, but if you want to attract attention at a cruise nite, show up with something totally different, like an EV. Everyone will wander over and ask how it is done, and what the cost is, and how usable the package is. We certainly need more evangelism on the part of EV's, not just at energy related events, but at mainstream car events. Be prepared to have something to hand out; the FVEAA business cards are a natural choice. They are descriptive, fit in the pocket of the person you give it to, and a good source of leads for our club.

New Meeting Location Starting This Month!

*Ted Lowe*

I am happy to announce that we have found a new meeting location! Dr. Ken Packer, the founder of Packer Engineering (and good friend and colleague of long time FVEAAer Ed Meyer) has graciously offered us space in his new building in Naperville. I want to personally thank Ed Meyer and Packer Wings for all their hospitality since we've been meeting at the Clow Airport location since early 2006!

The new location isn't ideal from a geographical point of view (still quite west for Chicagoans), but better than Clow because it is 9 miles north and right off of I-88. Also, the building has the amenities of a good meeting place like plenty of space, classroom with A/V equipment, heat, bathrooms, kitchenette and has a garage where we can pull in EVs to charge and demonstrate.

They are still constructing the inside of the new building. IT'S IMPORTANT that we respect our new meeting place and don't wander around beyond the meeting area. Please help spread the word about our new meeting location!

**BEGINNING WITH THIS MEETING**, our new location is:

Packer Engineering, 1976 N Washington, Naperville, IL

Directions: After turning off of Washington on Bighorn, Packer Engineering is on the right. The first building is 1950 and the new building to the east is 1976. Park in the lot between these buildings. Enter the 1976 building via



the north side door in the middle of the building. Go up the stairs to the third floor classroom.

The FVEAA won 2nd place in the motor vehicle division in the Evanston 4th of July Parade this year. Thanks to everyone who participated. We had 3 electric cars and 1 grease car. Ted Sanders and Todd Dore lead with Ted's Escort EV, followed by Ben Caroli and a freind driving Chuck Carrington's MG Midget EV, then came George Gladic and his family in his Nissan Sentra EV, Chuck Carrington and his wife Patti brought up the rear with his VW Jetta grease car. You can see pictures at [www.evanston4th.org](http://www.evanston4th.org).

George did 2 parades. The Skokie parade which starts at noon. Then he drove right over to the Evanston parade which starts at 2:00PM.

## Club Car 2007 Project Update

*Eric Schoonveld, Tim Moore & Ted Lowe*

The project kickoff session went very well with a good group of FVEAAers attending! We discussed the project in a sit down session and then got familiar with the donor vehicle (Eric's Porsche 944). We recorded baseline measurements and labeled wires and connections so when the engine is pulled they can be reconnected properly. We discussed the unusual transmission connection of this car and how it will mate to the new electric motor. We scouted out space for the batteries. See our website for more details and pictures: [www.fveaa.org/projects/clubcars/2007](http://www.fveaa.org/projects/clubcars/2007)

The next step was to get the engine removed. Eric arranged this to be done by a shop in Bensenville that wanted to buy the engine. The shop did a good job removing he engine and installed improved suspension as well. The car is now back in Eric's garage and ready for the next steps.

Now we will likely form two working groups; one for battery layout, and one for drivetrain design.

A final note about the timeframe for completion of this project; when this project was originally conceived, we thought we would follow the Triton Ranger project model, where we worked each Saturday morning for most of the summer. Now we see due to the busy schedules of the people involved (Eric and project leader Tim Moore), this 'regular schedule' will be impossible to implement. So our new plans are to fit work sessions in where we can and give all you FVEAAers as much notice about them as possible. We now expect to finish this conversion by the end of 2007 (actually Dec. 1) so Eric can submit his rebate paperwork this year and we won't be working during cold times. We should have not problem completing this conversion on this revised schedule.

Stay tuned to the [fveaa] listserv for announcement of the next work session soon!

Unfortunately, the Midwest AFV Expo 2007 scheduled for August 11-12 has been canceled. The organizers of the IL Renewable Energy fair where our Event was to take place thought that their fair and our expo had too much overlap.

I want to thank Chairman Rich Hirschberg for all the work he put in on this Event prior to it's demise. THANKS Rich!!!

Stay tuned for a great AFV Event in Spring 2008 that Rich Hirschberg has already started working on.

Six FVEAAers Launch Pioneer Conversions, LLC.

*Rich Carrol & Ted Lowe*

Long time FVEAAer John Emde and a merry band of FVEAAers Rich Carroll, Stephen Grushas, John Jeide, Jim Dawson and Dave Habiger have started an EV conversion company called Pioneer Conversions, LLC.

Pioneer Conversions is currently prototyping their first conversion, a teal blue 1997 Chevy Cavalier 4-door sedan with automatic transmission, power steering, air conditioning and power brakes. The design of this prototype is a big step on the way to offering quality, used cars converted to EVs. Pioneer Conversions believes that there is a significant segment of the public that would embrace an EV if it were available, and easy to drive. Converting a used economy car to an EV makes sense, especially if several factors drive the price down. The Illinois EPA Rebate for conversion is a significant factor, but someone with knowledge of the rebate program rules must file for the rebate and wait up to a year for payment. The builder can do this and can make sure the requirements of the rebate are met. In addition, significant economies of scale can be achieved by buying controllers in a boxful, not one at a time, and motors and batteries by the pallet.

Past EVs were built one by one, test fitting boxes the size of batteries, and using a cut and fit approach to the battery placement for each vehicle. When converting multiple examples of similar cars, battery boxes can be designed once, and made by a metal forming company from the pattern. Location and mountings for relays, contactors, controllers, wiring, and gauges are all parts that can be applied to a template for installation, once a prototype is made. Templates and repeat fabrication decrease production costs substantially. With savings in several areas, EV's become much more financially feasible.

The Pioneer Conversions philosophy centers around making electric cars usable to non-enthusiasts, who want a totally green vehicle. These conversions will have automatic transmissions, power steering, power brakes, and the usual amenities. Production is starting using a Raptor 1200 controller for good acceleration, and a higher voltage system (156 volts). AGM batteries will be used, and effective

battery management will be incorporated. Pioneer is committed to making the car easy to use for anyone, so it will not require a learning curve to embrace the EV concept. The car should be so easy to drive that anyone who could drive a Cavalier, could drive one. (No clutch, no shifting, no special start procedures.) Rich Carroll will speak more about Pioneer Conversions and their plans at the July meeting. For more information see their website: [www.pioneerconversions.com](http://www.pioneerconversions.com).

## FVEAAer Teaching EV Class at Harper College

*Ted Lowe*

FVEAAer Ted Karson (aka Ted 3:-) just called to tell me this great news! He was recently hired by Harper College in Palatine to teach a continuing education class called "Electric Cars – Past and Present". The class is tentatively scheduled to begin August 16<sup>th</sup> if there are enough students registered. If the class does occur, Ted said he would invite some FVEAAers to show our EVs which would be a great opportunity for the FVEAA and students alike. Good luck Ted and congratulations!

## EV Resources

### **EV Album - [www.evalbum.com](http://www.evalbum.com)**

This excellent website shows pictures and detailed descriptions 1173 EVs of all types and sizes! Use it to learn about who is converting what, how and where. You can contact the owners to ask questions if the EV you're building is similar to theirs. And it's just plain fun to see all the "contraptions" that people convert to electric!

### **EV Trading Post - [www.evtradingpost.com](http://www.evtradingpost.com)**

Electric Vehicle Classifieds - The web's best place to buy or sell an electric car! Have an electric car, truck or other EV stuff you want to sell? Post them "FOR SALE"! Wanting to buy an electric car, truck or EV parts? Post a "WANTED" ad. Completely free service!

## Welcome New FVEAAers

*Ted Lowe*

Join me in extending a warm welcome to these new FVEAAers:

Loretta Shumate – Round Lake  
Mike Russavage – Lombard  
Gerald Jackson – West Chicago  
Chester Latuszek – Cicero  
Patrick OHara – Chicago  
Gill Lepage – South Elgin

Keith Uelsmann – St. Charles  
Susan, Michael, Jonathan And Zak  
Wadas – Palatine  
Charles Bendig – Naperville  
Jerry Sorensen – Elgin  
David Jones – Waukegan

Welcome aboard, folks! We hope to see you at meetings and other EVents! Let us know if we can be of help in your EV pursuits!

## **Hybrids**

Toyota has announced specifications for the 2008 Highlander Hybrid, a larger replacement for its current Highlander Hybrid. Not so curiously, it is larger and heavier than the Highlander Hybrid it replaces, but, curiously, the fuel economy is virtually the same. The wheelbase is stretched 3 inches, and the total length is 4 inches longer. Three inches have also been added to the width. The old car was shorter than a Camry, the new one is about the same footprint as a Camry, but both old and new versions feel larger. Most club members know that I purchased one of the early Highlander Hybrids, desiring four things in a car.

1. Four wheel drive to help get out of a long, uphill driveway in the winter
2. Ability to tow a 3500 lb trailer or more (I do move more than Steve G's EVs)
3. Great gas mileage, as my daily commute to work is more than 60 miles round trip.
4. A comfortable driver's seat with lumbar support as a minimum

The Highlander Hybrid was one of only two vehicles that meet my specifications, and the other vehicle was the exact same drive train (Lexus 400h) in a vehicle that was at least \$13,000 more.

The new HH seems to be even more in line with my tastes, with a 5,000 pound tow capacity (up from the 3,500) and several new features. Missing from the model lineup are the two wheel drive version and the four cylinder version, neither were important to me. The newer body has more lightweight body panels and a drag reducing under-body pan. The controls include two new options, the first is an ECON button that reduces the gas engine response, and increases the electric motor activity. This makes the vehicle drive like the overdrive is engaged, but increases gas economy at the cost of performance. The second is a button to set the vehicle in EV only mode, and allow the HH to use only the battery power for up to 25 MPH or for a mile, if the battery was fully charged. Not a true EV, but very useful when you are off to a multiple place shopping trip. Measured with the old method, the federal numbers for fuel economy are still 31 MPG city, 27 highway. The new EPA rating system, which goes into place for 2008 will report slightly poorer numbers. The 31/27 numbers are virtually the same as my early 2006 model. If you wonder how realistic those are, let me give you my real world numbers:

Highway at 60 MPH	26 MPG
Highway at 75-80 MPH	24 MPG



City commute (summer)      28 MPG  
City commute (winter)      24 MPG (markedly worse, as the computer keeps the gas engine running more to keep it's pollution down when it does run, and to keep the cabin warm)

I don't think it is a good financial idea to trade in my 2006 model now, but would be in line at the Toyota dealer if I had to replace mine.

## **ZAP!**

ZAP has announced the development of a high performance EV, in line with their ZAP-X concept car. The new vehicle is nearing production, with a targeted price of \$30,000. ZAP claims top speeds of more than 100 MPH, and range between recharges of 100 miles. Watch for news from their annual shareholder meeting on July 29.

ZAP has also announced that they will be working with Lotus Engineering to develop an EV crossover vehicle. This new vehicle will utilize a new lightweight aluminum architecture, and will have electric motors inside each of the four wheels. The potential for this package is 644 total horsepower and speeds over 150 MPH. They are betting on a lithium battery technology, for ranges up to 350 miles, and a recharge time of under 15 minutes. Those numbers sound unbelievable, unless they have a recharger directly hooked to a utility substation. And you thought your laptop battery gets warm! See: <http://www.zapworld.com/ZAPWorld.aspx?id=4560>

## **Tesla**

Lotus Engineering is a British company that has been around for years, developing very high performance, low weight cars. Race cars from Formula One to international rally winners have benefited from Lotus technology, although the company has had hard times lately. Several stunning EV's have been promised with output from the Lotus plant, but these have not yet been produced in production numbers. The Tesla is the best known of these Lotus bodied EV's, with Tesla currently saying the first anticipated deliveries will occur in the Fall of 2007. Jay Leno, a supreme car enthusiast, and EV owner (OK, a 1909 Baker Electric, and a Tesla on order) said, "The Tesla shows sports cars can be electrifying. The sports car needn't die once oil runs out. I guess this is the first car that means we as sports car aficionados can see beyond the end of the internal combustion engine." For more answers about the Tesla, see: [http://www.teslamotors.com/learn\\_more/faqs.php](http://www.teslamotors.com/learn_more/faqs.php)

## **Nissan Tsuru**

Remember the news from a couple of months ago, reported here about converting a fleet of Nissan Tsurus from gasoline to electric in Mexico City. Apparently Electro Autos Eficaces de Mexico has signed a contract for the supply of parts with Odyne, (see: <http://www.odyne.com/>) a New York based Plug In Hybrid bus developer. The parts include battery management trays, onboard

charging systems, and parts. Reportedly the power trains for the first cars will come from Azure Dynamics in Toronto (see: <http://www.azureynamics.com/April092007.htm> ).

## **Continental**

And from Continental Automotive Systems (<http://tinyurl.com/2nq88n>) "Continental Automotive Systems announced that General Motors has awarded it a co-development contract to design and build prototype Energy Storage Systems for the GM Chevrolet "E-Flex" electric vehicle propulsion system. In an effort to speed the time-to-market of the production batteries required for General Motors modular propulsion architecture the companies will jointly explore various aspects of lithium ion battery technology."

## **Saft**

Saft in Europe is also working on a lithium ion battery for automotive propulsion use. See: <http://tinyurl.com/33gmlp> By the way, when web pages have an excessive length to their address (URL) we use an address shortener from tinyurl.com to reduce the length for publication, and to avoid addresses split over lines.

## **Next Month's Programs**

*Ted Lowe*

Tentatively scheduled for the August 2007 program:

- 1) Todd Dore will share his experiences at HybridFest and give us an update on the recent upgrades to his PHEV Grey Pearl.
- 2) Out of town (North Carolina) visitors from the West Wilkes High School EV Challenge Team will talk about their program and demonstrate their EV. Read more: <http://www.wilkes.k12.nc.us/wwhs/Tolbert/ev%20Web%20site.htm>