

**Fox Valley Electric Auto Association  
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## **May 2010 FVEAA Newsletter**

**The FVEAA is a Not-For-Profit Illinois Corporation and the Chicago Area Chapter of The Electric Auto Association**

### **Next Meeting**

**Friday, May 21st, 2010 - 7:00PM (doors open at 6:30PM) at  
Packer Engineering, 1976 N Washington St, Naperville, IL 60563**

**Packer Engineering is the on 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.**

### **Agenda**

- **Call To Order**
- **Old Business**
- **Committee Reports**
- **New Business**
- **Intermission:** Refreshments, Networking and EV Viewing.
- **Program:** A discussion of Level II and Level III charging coming up for EV's. We'll also have a live demo of the Coulomb (Carbon Day) Level I and Level II charge point. We'll show the real J-1772-2009 plug that almost noone has seen, and we might have a J-1772 inlet.

A funny thing happened to me on the way to the car show. I enjoy the Car Show in the Dome in Bridgeview. I don't go every year, but a good friend is on the Park Board that puts the show on and it is always an interesting show, and there are lots and lots of questions on electrics. I last went there three years ago, and had more questions than any of the very impressive street rods.

This year, I asked Ed Harris if I could take his Lithium powered Toyota Matrix home for a couple of days of testing, and could I include the show, and Ed graciously agreed. For those of you who don't know Ed, he is one of our oldest members, and prefers to drive electric cars. He likes the Toyota Matrix as it can carry his electric mobility scooter. His Matrix has 40 cells of 160/180 AH Thundersky lithium with a LogiSystems controller. It runs very nicely, and has the full functionality that Ed needs, including the ability to use expressway speeds.

I arrived at the show, and knew to drive to the side of the building. The building is an inflatable dome structure, primarily used as a driving range and field for other sports in the Bridgeview Park District. Bridgeview has a wonderful primary sports facility, this is just an extra, and a wonderful extra. The side entrance has two overhead garage doors on the ends of a small garage, allowing the vehicle to go through an air lock to get inside without releasing the pressure in the dome. The viewing public can enter through the main entrance, which has a revolving door. I knew where the vehicle entrance was, and went directly to it. but was stopped by a gentlemen (with a badge) who looked like a Volunteer Policeman. I tried to explain that I was driving a car that belonged in the show, but he gruffly told me to go to the other door. OK, I haven't been there in a couple of years, and he has the badge. I admit that the Matrix looks 100% like a car that should be in the lot for show visitors, not the custom car line. After driving around to the front, it becomes obvious that there is no air lock for cars that is on that side, and I talk to a gentleman with the famed yellow vest (but no badge) and I tell him that I want to drive into the show. He says park it and walk in. I explain I am driving a show car, and he steps back and looks at the Toyota Matrix. The car has no graphics, no lettering, normal height, etc. and looks almost completely like every other Matrix and every other Pontiac Vibe on the road, except for the "EL" plates. I explain the car is an electric conversion, and get nowhere. I tell him that it will get more questions than any other car in the show and he laughs. I revved the motor up, and the very characteristic whine wakes him up. "What's in there, a jet engine?" "Let me into the show, and I'll open the hood and you can find out!" That security person sends me immediately back to the air lock for vehicles.

The volunteer policeman at the air lock was not amused that I was back, and starts to yell for me to get over by the main door, and I had to explain that the main door had sent me over, the car was an electric, and I did intend to show it. The Rent-A-Cop said he didn't care, and all of a sudden he became aware of the motor noise I was creating. He stopped in mid sentence, and asked what the engine was. "No engine. We took out the engine and replaced it with a motor." "What?" "You have lots of cars in their with their original engines, some with engine swaps. But you don't have any that have had the engine completely removed."

He waved me in. I had a considerable trouble getting to the space they had allotted to me as the crowd would not let me through, Some of the questions were, "Why is this here?" but some were "Why is it so quiet?" I stopped and opened the hood, and answered non stop questions until long after the end of the show. The show finished about 2PM, and I didn't get out of the dome until after 3 PM.

The Chicago Electric Vehicle Consortium had a meeting last Friday (the 14th) and had presentations from several groups who were interested in being a part of the City of Chicago Electric Vehicle charging program. Most of these companies presented overviews of their equipment for charging stations and discussed their options for networking the charge points, the type of billing, the communications, and their overall plans. Rather than present any particular companies viewpoint I can share several more global observations with you:

While Level I charging (110V up to 16A) is in MOST of the companies charging profiles, it is not in all. Most seem to feel that Level I charging is not a focus for them, and they are strongly working on Level II (230V, 30-40A) or more. The level II requires a new type connector; in the US, that will be a J-1772-2009 connector. A few people have seen pictures of what a J-1772 plug will look like, but few have actually seen them. Coulomb Technologies (through their local partner Carbon Day and Carbon Day Automotive) have agreed to show us, at our meeting, a complete Coulomb J-1772 Level I and Level II charging station. I will have this station (which is in an operational state) at the May meeting so you can watch the device in action, and follow the status on the web. Coulomb has a web portal to a charger map, and also has smart phone and iPhone apps to carry this ability with you. We can plug this unit in, watch it appear on a map, and can collect a simulated charger to it, etc.

One of the rather persistent themes in the CEVC meeting was the DC current rapid charge option. This appeared in almost every presentation. Most companies felt that this will essentially be Level 3 charging, but the Level 3 specs have not been written yet, and are likely many months away. Most of the charging location providers were discussing DC charging rates of 50 kW or 100 kW! That means a full charge in only a few minutes. The talk was that the fill up with rapid DC charging would approach being as fast as refueling your car at a gasoline pump. Certainly this will only be available in commercial locations with 3 phase 440V power supplies, but that is fairly commonly available throughout the city.

Another impressive part of many of the vendor presentations was the networking ability of the individual chargers and the ability of the network to redistribute the load as needed. Some even have some local redistribution, where a condominium garage might have 4 Level II 30A chargers on a 60A feed, and use local managing to solve the problem of 2 or 3 or 4 cars being connected at once. Right now, that would require a redefinition of codes, as current rules have a full 30 or 40A feed for each and every Level II plug, but this isn't needed if there is effective local management.

Keep watching and listening, this is going to be a wild ride.

**New EV grin with Lithium Batteries***Rich Carroll*

If you read the forums, you likely know that Todd Dore has recently upgraded to Lithium batteries (Actually LiFeYPO<sub>4</sub>, but who's being technical) and loves the additional range. But this article isn't about Todd Dore and his new batteries, it's about Ed Harris and his Lithium Iron Yttrium Phosphate batteries. Ed has an electric powered Toyota Matrix. In the first 500 miles of the car's life, it has had four propulsion systems to it, testing until it was perfect. Obviously, the car was purchased by Ed as a manual transmission Toyota Matrix, and driven for a hundred miles or so with it's 1.8L gasoline engine. It next received some Lithium Ion cells from a major company in Chicago, who was experimenting with small cells in bricks. These were less than satisfactory, giving Ed a range of 23 miles before the

batteries went to their low voltage limit.

Pioneer also experimented with a small set of Nickel Metal Hydride batteries (NiMH) These batteries require liquid cooling, but were used by Chrysler in their experimental EPIC minivan program. While this powered the vehicle well, the batteries were larger than could be fitted under the floor of the Matrix. Finally, a set of LiFeYPO<sub>4</sub> batteries from Thundersky were tried, and these seem to work quite well. Testing at Pioneer showed greatly increased range, and good performance, even with a nominal voltage of 128 (40 cells, with a nominal 3.2V per cell). The cells in Ed's car were labeled as 160AH, but when tested, showed greater than 180 AH.

Pioneer had a request from two independent film producers, Dan Gianneschi and Bryan Boyer, to document the conversion of vehicles for an upcoming independent documentary aimed for PBS. As a part of his research, Dan asked if he could be present when the vehicle was delivered to Ed. We checked with Ed, and he was perfectly comfortable with that. Dan and Bryan were at Ed's home when John Jeide and I showed up with the Matrix. We discussed the controls again with Ed, and suggested he take it for a short drive. Ed drove, and Dan and Bryan went along. John and I thought they were going for a local ride around the neighborhood, and started to have concerns after the car was missing for twenty minutes. At the thirty minute mark, Ed drove back with the biggest grin, with Dan and Bryan also grinning. Ed told us that the neighborhood drive went so well, he wanted to try it on the expressway, and had done just that.

We haven't documented Ed's range yet, but he will keep very accurate notes. Predicting range in LiFeYPO<sub>4</sub> batteries is quite difficult. The voltage tends to remain very constant from 90% charged all the way down to 20% charged, so measuring the voltage and calculating the amount of charge remaining is not a possibility. A new device on the market which senses the amount of current bring drawn from the batteries over time, and comparing that to a predetermined number representing the total energy available seems to be a good answer, but it will take a considerable amount of testing to determine if that method is close to accurate.

## **Meeting Minutes - April 16, 2010**

*Bruce Jones*

Rich Carroll called the FVEAA meeting to order at 7:00 p.m. Due to other work in the building we were allowed to stay past 9:45 p.m. just for this meeting.

Rich first introduced the FVEAA officers, then first time visitors introduced themselves.

### LEGISLATION [Public Act 096-0653](#)

Rich Carroll says a new bill is being considered that will allow electric vehicles to be licensed for only \$18 / year. Right now small trucks may or may not be licensed properly depending upon the individuals interpreting the registration rules.

Current legislation allows separate license plates for vehicles that travel under 45 mph. and another plate for vehicles that travel over 45 mph, although implementation has not been done uniformly. This proposed legislation would correct the small truck problem, and likely correct the identification for electric vehicles that are/are not capable of more than 45 MPH.

Illinois has started a new license suffix "LS" for Low Speed electric power and gas / diesel vehicle etc. which are limited to 25 mph, and are allowed only on streets with speed limits of 30 or below. These low speed vehicles are allowed cross major highways (up to 45 MPH

cross traffic) only at traffic lights or four way stops. If you have questions on any of these items see Rich Carroll.

Other legislation for charging stations is still in the works. No additional news.

#### CHICAGO ELECTRIC VEHICLE CONSORTIUM

The CEVC has received responses to the Requests For Information from charging station vendors and will send out Requests For Proposals in the next month or so, to put in 44 Level 1 and Level 2 charging stations in the City of Chicago. See Rich Carroll if you have questions.

#### FINANCIAL ASSISTANCE COMMITTEE

Chairman George Vergara, described how he and Bruce Jones attended a Grant Supermarket sponsored by Representative Judy Biggert on April 9<sup>th</sup>. They gathered information from vendors like the Department of Energy, and attended seminars by Grants.gov, DonorsForum and others. Most of the grant money is already spoken for, so George decided we'll concentrate on doing local fund raisers. He plans to set up a conference call in the near future to discuss strategies with the committee.

#### NEW BUSINESS

##### OUTREACH

Rich Hirschberg described the list of EV events in last month's newsletter and is looking for volunteers to participate with their electric vehicles. He is also available to show the video "Who killed the electric car" for groups who want to see it.

We need three participants in the Elgin Green Expo, on May 8th. He will try to get the \$25 expenditure registration fee waived and a motion was amended and passed allowing a check to be cut in case we are not successful getting the fee waived. Rich H will check into electric charging capabilities at the Expo. A Bio bus converted to run on biodiesel should be there, as well as a solar car team from another state. See Rich for other events that EVERS can attend.

##### SIGNAGE

Rich Hirschberg suggested that a few more FVEAA signs be made for outreach, and Ted Lowe said there was already money approved for signs. Rich to talk with Ted

#### OLD BUSINESS - NONE

#### PRESENTATION - NEW PONTIAC IL SYN-FUEL PLANT FEATURING ELECTRIC DRIVE TRACTOR

Tim Scheetz, president of Scheetz, Inc. gave a presentation on his company which just received a \$500 million loan from the USDA and DOE to build a 250k acre syn-fuel plant near Pontiac Illinois. The company makes "Endeavor" tractors that run on the cellulosic ethanol fuel produced by the plant, and feature a special electric drive system with independent "bowtie" suspension enabling it to pull heavy farm equipment through the rain and mud without getting stuck. If you are an engineer and interested in jobs, contact Tim and he will provide contacts at the Union in charge of hiring mechanical, chemical, electrical engineers and repairmen at prevailing wages. Tim can be reached at [tim@endeavorbrand.com](mailto:tim@endeavorbrand.com) or by calling 547-242-2189

#### BREAK - Return at 8:25

The Northwestern University Solar car SC5 was on display as was a unique yellow NmG ("No more Gas") three wheeled car produced by Myers Motors in Tallmadge Ohio. The car was recently sold by FVEAA member Ben Schmid to John Jeide last month and is a 'reverse trike'

which is not subject to automotive laws for bumpers, seatbelts, etc. The design is based on the Sparrow, built by Corbin, the original manufacturer. Driving the car requires a motorcycle operator's permit and Stephen Grushas drove it to the meeting.



#### RAFFLE

Raffled off various shirts, books, scraps, magazines.  
Volunteer raffle chairman Joe Sykes collected \$49

#### PRESENTATION - NORTHWESTERN UNIVERSITY SOLAR CAR

American solar challenge teammates Peter Fellenz, Matthew Nubbe, Dan Cornew, and Rohit Subromanian presented their solar electric car which will be in the upcoming American Solar Challenge race. The race preliminaries start in Tulsa, Oklahoma on June 20, and end at a finish line right here at Naperville North High School on June 26<sup>th</sup>. For more details on the race see <http://americansolarchallenge.org/events/asc2010/> Additional information can also be found at [www.Nusolar.org](http://www.Nusolar.org).

The crew talked in depth about their cars and solar car races that the School has participated in since 1997. They have a team of around 15 people. The SC5 is a rear wheel drive, front wheel steer/break car using SunCat Solar A-300 solar panels, 26 bricks (25kilos) of lithium ion batteries, with a .25 drag coefficient and runs at an average speed of 30mph. Temperatures can reach 130<sup>o</sup>F in the cockpit. They did an excellent job of answering technical questions, and commented later that this meeting was one of the most interesting outreach presentations they've ever given due to the great questions and interaction from the audience.

Rich ended the meeting ended around 9:45 p.m.

#### **Financial Assistance Committee Report**

*George Vergara*

On May 12th, Rich Caroll, Ken Simmermon, Bruce Jones and myself, had a short Financial Assistance Committee brainstorming session. The session lasted only about twenty minutes and generated about fourteen ideas. Thank you committee members, and a special thank you to Bruce Jones who acted as recorder and provided the technology for the conference.

**FVEAA Membership Application Form**

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How did you hear about the FVEAA ? \_\_\_\_\_

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Please make your check payable to "FVEAA" and postal mail it with this membership application form to:

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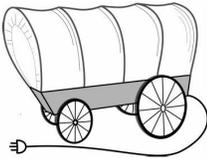
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