

**Fox Valley Electric Auto Association  
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## **May 2011 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 20th, 2011 - 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:
  - Jerry Asher (EV Jerry) will discuss national EV issues from the perspective of the EAA. He is in town from his home in Tucson, AZ for our meeting.
  - Mike Coop will present a very interesting presentation on "EV Roadmaps." Mike is a standards expert within the IEEE, and he has been very active in NIST's SGIP, IEEE, Bluetooth SIG, UPnP Forum, FBI's InfraGard, AFCEA, and the SD Forum.

**More Detail on the May Program**

*Rich Carroll*

The program this month has two speakers, the first is Jerry "EV Jerry" Asher. Jerry is known as an EVangelist for the electric vehicle cause, and has taken his plug in Prius, named "Spirit of DC" to all the contiguous 48 states. His Prius was converted in May 2008, and was approaching 100,000 miles as a Plug In Hybrid.

The second speaker will be Mike Coop. After 20+ years of working in the electronics industry, Mike realized that his position and knowledge on several standards committees gave him the unique ability to form a consulting firm and explore, what he calls "The emerging internet of energy - the Eternet."

Mike's background would not tell you how dynamic a speaker he is. He has held leadership positions in the industry's most progressive startup and public companies, including Microsoft Corporation and Cisco Systems. In 2007 he founded heyCoop, LLC, a consultancy focused primarily on residential Smart Grid standards and policy issues. He is an active participant in numerous standards efforts, including NIST's Smart Grid Cyber Security Work Group, Home to Grid Domain Expert Working Group, and multiple PAPs; UPnP Forum's Smart Grid Task Force; the Bluetooth SIG's Smart Energy Study Group, and the Society of Automotive Engineers' Task Force on Powerline Communications. Coop also leads IEEE's 1680.3 TV Energy Conservation Subgroup, is chair of the IEEE Consumer Electronics Society's Chicago Chapter, and has recently been appointed to serve on ASHRAE's SPC 201P Facility Smart Grid Information Model Committee. He frequently speaks at sector-specific events, and is also a member of the FBI's InfraGard, IEEE, AFCEA, and SABR.

What is Mike really good at? Well, certainly the application of standards to the new technologies, but he focuses in Smart Grid applications and connected home standards.

A common joke in the industry asks the advantages of 'multiple standards.' You get to pick the 'standard' you like.

#### **President's Words**

*Rich Carroll*

A successful exhibit at the Chicago Green Festival at McCormick Place has concluded. We were able to choreograph this display by using many of the talents within the club. It has been five years since the club attempted to do a show of this size and club impact, and it certainly has opened several doors for us. The project worked because of good leadership and the commitment of many individuals. Todd Dore proved he can be an effective and dynamic project leader, keeping us on a schedule, and regularly encouraging members who were contributing. James Zukowski, who has an aptitude for design, reworked the booth numerous times, and finished by putting in countless hours in the last weeks to make a success. Other major contributions came from Marty Belowicz, Ted Lowe, Dio Vesselinon, Rich Hirschberg, Todd Martin, Carl Walters, and Dave Aarvold. In addition, Ken Simmeron, Ron Vann, Dennis Doney, Bruce Jones, Miodrag Zubic, Keith Baubkus, Chuck Carrington and George Gladic helped to staff the show at various times.

There are several ways to measure success, but the metric that stands out to me is the increase in membership after the three month trial memberships expire. Those membership renewals will indicate that we were able to generate the interest, show what we can do, and find members who are as interested in us as we are in them.

When you are involved in a large project, it is all too easy to overlook (or at least relegate to the back burner) other milestones. Bob Baker has quietly finished his Honda Civic EV, and has been driving it to/from his shop almost daily. Bob's build quality is excellent, and you should examine the car closely to see several well thought out details. Right before the Green Fest, Bob gave me a copy of two newspaper articles that his hometown paper, including a large article with photos that appeared on the front page. With permission of the publisher, we used the articles as promo pieces on the towers at Green Fest. Way to go, Bob.

I have little to report on the Chicago Electric Vehicle Consortium. I believe the current administration has deferred current actions to allow Rahm Emanuel to establish a course for the Department of the Environment. Suzanne Malec-McKenna, the current Commissioner of the Environment for the City of Chicago, seems to have done an excellent job of putting

together a large number of programs with positive environmental impact. I have had the pleasure to work with Suzanne for the last year and a half, and know that if she continues as Commissioner, the city's environmental problems are in very capable hands. But department heads, commissioners, and higher level executives serve the city through appointments, and the new Mayor is free to choose personnel he feels he can work closely with.

**Finding Your EV Charging Station (a.k.a. App Wars)**

*Rich Carroll*

Finding charging stations away from your home is not impossible, but sometimes a difficult task, as you may be required to look at several different information sources. Hopefully this market will consolidate in the future, although I do not guarantee that this information will continue to be without charge.

Let's compare several services, most of which use the Google Maps base, with an overlay of points of interest, and detail where the station is, what equipment is present, etc. All can be accessed by web enabled devices, some have additional features, or apps, or feeds.

Resource	Number of stations listed in Chicago Metro area	Updates	Apps
<a href="http://electric.carstations.com/">http://electric.carstations.com/</a>	46 (various providers)	R	
<a href="http://www.mychargepoint.net/find-stations.php">http://www.mychargepoint.net/find-stations.php</a>	40 (Carbon Day subscriber stations) from Coulomb	R	i
<a href="http://plugshare.com">http://plugshare.com</a> (not truly web based, phone apps only)	?		i,A
<a href="http://www.evchargermaps.com/">http://www.evchargermaps.com/</a>	0 <sup>2</sup>	-	
<a href="http://www.afdc.energy.gov/afdc/progs/ind_state.php/IL/ELEC">http://www.afdc.energy.gov/afdc/progs/ind_state.php/IL/ELEC</a> or <a href="http://www.afdc.energy.gov/afdc/locator/stations/">http://www.afdc.energy.gov/afdc/locator/stations/</a>	30	-	

1. Use "ChargePass" card from Coulomb (RFID) or call phone number on charging station to use credit card.
2. Has never accepted Illinois locations, despite multiple submissions. Much more oriented toward California users.

new Google EV maps <a href="http://bit.ly/knKzJQ">http://bit.ly/knKzJQ</a>	84	No	No
----------------------------------------------------------------------------	----	----	----

R = offers an RSS feed, but this currently only feeds new station listings  
i = offers an iPod/iPhone app to find charging stations.  
A = Android app coming soon

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There have been several other such maps attempted, including our own and The EV Project, but those did not produce a useful product. To date, there is no complete or comprehensive map of Illinois area charging stations.

Google has announced, for Earth Day 2011, it will make available a comprehensive EV charging station map. <http://www.ens-newswire.com/ens/mar2011/2011-03-23-093.html>  
This will be done in cooperation with the U.S. Department of Energy, and some 80 other partners. This could be the definitive map, as, when Google becomes involved, projects seem to be very well done. While the other maps seemed to promise to deliver useful information, each has its significant shortcomings. There is a significant need for such a map, Google is an excellent partner in this, and with the DoE involved, I am enthusiastic. I'd say, "Watch this one," but that phrase seems to be used before every significant college injury on YouTube.

They have not established a separate site, but simply use any Google maps search bar, and enter: "ev charging station near Chicago IL" (or wherever you are).

Google has a few stations that are missing, but this will be solved with time. A few are misplaced by one or two hundred yards, but Google does listen to folks who help correct their maps.

Perhaps you were wondering where the information in the Nissan Leaf and Chevrolet Volt on board Charge Station finders comes from. It is the GeoEVSE forum at <http://www.afdc.energy.gov/afdc/vehicles/geoevse.php?> and FVEAA is a member. The GeoEVSE information is added to the Google Maps, and fed to the Leaf and Volt cars. Curiously, I believe both cars try to update data dynamically. We all know the problem of a GPS unit purchased three or five years ago that hasn't been updated to show the new roads. The GeoEVSE information is truly dynamic, and updated continually.

For now, keep in mind that things will change rapidly, and it would be worth your while to try several sources, until we see a clear winner.

**Meeting Minutes - April 2011**

*Bruce Jones*

**FVEAA Meeting April 15, 2011**

President Rich Carroll started the meeting at 7:00 p.m. and encouraged attendees to sign-in and any non-members to join at the great price of only \$15.

**ZINC-AIR FUEL CELL BATTERY**

Dr. Francisco Ruiz, professor at IIT brought several students to talk about their work on a Zinc-air fuel cell battery and an electric test vehicle. The design for this high energy-density battery is based upon the work of John F. Cooper at the Lawrence Livermore Laboratory from 1993-2004. The design uses Zinc pellets, which exhibit excellent electromagnetic characteristics. Air combines with potassium hydroxide inside the battery which oxidizes the Zinc pellets. This generates an electric current, and as a byproduct creates Zinc oxide powder, which is later collected and recycled back into Zinc pellets.

IIT student Aida Zhurgenbayeva, gave a presentation on the Zinc air battery, explaining its electrical and chemical elements and operation. A company called ZincAir Inc. will actually be building the battery which is relatively inexpensive, uses mature technology and has a long shelf life when sealed.

Victor Gasca, another IIT student described the electrolyte circulation and waste removal process. This battery is not charged like other electric vehicle batteries, but uses a recycling process. Zinc pellets convert to Zinc Oxide powder which are collected, and recycled back into Zinc pellets again. Samica Matezic also helped the presentation as the third IIT student.

There are different teams at IIT involved with the development of a test vehicle.

1. The car team examines and tests all components in the donated vehicle
2. The on-car fueling design team and
3. The off-car fueling design team

The test Zinc Air Fuel cell Vehicle (ZAFV) being built will attempt to travel from Chicago to Washington D.C. in 12 hours, and consume an estimated 20kW per hour or 240 kWh total. Such performance would fulfill unmet needs in the EV market, such as the ability to travel long distances, and yet recharge in only 5 minutes. The ZAFV vehicle target price is only around \$27k and would be designed to travel 300 miles between charges. The process however requires Zinc pellet refueling stations, Zinc oxide collection methods, smelting plants and a centralized recycling process.

The ZAFV Cell battery voltage is around 16.9 volts and there would be around 100 of the 1.2 volt fuel cells in the car. Zinc pellets are around 10mm wide, but the zinc oxide powder after-product is around 10 micrometers suspended in the electrolyte. Electrolyte fluid facilitates the oxidation process using oxygen from the air. This reaction actually generates a very high temperature inside the battery and the Zinc Air company is working on the battery technology now and mitigating safety issues.

Further research is being done on the various battery processes including separating zinc oxide from the pellets.

#### NEWS

Rich Carroll mentioned that there is no major news about the Chicago Electric Vehicle Consortium though several committees have met since last meeting. 350Green, the company chosen to install charging stations in the City of Chicago, has been incommunicado, with little evidence of installation activity. The goal was to install 30% of the stations by March 31<sup>st</sup>.

#### LEGISLATION

No legislative news to report

#### COMMITTEE REPORTS

FINANCIAL ASSISTANCE – George Vergara said that in North Carolina they charge up to \$400 for EV workshops. Perhaps we should consider holding workshops as a club fund – raising event.

INFRASTRUCTURE – No news

OUTREACH - Rich Hirschberg the outreach director announced several upcoming local car shows, and arranged for member cars to be there including Earth Day celebrations.

NEWSLETTER – Keith Baubkus had no news

FINANCE – Todd Dore said we're in good shape and not much has changed since last meeting.

MEMBERSHIP – Ted Lowe said there is no news

SECRETARY – Bruce Jones had no news

GREEN FESTIVAL – Todd Dore gave an update on this exciting May 14 – 15 event. He described all the efforts going on to prepare for the Green Festival including manning the booth. Parking and food costs will be picked up by the FVEAA for those members who work the show. The booth will include a sweeeeet converted 944 Porsche, a NetGainWarp motor, the FVEAA neon sign and great video on electric cars assembled from member photos and videos.

BREAK – until 8:45

For review we have Scott Fauque’s Chevy Volt, Todd Dore’s VW Bug, Joe Weisenfelder’s Nissan Leaf and a Honda recently electrified by Bob Baker  
On display we also had a few electric car charging plugs and cables.  
Newcomer Scott Fauque showed the portable 110 VAC charging cables from his Chevy Volt.

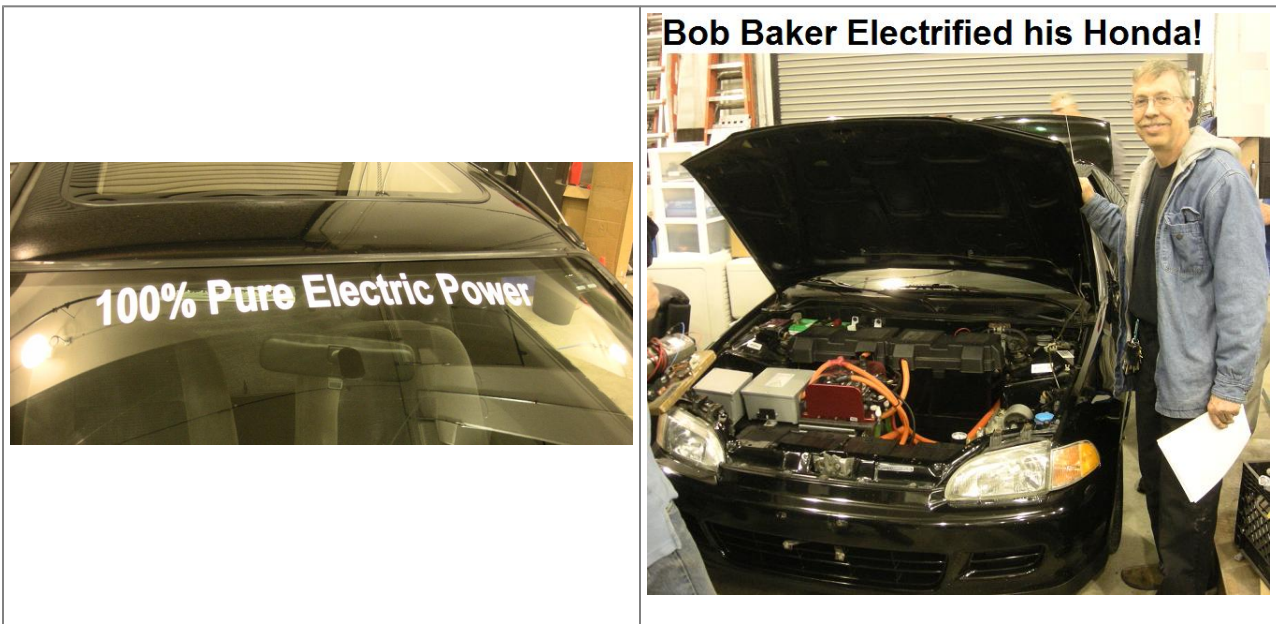
#### FVEAAer OF THE MONTH

Bob Baker was awarded the “FVEAAer of the month” for his successful efforts on converting a Honda from gas to electric. Way to go Bob!

#### IMPACT OF ELECTRIC VEHICLES ON THE ELECTRIC GRID

Bruce Jones then gave a presentation on how electric cars will soon be impacting the electrical infrastructure. Sales of electric cars and plug-in hybrid electric vehicles have a direct correlation with gas prices. So when gas prices rise, so do PHEV sales. Therefore high gas prices (as much as we hate it) will actually help accelerate the sales of electric vehicles. He then compared the typical daily load on the electric grid with the steady output from generation plants and how Time Of Use (TOU) pricing , Demand Response and the Smart Grid are used by utilities to reduce electrical consumption during peak hours and fill in the load “valleys.” Such efforts are necessary to help reduce utility costs. But it may not be enough to slow the degradation of neighborhood distribution transformers when multiple electric cars charge simultaneously.

The meeting was adjourned at 9:25 p.m.

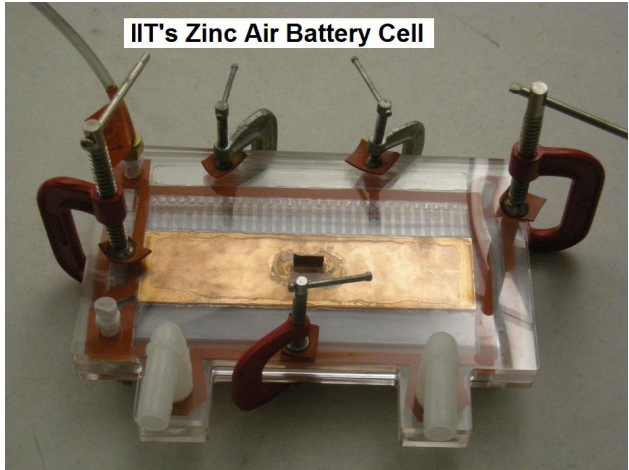




**IIT Zinc Air Battery for Electric Vehicles**



**IIT's Zinc Air Battery Cell**



**Scott Fauque shows his Chevy Volt's home charging station**



**Scott Fauque's Chevy Volt**





**FVEAA Membership Application Form**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, State Zipcode: \_\_\_\_\_

Phone: \_\_\_\_\_ Phone Type: Home \_\_\_ Work \_\_\_ Cell \_\_\_

Email: \_\_\_\_\_

Please check one: New Member \_\_\_\_\_ Renewal \_\_\_\_\_

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

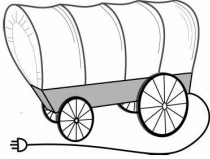
<b>Member Types and Annual Dues</b> (Please circle one)		<b>Newsletter Delivery Types</b> (Please circle one)	
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Charter Business	\$500		
Total Due from Both Columns:			

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

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