

Fox Valley Electric Auto Association
PO Box 214
Wheaton, IL 60187

Meeting: Friday, February 15th

Doors open at 6:30PM, **Meeting starts at 7:00PM**

Packer Engineering

1976 N Washington St, Naperville, IL 60563

Directions: 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.

February 2008 Newsletter



Fox Valley Electric Auto Association

A Not-For-Profit Illinois corporation and the Chicago area chapter of the Electric Auto Association

Meeting Agenda

Call to Order and Introductions

Approval of Minutes

Treasurer's Report

Old Business

- Committee Announcements and Updates
- No More Details on Ed Meyer's Vanguard EV Donation, Plan for March

New Business

- EAA Annual Meeting Conference Call, Sat. Feb 16th, Noon-2PM - Dial 866-865-7978, passcode 4084470607#, mute with 61#
- Anyone have anything else?

Intermission - Toasting Joe Downing, EV Viewing, Networking, Refreshments, Raffle Tickets!

Raffle Winners

Show/Tell/Ask - Anyone can show/tell/ask something EV-related for 2 minutes.

Program

Ted Lowe - Porsche 944 Project Update

Ted will show the latest pictures from this nearly finished project.

Todd Dore - EVs in the Philippines

Todd will show pictures from his recent trip and share his observations about EV use in the Philippines.

Ted Lowe - Information is Power - Part 1

Ted will introduce his wild ideas to produce an affordable and expandable data acquisition and control system for EVs. Informationaholics and Control Freaks should especially attend. :-)

President's Words - Only \$88/barrel... double the strategic oil reserve ... and Telsa ships #1

*Ted
Lowe*



Say you were being repeatedly hit on the head with a big sledge hammer. Then to your surprise they changed to a carpenter's hammer. Would you say, "Wow, that feels much better!"? Egads... we humans so quickly accept lunacy, we "bite the bullet", and accept mediocrity as the status quo. Case in point, i recently heard a TV reporter on MSNBC exclaim that oil was ONLY \$88/barrel! Short memories we have. Today i heard that the White House wanted to double the size of our Strategic Oil Reserve. i'm thinking, does that give us twice the feeling of security we had before? Doubling it at \$88/barrel will really set the US back a chunk of change (ie, more debt). The current supply is about 98% full of \$40/barrel oil.

In the meantime, Telsa Motors has completed their first production unit. They held a town hall meeting with all their orderrees and posted the audio from the meeting on their website. Now that is really a open and honest approach to selling cars in the 21st century!

Minutes from January 18, 2007 FVEAA Meeting

Rich Carroll

The January Meeting of the FVEAA was called to order at 7:21 P.M. by Ted Lowe. In view of the large size of the attendance, and the slightly limited time, he asked for introductions for those who drive an EV at least once a week, or are from out of state.

Ted then showed an assortment of signs and bumper stickers for EV's and also showed recent newsworthy items on the front page of many local papers. He also showed several EAA brochures. It was announced that all ticket raffle purchases would receive WarP motor promotional cups form Net Gail Technologies. The raffle consisted of six magazines. Included were a copy of Current Events (from EAA), a copy of Home Power, 3 different Solar Power magazines, and a 2001-2002 catalog from ETA.

A motion to accept the minutes as written was approved.

Newsletters will be mailed or emailed before the meeting. A second version with personal information removed will be posted after the meetings as a record. You will need to be a member to receive complete and timely information. The plan is to have 200 memberships this year; current membership is 131. Memberships go one year from the date of purchase.

Treasurer: The treasurer was not present.

Old Business

Tech Projects Committee – Ken Simmermon (reported by Ted)

1. The Porsche 944 club project car is running, and there is likely only two weeks of work left before the project is complete.
2. We discussed a 220 volt portable watt meter with gender changer as a project.

Outreach Committee – Rich Hirschberg

There is a significant car show in Downtown Elgin on September 6, 2008

Charging Infrastructure – Todd Martin

The Beverly Unitarian Church charging station is currently operational. There will be a ribbon cutting ceremony on February tenth. This is the first rapid charging station in Chicago

Todd has made available packets to introduce high voltage charging stations. He also announced that the Hilton Hotels will all offer high power charging stations as per their agreement with Tesla. A suggestion was made to put EV charging stations as an overlay on a Google Map on the web.

New Business

Ed Harris has donated a 2500 watt Honda generator (with a commercial value of about \$1700) to the club for a auction.

Chuck Carrington was appointed raffle meister. We started the break at 7:59.

We reconvened at 8:20, and it was announced that the raffle had made \$46. George Gladic was the first winner.

We had a very interesting presentation from Wilkes High School from North Carolina.

Support Our Sponsors That Support Us

Ted Lowe

Visit our Sponsors page to view their information: <http://www.fveaa.org/sponsors>

Pay their support forward by visiting their websites and seeing what services and products they offer!

Everyone please ramp up your recruiting efforts for new business memberships and if your business is relevant to FVEAA's mission, we'd gratefully appreciate your support as well! See more information at: <http://www.fveaa.org/join>

EV's in the News

Rich Carroll/Ted Lowe

Here is a list of electric cars either in production or close to production. You should know about these so your friends can learn from someone in the know.

Tesla Roadster -

<http://www.teslamotors.com/>

Phoenix SUT -

<http://www.phoenixmotorcars.com>

Zenn - <http://www.zenncars.com/>

Smart EV (OK, it is available in Switzerland and England) Or you can convert a standard Smart Car. - google: electric Smartcar

G-Wiz EV (United Kingdom for now) - google: G-Wiz EV

Zap! Xebra - <http://www.zapworld.com>

Universal Electric Vehicle's Electrum Spyder -

<http://www.universalelectricvehicle.com>

Miles ZX40 - <http://www.milesev.com>

GEM e2 - <http://www.gemcar.com/>

Mullen L1X-75 -

<http://www.mullenmotorco.com/>

Kurrent by American Electric Vehicle -

<http://www.getkurrent.com>

And some others, not exactly there yet:

Zap-X - <http://www.zapworld.com/electric-vehicles/electric-cars/zap-x>

Zap Alias - <http://www.zapworld.com/electric-vehicles/electric-cars/zap-alias>

Detroit Electric (again after 70 years) - <http://www.detroit-electric.com/>

Volvo ReCharge with wheel motors - google: Volvo ReCharge

FVEAA's Charter Business Member

Ted Lowe

Elite Energy Distribution

Dave Strange, President Of Operations

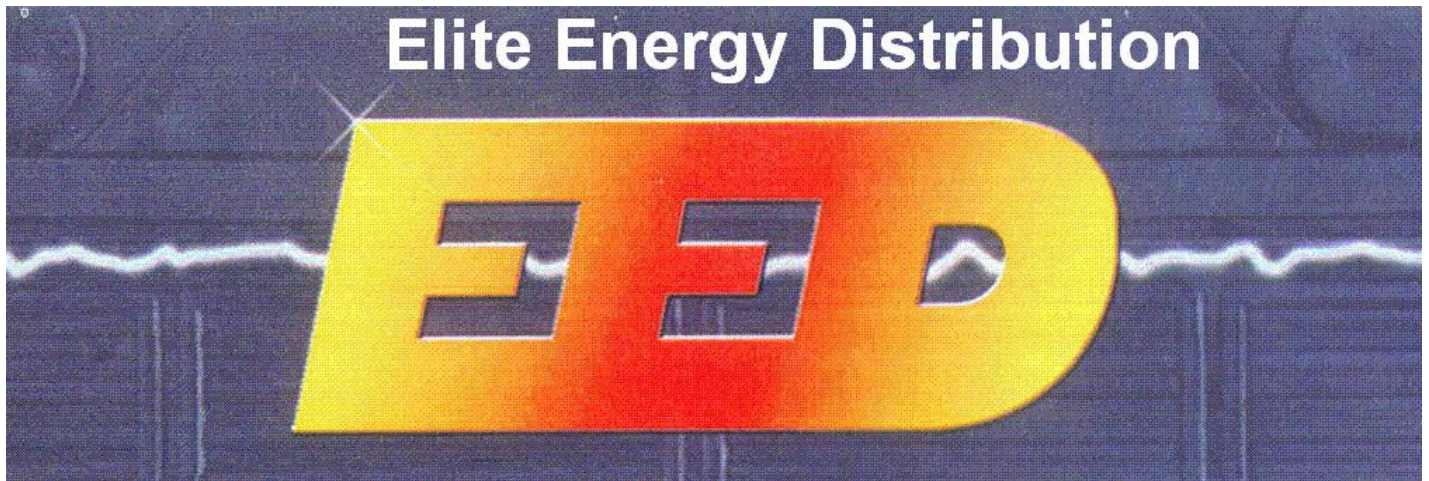
5200 N 124th St

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We can take for recycling any and all rechargeable batteries (NiCd, NiMH, and LION). During a time when metal prices are sky-rocketing, our prices stay competitive with extended warranties.



Welcome FVEAA's New Business Member - NetGain Technologies, LLC

Ted Lowe

We are pleased as bunch to welcome George Hamstra and team as new business members! George plans to give a presentation about their company and some recent projects at the March meeting.

NetGain Technologies, LLC

George Hamstra
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Lockport, IL 60441
Phone: 630-243-9100
Fax: 630-685-4054
Email: ghamstra@go-ev.com
Web: www.go-ev.com



NetGain Technologies, LLC is the exclusive worldwide distributor of WarP, ImPulse, and TransWarP electric motors for use in electric vehicles and electric vehicle conversions. These powerful electric motors may also be used in the conversion of conventional internal combustion engine vehicles to hybrid gas/ electric or electric assist vehicles. Our motors are manufactured in Frankfort, Illinois by Warfield Electric Motor Company.

We have developed patent pending technology known as EMIS - the Engine Motor Interface System. EMIS monitors an internal combustion engine and controls an electric motor controller to apply strategic amounts of electric assist energy to the drive train, resulting in improved fuel efficiency and reduced emissions.

First Illinois Avcon Rapid Charge Station Dedicated at Beverly Unitarian Church, Chicago

Ted Lowe

Let's give a BIG HAND to Todd Martin for this excellent result from the Charging Infrastructure project he initiated about 1.5 years ago and has been running ever since.
Great Work Todd!!!

This news conference went very well with numerous TV stations and newspapers present. Lt. Governor Pat Quinn gave an impassioned speech about our right and duty to have a clean environment in which to live and his support for electric vehicles! Keep your eyes and ears open for any press coverage that comes out.





Gas Gen Backup Project Team Launched

Terry Kane

The forum topic titled "EV'S WITH GAS/GEN BACKUP" has led to the informal formation of a project team. This group is planning to meet to begin exploring the technology with an eye towards home-built range extending ICE/genset trailers for conversion EV's. For more information contact Terry Kane or Matt Kenigson

Carroll's Corner

Rich Carroll

Battery technology continues to progress, and I suspect we all are the people that friends, relatives, even enemies go to for information. Let's not start with Lead Acid and VRLA. The discussions about these are long, and fairly well established. Let's talk about some of the newer chemistries, which seem to offer significant increases in range, offer a significant reduction in vehicle weight and some additional advances.

I'll start the discussion with size and weight, and try to relate the numbers to realistic estimates of range for a four passenger car. There appears to be very little standardization (yet) of the Nickel Metal Hydride (NiMH) packs, and even less in the Lithium batteries. NiMH packs were created for the factory built Rangers, S-10's, RAV4-EV's and the GM EV1's. There were also packs created for several other smaller but manufacturer backed programs to create minivans and small buses. Of all, there is very little standardization on size. Occasionally a NiMH pack becomes available. Some NiMH packs had built in cooling, some did not. Some had a heavy duty containment system to prevent battery bulging or swelling, some did not. Many manufacturers did create a pack size that is somewhat similar to today's car batteries, but this was to facilitate handling as much as anything. Most of the automotive uses of NiMH batteries in cars or light trucks showed an effective range of up to 100 or 120 miles from about 800 or 1000 lbs of batteries.

Lithium batteries come in several chemistries, some use lithium metal metal or lithium compounds as the anode; these are called lithium batteries. Regular lithium batteries are not considered rechargeable. These are commonly used in watches and electronics.

Lithium ion (Li-ion) batteries have an anode made of graphite (most commonly) in which a lithium ion moves between the anode and cathode. The lithium ion moves from the anode to the cathode during discharging; the lithium ion moves from the cathode to the anode during charging. In Li-ion batteries, the cathode is likely either a layered oxide (like cobalt oxide), a polyanion, (like lithium iron phosphate), or a spinel, (like manganese oxide.) Lithium ion batteries have been used for several years, in the electronics industry, and have a reasonable track record as a rechargeable, portable energy source. Unfortunately, Li-ion batteries are more expensive to make, and many companies have outsourced the manufacture to the basic cells to offshore companies, sometimes at the expense of quality. Lithium ion batteries are likely to heat during use or charging, and some fires have been reported. Industry sources feel that the likelihood of thermal problems is increased with less expensive manufacturing techniques, and with the possibility of particulate contamination during manufacture. (Little specks of conductive material inside the cell is a likely culprit.)

The only current production automobile in the US using Li-ion cells is Tesla. Tesla's 700 or 800 lb total of batteries gives over 200 miles in range between charges.

It is hard to compare apples to oranges, but the Tesla with a 200 mile range on 800 lbs of Li-ion batteries, is not far from an EV1 with a range of 100+ miles on 800 lbs of NiMH batteries. Also contrast this with several cars on the EVAlbum list, with 800 lbs of batteries in a small car, they are limited to about a 40 mile range.

Most Li-ion batteries are made by the hundreds of thousands in the A123 size, also known as 26650 size. These are slightly smaller than a C battery, and deliver 3.3 volts. Individually, they are about one inch in diameter, and just over 2.5 inches long. Packs are assembled from many batteries of this size, sometimes in small packs of 20 or 25, sometimes larger. The density of the pack is such that additional cooling will be needed for high output applications. These 123 sized batteries are commonly called a "commodity size," such that companies that wish to use them for portable tools etc. can purchase them by the hundreds of thousands and incorporate them into packs that are rechargeable and fit the particular application.

Tesla uses an A123 sized battery, and uses 6831 of them.

Two issues still need to be addressed for the advanced batteries. Thermal management and equalization of batteries is an issue with both the NiMH and the Li-ion batteries. Various thermal management systems have been used, some passive, some active. In a passive system, the cell sits next to, or is mostly enclosed by a heat sink. The heat sink can absorb the heat generated during rapid charging or discharging, and keep the battery at an optimum temperature range. Some of these heat sinks use a phase change material, where the medium changes from solid to liquid as the heat is absorbed. In active systems, a cooling fluid is passed by the cells. Sometimes this cooling fluid is air, sometimes a water based substance that is then cooled in a radiator. Almost all automotive applications of Li-ion and NiMH

batteries use some thermal management. The degree of efficiency of any particular system is a question, some manufacturers promote that their cooling can keep the cells within 3 degrees C of each other. How efficient a system has to be is an open question.

Battery management seems to be more of a unknown. To momentarily look back at the VRLA batteries, applications that used many batteries in series found fairly quickly that some battery management system was essential, otherwise some batteries would undercharge, and rapidly fail. The most successful systems have balanced during charging, although some have attempted to balance during discharge also. Most of the NiMH systems tried by automotive manufacturers used some balancing during charge, and it appears that Li-ion may also benefit from this balancing. Much more testing is needed to determine the optimum way to balance, and need to do it regularly.

Ken Simmermon Makes Two Charging Accessories for the FVEAA *Ted Lowe*

As part of his work on the Technical Project committee, Ken recently fabricated two useful assets for the FVEAA.

The Avcon Adapter (he is holding in his left hand below) has an Avcon paddle inlet and 3 different 240V AC outlets. So if your EV doesn't have an Avcon inlet built-in, you can still use an Avcon Charging Station with the use of this device.

The Portable 240V AC Power Meter (below right) plugs into a 240V AC outlet and measures the power consumed while charging your EV.

Come to the meeting to see these new items. Anyone can borrow these items by contacting me. Thanks Ken!



FVEAA's Premier Business Member *Ted Lowe*



Eco-conversions

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Web: www.eco-conversions.com

eco-conversions

Eco-conversions specializes in converting oil dependent vehicles to electric. Focusing specifically on luxury vehicles, our goal is to shatter the image of the traditional electric car.

Even though all high-end, luxury and luxury sports car conversions are acceptable, our benchmark vehicle is the BMW 8-Series. It is the perfect marriage of style, luxury and performance. At eco-conversions we work hard to show that it is possible to create another choice for the environmentally conscience consumer. By using environmentally friendly nickel-zinc batteries, we provide enough power to maintain both the feel and performance of a luxury sports car. Each charge provides 100+ miles of drive time. No gas required. Zero emissions. The end result is a luxury vehicle that you can feel good about driving.

Eco-conversions has partnered with eVionyx, an American company that has developed nickel-zinc rechargeable batteries which can handle over 2000 cycles at 90% DoD. The eVionyx nickel-zinc battery has superior performance as compared to other battery technologies available today. The nickel-zinc cells are superior to lead acid in total power and energy, specific power and energy, and recharge time. It is less expensive and also performs better than NiMH cells. NiZn batteries are particularly suited to high-power applications, such as use in electric vehicles and light transportation.

Update on Ed Meyer's Donated Late Model Sebring-Vanguard EV

Ted Lowe

I made no progress on arranging this donation this month. My plan is to ask the EAA if Ed can donate his EV to them (they are 501(c)3) and then they can in turn give the EV to us. Stay tuned for more.

Newsletter Publishing Schedule

Ted Lowe and Rich Carroll

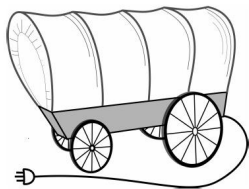
On the 1st of each month, all FVEAA members with email addresses will receive a reminder email on the [members] listserve. The reminder will include the 3 following dates in the month: (1) The **Newsletter Content Submission Deadline**, (2) **Newsletter Publishing Date**, and (3) **Monthly Meeting Date**. Working backwards from (3), which is always at 7pm on the 3rd Friday of the month, (2) will be 1 week before (3), and (1) is the Wednesday midnight before (2) which will allow Rich and I to add your content into the newsletter before publishing.

You can help us by **submitting content** for this newsletter by the **Wednesday before the 2nd Friday of the month!** This will give us enough time to finish up the newsletter and get it out by 7pm on the 2nd Friday of the month per our Bylaws. **Thanks!**

FVEAA's Business Members

Ted Lowe

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Welcome New FVEAAers

Ted Lowe

Let's give a big FVEAA welcome to the following new members:

Roy Stuart from Racine
Larry Backes from Libertyville

John Pasquale from Danville
Miodrag Zubic from Rockton

Welcome aboard Folks! Let us know what we can do to help you in your EV pursuits!

FVEAA Membership Report

Ted Lowe

Recruiting goal for 2008: Let's have 200 FVEAA members by then end of the year, 20 of which are business members!



FVEAA Membership Report

as of 2008-02-12 18:29:45

Count of Members by Type

Membership Type	Count	Paid Up
BusinessCharter	1	1
BusinessPremier	1	1
BusinessStd	3	3
Family	15	15
Individual	118	118
LifetimeInd	3	3
Totals	141	141

Other Statistics

Statistic	Value
% Paid Up	100.0%
Avg. Paid Up Days	280.6 days
% With Email	90.8%