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

Meeting: Friday, February 16th
Doors open at 7:00PM
Meeting starts at 7:30PM
Clow International Airport
130 S Clow Intl. Pkwy, Bolingbrook, IL 60440

Directions: From the Boughton & Weber Rd intersection, go south 0.5mi (past all the malls) and turn right (west) on Clow Intl. Pkwy. Park in the lot next to Charlie's Restaurant. The meeting is in the Packer Wings hangar (second hangar north from the parking lot). Enter the hangar from the side door on the south side.

February 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 and Introductions
Approval of Minutes
Treasurer's Report
Old Business

- New Rules for Clow Meeting Location
- New Meeting Location
- Charging Infrastructure Project Update

New Business

- Midwest AFV Expo 2007 ?
- EV needed for Earth day in Batavia
- Ask both what your FVEAA can do for you...AND what you can do for your FVEAA!

Intermission – Refreshments, Networking, Raffle and Website/Forum Login Assistance

Programs

Ted Lowe – FVEAA Forums Live Demo
Ted will use Paul Becke's satellite card to connect to the Internet and demonstrate our new FVEAA Forums. Learn how to login, read recent messages, post new messages and replies and search.

Rich Carroll – Telsa Motors: The real deal or another Amectran ?
Following up from Jim DeBoth's talk last month on his trip to Telsa, Rich will expand on this issue from his article in this newsletter. What useful lessons can be gleaned from history ?

Rich Carroll – ZAP Comes to Illinois
Rich will talk about his extended conversation with Illinois' first ZAP dealer in Oak Forest.

Jim Dawson – Out of the cold and into the hot seat!
Jim will share more of his experiences driving his recently converted EV. Jim will do a live installation of a seat heater kit too!

President's Words

Ted Lowe

There seems to be a different rhythm surrounding environmentalism lately. Gone are the days where openly calling people that care about the Earth our home "treehuggers" is acceptable. People that use the T word are tantamount to racists and non-patriotic. Sure, there are still people living in the past and will have to have their slurs pried from their cold dead hands. But the mainstream seems to be connecting to the sustainability message in ever energetic ways! One of my favorite environmentalists is Lester Brown. I've included the text of one of his recent articles that is relevant here for your enjoyment. Keep up the great work folks!

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Earth Policy Institute
Plan B 2.0 Book Byte
For Immediate Release
January 23, 2007

THE ENVIRONMENTAL REVOLUTION

http://www.earthpolicy.org/Books/Seg/PB2ch12_ss7.htm

Lester R. Brown

Restructuring the global economy according to the principles of ecology represents the greatest investment opportunity in history. In scale, the Environmental Revolution is comparable to the Agricultural and Industrial Revolutions that preceded it.

The Agricultural Revolution involved restructuring the food economy, shifting from a nomadic life-style based on hunting and gathering to a settled life-style based on tilling the soil. Although agriculture started as a supplement to hunting and gathering, it eventually replaced it almost entirely. The Agricultural Revolution eventually cleared one tenth of the earth's land surface of either grass or trees so it could be

plowed and planted to crops. Unlike the hunter-gatherer culture that had little effect on the earth, this new farming culture literally transformed the earth's surface.

The Industrial Revolution has been under way for two centuries, although in some countries it is still in its early stages. At its foundation was a shift from wood to fossil fuels, a shift that set the stage for a massive expansion in economic activity. Indeed, its distinguishing feature is the harnessing of vast amounts of solar energy stored beneath the earth's surface as fossil fuels. While the Agricultural Revolution transformed the earth's surface, the Industrial Revolution is transforming the earth's atmosphere.

The additional productivity that the Industrial Revolution made possible unleashed enormous creative energies. It also gave birth to new life-styles and to the most environmentally destructive era in human history, setting the world firmly on a course of eventual economic decline.

The Environmental Revolution resembles the Industrial Revolution in that each is dependent on the shift to a new energy source. And like both earlier revolutions, the Environmental Revolution will affect the entire world.

There are differences in scale, timing, and origin among the three revolutions. Unlike the first two, the Environmental Revolution must be compressed into a matter of decades. The other revolutions were driven by new discoveries, by advances in technology, whereas this revolution, while it will be facilitated by new technologies, is being driven by our need to make peace with nature.

There has not been an investment situation like this before. The $1.7 trillion that the world spends now each year on oil, the leading source of energy, provides some insight into how much it could spend on energy in the eco-economy. One difference between the investments in fossil fuels and those in wind power, solar cells, and geothermal energy is that the latter are not depletable.

For developing countries dependent on imported oil, the new energy sources promise to free up capital for investment in domestic energy sources. Not many countries have their own oil fields, but all have wind and solar energy waiting to be harnessed. In terms of economic expansion and job generation, these new energy technologies are a godsend. Investments in energy efficiency will grow rapidly simply because they are profitable. In virtually all countries, saved energy is the cheapest source of new energy.

No sector of the global economy will be untouched by the Environmental Revolution. In this new economy, some companies will be winners and some will be losers. Those who participate in building the new economy will be the winners. Those who cling to the past risk becoming part of it.

# # #

Adapted from Chapter 12, "Building a New Economy," in Lester R. Brown, Plan B 2.0: Rescuing a Planet Under Stress and a Civilization in Trouble (New York: W.W. Norton & Company, 2006), available on-line at www.earthpolicy.org/Books/PB2/index.htm

Additional information available at www.earthpolicy.org

Meeting Minutes

Ted Lowe

Minutes for FVEAA meeting January 19, 2007 at Clow Airport in Bolingbrook.

Call to order: 7:28. Attendance Sheet was passed around.

Ted Lowe Introduced himself. We started with intros of people present. Each told where they were from and their EV interest. Fifty three people were present.

Motion to approve the minutes as printed passed.

Ted said this is the last, last, last nag about dues.

Ted talked about the 6th EVer in Florida. Several facets of the convention were presented.

Tim Moore was not present to discuss the current club project car. The latest project is a kit car, yet to be determined.

Treasurer's Report was deferred until later in the meeting..

Ted passed out several copies for the Alternative Fuels brochure from 2006. Home Power magazine was also presented, and these will be a part of the club raffle. Illinois Solar Energy Association newsletter was also presented. Sherry Boschert's book was also mentioned as a good story, and informative about plug-in hybrids.

Our association is working on infrastructure charging project. We have installed Avcon chargers at two locations in the Chicago area. We have budgeted and allowed for ten. One is being installed in Chicago, at 119th and Halsted in the new library. Individuals can still contribute to the special charging fund, and we are getting close to the $2500 cap on this fund.

There will be a Townhall meeting on Global Warming will occur tomorrow, Ted will represent us.

Web forums on the website have just been started.

Online ordering of business cards, badges and shirts is pending. Web site difficulties have delayed this.

Ted surveyed the members present for topics to be presented at upcoming meetings. Todd Dore took notes of the topics.

-Ethics (wells to wheels pollution)
-thermal management of batteries in our climate, hydrogen power
-battery Peukert effect
-outdoor meeting to view cars and their components
-alternative fuels (ethanol, hydrogen, wind energy, alternative battery types, etc.)
-economics of some energy sources
-make video recordings of featured speakers. Ev's
-allocate time for breakout groups of varying levels of experience.
-Schematics of parts of EV's

Treasurer's report was presented. Currently there is about $1,009 in checking, with a total balance of about $4,500. The treasurer's report was accepted.

New Business.

Rich Carroll discussed the upcoming Chicago Auto Show, and the alternative energy showcase within this show.

-- Break ---

Raffle took place and Chuck Carrington, Rich Carroll, and Audrey Rathburn took home issues of Home Power magazine. Raffle raised $49.

Jim DeBoth started after the break with a seven minute Video of the X-1 Roadster. This was a presentation that was shown on Public TV, here in Chicago on WTTW. The roadster was presented on a test drive on a racetrack in California. Extremely fast, and with street usefulness of 120 miles of range and a top speed of 120 miles an hour. The X-1 was the precursor to the Tesla.

He found the Tesla® to be very agile, extremely responsive, and very professionally assembled. His observation was that the startup company is using the space of three or four of the size of the aircraft hangers that we use at Clow International Airport. The car will cost roughly $100,000, and uses 6000 small lithium-ion batteries. Tesla is not yet licensed to sell cars in Illinois. Jim felt that being in the second group of one hundred owners, that some of the bugs would be worked out in the first one hundred cars. He assumes that a local service center will be established. Acceleration from 0 to 60 in the neighborhood of 4 seconds in second gear, likely better than that in first. Range is quoted as up to two hundred fifty miles, with a well to wheel efficiency of about one hundred and thirty five miles per gallon. It features a total on seventeen moving parts in the power train. When needed, the motor turns in reverse, eliminating the need for a reverse "gear". The motor is custom made by AC propulsion.

Production is scheduled for fall 2007, the first 100 in England, the following ones in the USA. Battery assembly in Thailand, Motor assembly in Taiwan.

Currently, they have taken about two hundred ninety orders. They are using commodity lithium cells due to price advantage and multiple suppliers. Voltage and temp monitoring and charge balancing are obstacles they had to overcome, and they needed a computer network to solve the issues. Overheating is a major issue for the company, and they said they say they have been very diligent in working on this issue. They have a sophisticated interconnect system, and each battery sheet has six hundred twenty one cells with charge balancing and cooling, and with eleven sheets in each battery pack. Each sheet has charge balancing and cooling.

Next we heard from Neil Nelson, who bought a GM built S-10EV. Only 60 remain on the original 500. (They made about 1000 EV-1's, with the same drivetrain.) Only only one or two EV-1s remain, the others were crushed. Neil's truck was originally owned by the Los Angeles Zoo, and is now here in Illinois. A module in the car for the inverters for the AC and power steering pump and converts the DC-DC converter. The DC-/DC converter had failed, and the vehicle was parked under a tree. Ni-MH batteries were used in the last year of production, and this one has the Ni-MH. Battery lifetime is more than 100,000 miles. The vehicle has an empty weight of 4200 lbs with 26 batteries. Range is about 80 miles with no load. Ovionics® Ni-MH solved the life issues of the Pb Ac batteries, with increased range and greatly increased lifetime. Negatives are the rather nasty self discharge rate, maybe 30% in two days with 10% in a few hours. Panasonic® later improved this in the RAV 4 and in the Ranger by Ford. The earlier Ovionics batteries also had a heat issue, and GM ran air conditioning ducts from the cab to the battery box to keep the batteries cool. The Ni-MH battteries do not do well in temps over one hundred degrees, so the charging circuit will hot attempt to charge them in such conditions. Panasonic is prohibited from making

these improved batteries, until 2015, as Ovionics sued Panasonic and that was the resulting agreement. Panasonic's improvements were so significant that they initially did not feel the need to pay royalties to GM-Ovionics, but the resulting lawsuit was mostly in Ovionics favor.

The vehicle features a 3 phase induction motor, built by GM, with a 10-1 reduction to the drive wheels. Just over 100 kilowatt output from the electric motor. The power steering pump is driven by a small AC motor driven by it's own inverter. Power brakes use a vacuum pump, driven by electric motor. The charger connection, motor, and inverter base are all water cooled using a standard S-10 radiator. The car uses the AC as a heat pump (the AC in reverse) down to forty degrees, below that there is a kerosene heater, with a one and a half gallon tank for kerosene. Regenerative braking with gage. Some regenerative braking by lifting from the throttle, then more from applying the brakes, up to 6% of the 100 Killowatts. Overall, this results in modest regenerative braking only. This is due to the inability of the Ni-MH batteries to accept a fast charge.

GM sold Ovonics, and Chevron-Texaco® bought the rights and have not produced any new battery packs.

We closed the meeting as one of the planes seems to have a gasoline leak. Later findings showed that filling a gasoline tank to the top with cold gas, and moving the tank inside, will allow the gasoline to expand and overfill the tank, resulting in a fire hazard.

Newsletter Editor

Rich Carroll

I had an interesting question from a Todd Dore today as I was putting the newsletter together. Zap® has a display at the Chicago Auto Show, presenting their Xebra® and Xebra XP® vehicles. Todd wondered why Tesla® and Tango® didn't have displays, but Zap did. All are relatively new companies to the EV market, and reach different markets.

I do know that the Chicago Auto Show is run by the Chicago Automobile Trade Association, which represents car dealers in the greater Chicago area. CATA (or more accurately the Chicago Auto Show entity) rents out McCormick Place, and offers floor space for rent to manufacturers, dealers, allied companies who sell related products, and some organizations that the public expects to find there. So Ryba's Fudge is there as the public actually expects to find them there. Local dealers and dealer networks pool resources to staff the show and contribute to the exhibit.

Zap applied for a small space to show their vehicles, and was able to put a presentation together that assured the CATA that this is a real enterprise, actually selling vehicles. They have an inventory, and parts availability, and cars that you can buy. It is not a “proposed” business, it is a working business, on the start of an interesting era. If you want 10 vehicles from Zap, they will deliver them as soon as they can ship them in from Santa Rosa where they come into the US from their manufacture in China.

Some of the other players in the market can't sell you a car this month. They seem to be filled with promises of when, and how, but frequently lacking in details. You should be able to ask and get answers to several questions before you invest your money. Simple questions, such as “how does the heater work?” and “is there Air Conditioning?” and “are the side windows safety glass?” and “who makes the gearbox?” are easy questions. Not all the manufacturers mentioned above can answer

these simple questions. Answers to more difficult questions are also missing in some of the startup companies, so there are no answers available to questions about battery thermal management or individual battery monitoring or how the charging system levels off. Or, if the car has AGM cells or LiION cells, and how does the system equilibrate charging.

Todd and I had an interesting discussion about how some of the companies that propose $100,000 cars don't yet have answers for these questions, and those same companies have missed several time deadlines in getting the vehicles built.

This reminds me of a company I knew well in 1980, called Amectran. (go see http://www.amectran.com) It is the story of Edmond X. Ramirez, Sr. who claims to be the inventor of "*Worlds First (Real) Production, Electronic Powered Automobile.*" Edmond bought a prototype from Frua (a respected Italian coachbuilder) and converted it from BMW power to electric power. He retitled this as the "EXAR-1®" derived from his initials. The prototype was built in steel, although Amectran claimed production cars would be built in fiberglass. The prototype was showed in Chicago, and in Paris, and was photographed being driven by Pat Boone, Walter Peyton, and Sterling Moss. Ramirez set up a "production facility" in the Dallas area, and effectively sold franchises for dealerships.

Two electric powered mules were owned by Amectran®, along with the EXAR-1 and these were the only production from the company. The mules looked like overgrown Pacers, and were probably the most ugly cars I have ever seen.

Edmond Ramirez has complained for years that he was "*victimized by the vast surreptitious, illegal and calumnius (sic) efforts utilized in preventing the production of the EXAR-1.*" *...After years of constantly being dragged into court on trumpted-up charges, struggeling(sic) to survive the surreptitious onslaught of nameless, faceless advisories, Ramirez was labeled a "con man."* The wording in italics is lifted directly from the Amectran website. I would urge you to read Ramirez' website in detail, and understand that he was prosecuted and jailed and apparently never produced a single car for sale. As you read the comments on the website, be mindful of the outcome. It is an interesting glimpse into a man who was viewed as a swindler in the eyes of most.

His EXAR-1 was displayed at the Chicago Auto Show, although I do not believe his tale is very accurate when he describes thugs, beatings, and intercessions by the President and Governor. Curiously, while his documents are quite old, having been on the web for many years, he never spelled correctly the names of some of the principles, so that web searches would not find the pages written by Ramirez. The story on his website about "Paul Bryant" is not the way that Paul tells the story. Curiously, Paul Brian worked for Amectran for a while, and Ramirez certainly knew how to spell his name correctly.

Since the EXAR-1, the Chicago Auto Show has been increasingly careful not to let companies exhibit when they are not actually producing cars. Zap is truly producing cars, not a high end, or a middle ground, but an entry level car. It is a real car, you can touch it, and after the Auto Show, go down to Oak Forest and drive it. Better yet, Rick Sbaragia has tentatively agreed to bring one to a meeting soon.

Meeting Place has new Requirements

Ed Meyer

In light of our fuel spill at the last FVEAA meeting we need to take the following action:

- ✓ Each member needs to be made aware we are meeting in an active aircraft hangar with 100/115 octane aviation fuel in plentiful supply.
- ✓ During a fire emergency there will be only one exit available - namely the service entrance door used for personnel. There is no rear exit available at this time. In the summer months we

have been asked to leave the main front door open.
- ✓ Each of us will be asked to sign in during each meeting. I am told that a copy of the attendance record will suffice.
- ✓ Finally - we will be asked to conduct two safety meeting each year lasting 30 minutes each. Copies will be kept on file for village records and for insurance purposes.

Search For New Meeting Location

Ted Lowe

Perhaps our rapid exit from last month's meeting was 'a wakeup call' for us to find a new location! We have been meeting in our "temporary" location for over a year now and never intended to stay this long. Our gracious hosts Packer Wings and Ed Meyer have been so accommodating in our transition period and we are very grateful for this! It has been great seeing the knowledgeable and insightful Ed Meyer each month due to the very close proximity of Clow to his home allowing him to work us into his busy schedule! No new location will be ideal for everyone, but we will find a new location that is the best for the most. That said, here are the requirement guidelines for our new location:

1. **Central location** – Ideally, our meeting location would be somewhere in the near west suburbs of Chicago, eg, Elmhurst area.
2. **Ample meeting space** – We need to have a space that can hold 60 people since our meetings have grown in the last year. Ideally, room for 75 would allow some growth.
3. **Meeting room amenities** – Heat, bathrooms, electricity, chairs, podium, screen to project computer output, lights that can be dimmed in front.
4. **Meeting date and times** – Ideally, Friday nights 7-11pm. We could make adjustments in this schedule if a good candidate location is at stake.
5. **Cost –** Ideally free or cheap, with barter exchange for what we offer our hosts. Else, a reasonable per month fee, eg, $100-$200. Whatever we have to pay, we will need to raise in funds to support our sustainable operations.
6. **Lab space and plug-in for EVs –** Ideally, indoor space to hold 5 EVs with plug-in ability (120V and 240V). Triton College was a excellent location for this purpose. Else, outdoor parking with plug-in ability close to the meeting space. Even space for only 1 indoor EV would allow a lot more flexibility for demonstrations and member show-and-tells.
7. **Connection in our missions –** Ideally, we will share some of our mission/methods with the organization or company that hosts our meetings. Eg, ComEd or IBEW would be involved in the electric business, an environmental NFP would share our concerns, and an educational organization would connect with that part of the FVEAA.

Is this a lot to ask ? Yes, but we don't need to settle. We are doing the right thing at the right time and have a lot to offer our future hosts. We'll likely need to compromise on some of the above requirements but this is the starting point for our search. A location search committee will be formed at the next Board of Directors meeting with a clear mission. Please consider potential locations and let me know if you have good candidates. Thanks!

EV Discussion List

A resource

Are you looking for technical help on an EV project? If so, tap into an incredible resource on the Internet, the EVDL! This is a mailing list of EV experts and enthusiasts from all the world that

pose questions and share answers on EV technical issues. It is a very active list, so setup an email filter to sort your email to a separate mailbox. More info at: www.madkatz.com/ev/evlist.html

Welcome New FVEAAers

Ted Lowe

Join me in extending a warm welcome to new FVEAAers:

Chad McCuen, Lansing
Howard Hansen, Forest Park
Martin Estall, Downers Grove
James Riedl, Hoffman Estates
Ryan Brandys, Hinsdale
Daniel Rubino, Carol Stream
Michael Henry, Danville
Kenneth Gallenbeck, Byron

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!

EV's in the News

Rich Carroll

Reuter's reports that a Japanese vehicle developer and former rally driver,Yoshio Takaoka, in collaboration with Italy's Start Lab SAP, has created the Girasole®, a fully functional electric car that can be fueled from a home power outlet.

The two seater reaches speeds of 65 km per hour (41 mp/h) and travels distances of up to a 120 km (about 75 miles) on a full battery, which costs about $1. “Previously I was a polluter but as I grew older I felt I had to do penance for this and do something good in return,” Takaoka, 63, told Fuji TV in Japan, referring to his rally driving heydays.

The Girasole, which means sunflower in Italian, retails for about 2.2 million yen (just over $18,000) but drivers can claim a 6,600 yen (about $54) subsidy from the government under an environmental protection clause. Japanese consumers who test drove the car were impressed by its quietness. But the car comes equipped with the clip-clop sound of horse hooves hitting the pavement to alert pedestrians and other drivers.

OK, it's getting to be a snowy part of Winter here in Chicago. Similarly, the harsh winter in Niigata, Japan brings heavy snow, which can pose problems for residents — particularly the elderly — who are faced with the laborious task of clearing it from driveways and entrances. To the rescue comes Yuki-taro®, an autonomous snowplow robot developed by a team of researchers from five Niigata-area organizations.

The friendly-looking Yuki-taro measures 160 x 95 x 75 cm (63 x 37 x 30 in.) and weighs 400 kg (880 lbs). Armed with GPS and a pair of video cameras embedded in its eyes, the self-guided robot seeks out snow and gobbles it up into its large mouth. Yuki-taro’s insides consist of a system that compresses the snow into hard blocks measuring 60 x 30 x 15 cm (24 x 12 x 6 in.), which Yuki-taro expels from its rear end. The blocks can then be stacked and stored until summer, when they can be used as an alternative source of refrigeration or cooling.

Yuki-taro is the result of nearly seven years of work by researchers from the Niigata Industrial Creation Organization (NICO), Research and Development, Inc. (RDI), Niigata Institute of Technology, Yamagata University and the Industrial Research Institute of Niigata Prefecture (IRI), who set out to design an environmentally-friendly robot that can operate by itself and support the elderly. In 2006, Yuki-taro received a Good Design Award in the small-to-medium sized enterprise category.

Researchers continue to work on reducing Yuki-taro's size, weight and cost, and they hope to make it commercially available in five years at a price of less than 1 million yen ($8,300).

Santa Rosa, California-based ZAP has confirmed that the firm is using Lotus's APX (Aluminum Performance Crossover) platform, from the 2006 show, and its body structure, for developing a high-performance flagship model called the ZAP-X®. Lotus Engineering will also provide development assistance for the vehicle, which could go on sale in calendar year 2008. Instead of the gasoline V-6 in the original APX, the ZAP-X will have wheel-hub electric motors, providing all-wheel drive, to deliver up to 644 horsepower. The X, according to ZAP, would have a theoretical top speed of 155 miles per hour. An advanced battery management system will enable a range of up to 350 miles, with charges as short as ten minutes. The unique placement for powert rain components will leave extra space for battery capacity - an auxiliary power unit is planned for those who drive longer distances - and the car is expected to offer more cargo space than previous compact electric adaptations, where much of the existing cargo space often gets converted to battery space.

ZAP was unable to reveal exactly what type of battery pack the X will have, but a spokesman said that the company is currently in discussion with suppliers and is considering some very leading-edge solutions that limited-volume production allows - a hint that the company is considering lithium-ion technology. The model would take on the Tesla, the carbon-fiber-bodied sports car that's based on the Lotus Elise and claims 0-60 times of around four seconds and a top speed of about 150 miles per hour, with a range of up to 270 miles in normal city driving. First deliveries of the Tesla are slated for later this year.

A strong rumor is that Argonne National Laboratory is developing new batteries with a focus on increased lifetime and increased reliability. This would make cars like the Chevrolet Volt® more likely to be a reality. Argonne has been chosen by the U.S. Department of Energy to lead the research into PHEVs and the battery technology that they need.

Next Generation Prius to go Li-Ion and 113 mpg !? Read more:
http://www.autobloggreen.com/2006/12/11/next-gen-prius-to-get-lithium-ion-battery-and-113-mpg/