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F. V. E. A. A. NEWSLETTER

AUGUST 1990

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6542 Fairmount
Downers Grove Il 60516
708/968-2692

MEETING NOTICE

The next FVEAA meeting will be
AUGUST 17th at
College of DuPage Building K
22nd & Lambert Rd. Glen Ellyn
Time Meeting 7:30 P.M. sharp.
We can arrive at 7:00. Guests
are welcome and need not be
members to attend the meeting.
NOTE: Park at WEST end of lot
and enter at WEST entrance.
We meet in room # K-127

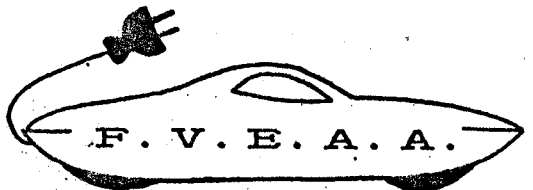
DEADLINE for newsletter *STUFF* - in my hands
the friday before the next meeting. Editor

THE PREZSEZ

The recent events in the Mideast which jeopardize petroleum supplies from that region must surely make FVEAA members who have completed their cars feel comfortable about their effort and should provide an incentive for those with conversions underway to complete their projects. The immediate rise in gasoline pump prices makes our electrics more cost-competitive.

During our August meeting, I propose that we discuss and establish a schedule for the summer completion of our Video Project. It is important that we also consider an understudy for our newsletter editor, John Emde, who has indicated a desire to pass that job on to someone else after the completion of his current term in November.

Bill
//



**FOX VALLEY ELECTRIC
AUTO ASSOCIATION**
6542 Fairmount Downers Grove Il 60516

FIRST CLASS

ADDRESS CORRECTION
REQUESTED

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Minutes of the Fox Valley Electric Auto Association....July 18, 1990

The meeting was called to order by Pres. Shafer promptly at 7:32 P.M. Present were a total of 21 members and 2 guests. Steve Clark, who is interested in Solar powered electric car and is also looking to buy an electric vehicle. Treasurer V. Vana reported \$1,313.73 in the checking NOW account and \$904.51 in the savings account for a total of \$2,218.24.

John Emde reported on the results of the Heritage Festival in Downers Grove. There were 5 cars, tens of thousands of people, good weather, and lots of interest.

John Ahearn riding in the lead car in the Wheaton parade said..it was a very hot day...Pres. Shafer, John Emde and Ray Oviyach and the Triton car were on hand and there were close to 100,000 people watching the parade.

There were requests for our club appearance at Wooddale on Aug. 11,1990 and on Aug. 19, 1990 at Montgomery Fest. Parade. A discussion followed and the club decided not to participate this year...but to keep it in mind for the future.

A call was received by Pres. Shafer from Gary Zuckerman..in the recycling business in Chicago who asked about an electric van for his business. Paul Harris is to try to get in touch with him and suggest the electric vans for sale by the Post office in California.

John Emde and Ken Woods are going to attend a renewable energy fair in Amhurst Wisconsin August 17th ~~18th~~ 19th..John to tow his car there. Eighteen speakers will be present on various topics.

John Stockberger, Ken Myers and Vladimir Vana spent last weekend with the Solar cars in Indianapolis Ind. They met with Clarence Ellers from the Calif. set. Ken Myers reported on the Popular Science article on the race and equipment.

Pres. Shafer and Bob McKee will give a repeat talk of MID-CON at Wilton Manor in Wheaton on Septemeber 18.1990..Cocktails..5:30..Dinner..6:30..Program..7:30

The topic of the evening at the meeting...What would I do different...next time. V. Vana....Find a lighter car to start with

Bill Shafer...I would not use an exotic type car that I cannot find parts for..also don't start with a car that is rusted..it will only get worse..also..build the car for the performance that you want..I would also add regenerative braking.

John Emde...Start with a new(er) car..and put a clutch in it..go to a little higher voltage to get a little more zip.

John Stockberger...Give serious thought to spending a few more dollars to get one of the newer controllers...prestolite motors...put in the best ingredients you can get..put in front wheel drive...go to higher voltage, cuts down wire size and therefore weight...

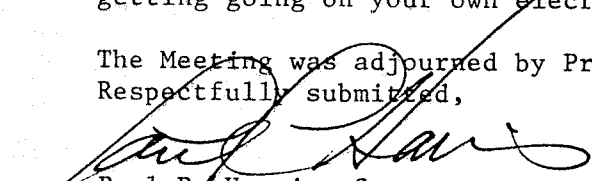
George Krajnovich..."I wouldn't build another hybrid...unless I can find a quieter engine..they are just too loud right now.

John Newton...Plan to have the car have air conditioning, heating etc. good performance.

Ken Myers.I would set up AC drive.

Pres. Shafer sez..American Petroleum Institute says..50% of petroleum is imported and in the coming months gasoline is going to cost a H... of a lot more.."So start getting going on your own electric car NOW...

The Meeting was adjourned by Pres. Shafer at 9:45 P.M.
Respectfully submitted,



Paul P. Harris, Secretary

Last month's Pony Express faltered and didn't get the June minutes to the printer on time. (Deadline for newsletter stuff - in my hands the friday before the next meeting. Editor) Better late than never.

Minutes of the Fox Valley Electric Auto Association June 15, 1990

The meeting was called to order by Pres. Shafer promptly at 7:37 P.M. Present were a total of 16 members and 2 guests. Pete Wilson and Paul Krauss of Greensboro N. C.

Treasurer V. Vana reported we had no changes in our two accounts with the total still at \$2,234.74.

Pres. Shafer says that Ken Woods reported that the display at the Yorktown shopping center was off because of technical problems with the union personell not being able to be there Saturday at 8:30 A.M. to open the doors for us.

Heritage Festival days at Downers Grove is still on per John Emde for June 23, 1990. We may drive our cars to the home of Les Stone and unhook and drive the cars to the exhibition area. We will have the folowing members and their vehicles to be shown. Carl Swick, John Emde, George Krajnovich, William Shafer, Ray Oviyach, V. Vana and maybe Dick Ness and his bike.

Pres. Shafer reported on the 4th of July affair at Wheaton that there was nothing to report at this time, although we expect to thve the following members and their units present. John Emde, William Shafer, Ray Oviyach, George Krajnovich and maybe V. Vana. (the same hard core people)....thank goodness. Ed.comment

Pres. Shafer submitted our club name to the Fed. Dept of Energy to try to get recognition of our efforts in the energy field. If we are eventually chosen as a winner, we may win a plaque or award of some kind...but no money...we are still waiting to hear from the State of Illinois to see if we get nominated.

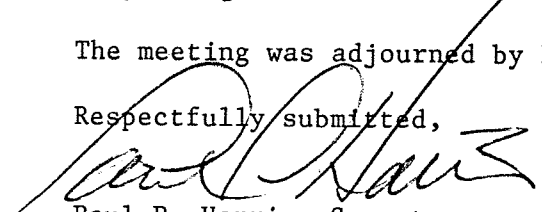
Pres. Shafer feels we should continue our tradition of having thr Treasurer bring DONUTS to the meeting..everyone agreed...vana break out the bank account. John Emde is going to the Energy Fair in Amhurst Wisc. and will give his traveling slide show and display his vehicle. This will be in mid August and I'm sure he'll bring back a good report...along with pictures.

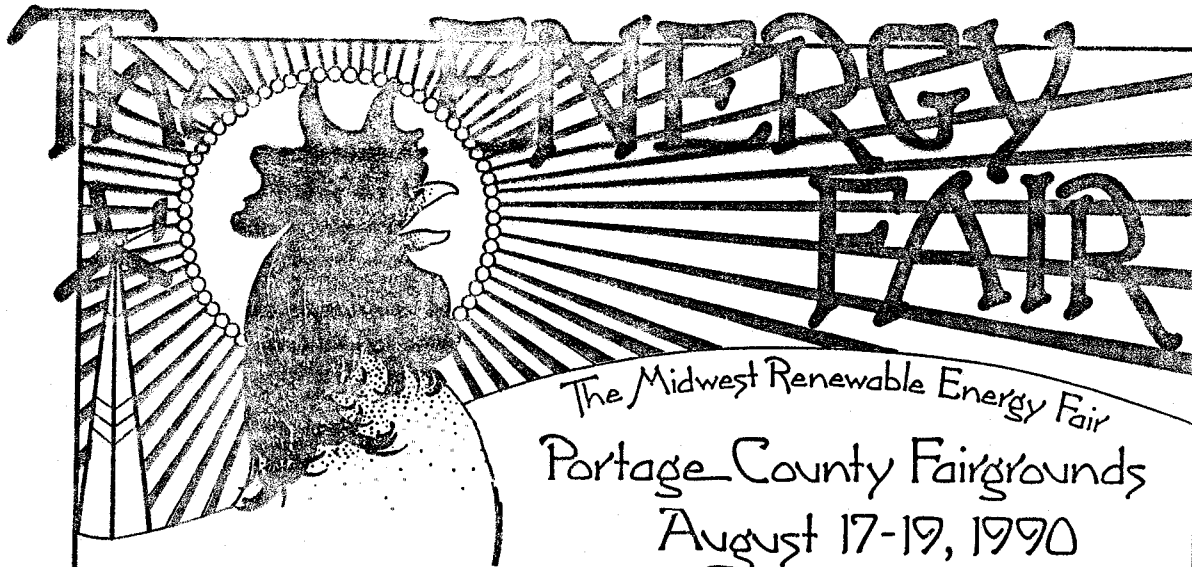
Pres. Shafer reported on our video project and script and then presented scripts for our review. Jerry Mitchell, one of our members is to be the voice on the video. John Emde will be the technician and will be using the local cable company equipment and Les Stone volunteered to help out..

Yours truly, Paul Harris asked for ideas on anything and everything about trying to put together an ELECTRIC GOLF CART, in the hopes it might improve his game.

The meeting was adjourned by Pres Shafer at 9:32 P.M.

Respectfully submitted,


Paul P. Harris, Secretary



FOOD, FUN AND ELECTRICITY FROM THE SUN

DISPLAY BOOTHS

Demonstrating, displaying and selling innovative energy products for use in home and business.

WORKSHOPS

- Solar Electricity
- Solar Cooking
- Micro Hydro Electricity
- Energy Conservation
- Passive Solar Architecture
- Energy and the Environment
- Wind Electricity
- Wood Burning
- Methane and Hydrogen Gas
- The Politics of Energy
- Solar Vehicle Construction
- Solar Thermal Heat Generation

SPEAKERS

Richard and Karen Perez, editors of Home Power Magazine
Paul Gipe from the American Wind Energy Association

ENTERTAINMENT

Featuring a solar powered sound stage.

- Evening Concerts: Friday, August 17th, 8pm
Greg Brown, Otis and the Alligators
- Saturday, August 18th, 8pm
Larry Long, The Stellectrics
- Children's Concert: Saturday, August 18th, 2pm
Tom Pease, Larry Long

ADMISSION

- Daily: \$2.00* Evening Concerts: \$4.00
Weekend: \$5.00* Children under 13: Free

*does not include evening concert

For More Information: Midwest Renewable Energy Fair
286 Wilson St., Amherst, WI 54406
(715)592-4458

GM DRIVES THE ELECTRIC CAR CLOSER TO REALITY

But it will be years before better batteries and cheaper materials could make it economical

Off and on for a century, enthusiasts have promoted electric cars, and for that long, they've been rebuffed. Then, last month, General Motors Corp. gave the oddballs a boost. GM said it will produce the Impact, an aluminum-skinned, electric jackrabbit that GM says jumps to 60 mph in eight seconds and tops out at 100 mph or so. GM won't say what the Impact will cost, or how many it will make, or by when—omissions that skeptics say may add up to never. But, coming from the world's largest auto maker, even a maybe suddenly makes electric cars look like more than a dream.

TOO ROSY. What GM sees is potential demand. As environmentalism catches on once more, smog-choked cities may in effect legislate away gasoline. This fall, in fact, the California Air Resources Board will consider the strictest pollution standards ever for Los Angeles. To meet them, electric cars might have to replace gas-powered ones at the rate of 100,000 a year, starting in the year 2000. So not just GM, but Ford, Chrysler, Volkswagen, BMW, Fiat, Peugeot, and a consortium of Japanese producers are toying with electric cars. "There's a 50-50 chance the internal combustion engine will go the way of the buggy whip by 2005," asserts Paul B. MacCreedy, president of AeroVironment Inc., a Monrovia (Calif.) company that built the Impact prototype.

That may be too optimistic. For instance, Ford has spent just \$20 million on electric-car research since 1982, vs. about \$3 billion to develop the gas-powered Taurus, and other auto makers are moving slowly, too. Still, it has taken only meager sums to produce major advances since the 1970s, when two oil

crunches sent engineers scampering for alternatives to gasoline. The first modern electric cars were converted from internal-combustion designs and cobbled together with off-the-shelf components, such as heavy, direct-current motors. The cars were slow, ran no more than 40 miles on a charge, and their golf-cart

half as heavy, and 25% as expensive. Adding a lighter and more aerodynamic body, low-friction tires, and modestly improved batteries produced the Impact, which gets up to 120 miles on a six-hour charge from a 110-volt household outlet.

The trouble is that lightweight materials such as aluminum are more expensive than steel. And in small production runs, the price gets even steeper, since tooling costs are spread over fewer cars. In July, Canadian parts maker Vehma International will begin selling converted GM vans—at \$34,500 apiece. And in mid-summer, Fiat will introduce the Elettra, a \$20,000 version of its \$8,500 Panda economy car, that will get just 45 miles to a charge. Such trade-offs create a chicken-and-egg dilemma: Higher demand would bring prices down. But steep prices and limited performance may keep demand in the doldrums.

NO CHEAP RIDE. Better batteries would solve the problem. The 2,200-pound Impact has 32 10-volt lead-acid batteries, similar to those in conventional cars. GM engineers figure they'll have to be replaced every 20,000 miles at a cost of \$1,500. Including the price of electricity, Impact's operating cost would be about \$80 a month—twice that of a gas-powered car, if gas is \$1 a gallon. The equation is more favorable in Europe and Japan, where gas costs a lot

more. Even in the U.S., electric-car advocates note, the difference would narrow if the costs of pollution were included. But that doesn't register with consumers. "At the moment, it just costs too much to operate these things," says Bradford Bates, who manages Ford's electric-vehicle program.

None of the solutions seems easy. For



THE ROADBLOCKS STILL AHEAD FOR ELECTRIC CARS

PRICE

In production runs of no more than a few thousand, it's at least twice that of comparably sized gas-powered vehicles

OPERATING COSTS

Replacing batteries every two years runs twice the cost of gas at \$1 per gallon. Longer-lasting, faster-charging batteries are being worked on—but are up to five years away

RANGE

120 miles, or less than half that for gas-powered cars. A full battery recharge takes at least six hours. Cold weather reduces battery power by 20% or more

DATA: BW

batteries lasted only 6,000 miles. On rainy days, they sometimes shorted out.

Since then, miniature electronics have made them more practical. So-called inverters that change the direct current produced by car batteries to alternating current are now small enough to fit in a car. Alternating-current motors are less complicated than direct-current ones,

instance, Chrysler Corp.'s experimental TEVan, based on its front-drive minivan, uses nickel-iron batteries. They're 30% lighter than lead-acid ones and can last 100,000 miles. But they cost 38% more and must be constantly replenished with de-ionized water. In cold weather, the automatic watering system could freeze. And when the batteries are charging, they give off dangerous amounts of explosive hydrogen gas.

A better bet may be the sodium-sulfur batteries being worked on by Asea Brown Boveri of West Germany and Ford Motor Co., among others. They can store three times the energy of lead-acid batteries—and last longer, too. But the first plants to make them don't exist yet, and Ford's Bates says it could be five years before it is clear if they'll work—or how much they'll cost. They'll also operate at 300C and have to be shielded to avoid burning passengers in a crash.

Isuzu Motors Ltd. could augment these efforts with a device it announced



FIAT'S ELETTRA: A \$20,000 ELECTRIC CAR THAT GETS ONLY 45 MILES TO A BATTERY CHARGE

on Apr. 16. Essentially a giant capacitor, its core of activated charcoal paste will hold 20 times the power of a conventional battery, weigh just one-twentieth as much, and could be recharged in as little as 30 seconds. The device is designed for conventional cars, where it would supplement batteries so that smaller, lighter ones could be used. Since Isuzu, which is 38% owned by GM, didn't design the device for electric cars, it's unclear if it can

work in them. And electric-vehicle researchers doubt that Isuzu can perfect its capacitor in two years as it predicts.

Still, proponents say some sort of electric vehicle one day is likely. Kenneth F. Barber, director of the Electric & Hybrid Propulsion Div. at the U.S. Energy Dept., thinks inconvenience will be a much smaller issue once electric cars reach a range of 200 miles, perhaps in this decade. Increases in gasoline prices could make their operating costs more competitive. And since they don't use expensive fuel-injected engines or complicated exhaust systems, their sticker prices could fall fast once demand heats up. If Vehma sold 50,000 converted GM vans a year, experts estimate, the price could drop in half, to \$18,000. For auto makers, there's also this to consider: If enough cities follow L.A.'s lead, they may make the electric car viable.

By David Woodruff in Detroit, with John Rossant in Rome, Karen Lowry Miller in Tokyo, and bureau reports

GASOLINE VS. ELECTRIC: THE TRADE-OFFS ARE TRICKY

The environmental tally looks so easy: Electric cars run clean, gasoline-powered cars pollute. But of course, it isn't that simple. A comparison of the energy used by each vehicle begets a more subtle judgment: Electric is much better than gas but also has its costs.

In every big U.S. city, the drawbacks of gas cars hang in the air. Their emissions produce smog, lead to acid rain, and may hasten global warming. Electric vehicles do none of that. Still, their power has to come from somewhere. And often, it isn't from clean sources such as hydro, solar, or nuclear plants. In the U.S., more than half of all electricity comes from coal-fired plants. These spew sulfur dioxide (SO₂) and nitrogen oxide (NO_x), the main contributors to acid rain, and carbon dioxide (CO₂), which has been linked to the greenhouse effect.

TICKING CLOCK. One of the most detailed studies of which car is best is from the Electric Power Research Institute in Palo Alto, Calif., a research group funded by electric utilities but widely viewed as objective. "My study takes into account everything from the mine mouth to the rubber on the road," says author Tim Yau. "As soon as the oil is taken from the ground, the energy clock starts ticking."

In one comparison, Yau pits a General Motors Corp. Impact against gas vehicles, and the electric prototype looks great. Smog-producing emissions of volatile organic compounds

(VOCs) and nitrogen oxide would drop sharply, says Yau. So would carbon monoxide and CO₂. One trade-off might be higher levels of sulfur dioxide, the acid-rain culprit. But Yau and others argue that any nationwide SO₂ increase from charging electric cars would be minor.

The benefits could depend on where the car is used. In Los Angeles, a

reduction in VOCs and NO_x would be a godsend, says Steve E. Plotkin, a senior associate in the Office of Technology Assessment's energy and materials program. But in a less smoggy area served by a coal plant, he notes, electric cars could result in a net environmental loss because of an increase in SO₂.

Such trade-offs aren't the only complicating factor.

"One problem with all these analyses," says Plotkin, "is that if you change the assumptions just a little, you change the results all over the place." For instance, Yau based his gas-pollution estimates on cars that get 40 miles per gallon, the best conventional cars do now. But boost mileage 50%—a technology gain that may represent no greater leap than the

electric car—and the difference between the two vehicles narrows a lot.

Other assumptions are just as tricky. Mark A. DeLuchi, a researcher at the University of California at Davis, says everyone agrees emissions of carbon monoxide and hydrocarbons would be "essentially eliminated" by electric cars. Suppose, however, that today's lead batteries are still state of

the art by the year 2000. Electric cars might soak up enough juice to produce a 13% increase in power-plant CO₂ emissions. But if electric cars ran on the high-performance, sodium-sulfur batteries currently being developed, there would be 40% less CO₂ in the air. In either case, there's still the problem of recycling, or disposing of, the banks of batteries

needed to power electric cars.

Even in his worst-case scenario, DeLuchi maintains that electric cars would produce a net environmental benefit. That sentiment is echoed by other researchers. What remains, however, is a daunting task: Making electric cars as convenient and affordable as those that run on gas.

By Robert Buderer in New York

THE IMPACT'S IMPACT

Total emissions associated with generating power for GM's electric car, vs. from a gas-powered car that gets 40 mpg

	Electric	Gas
	Grams per mile*	
VOLATILE ORGANIC COMPOUNDS	0.003	0.5
NITROGEN OXIDE	0.03	0.6
CARBON MONOXIDE	0.003	7.0
CARBON DIOXIDE	105.0	275.0
SULFUR DIOXIDE	1.0	0.08

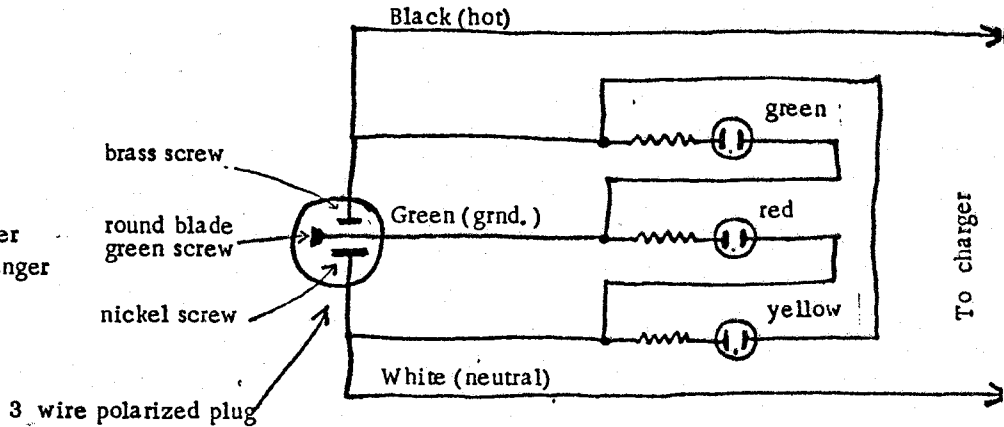
*For cars operating in the Los Angeles basin
DATA: ELECTRIC POWER RESEARCH INSTITUTE

A C OUTLET CHECKER

Do you know if your AC outlets are functioning properly? This checker consists of three different colored neon lights wired so that they light in different combinations according to different circuit conditions. Since only one combination of lights (green & yellow) indicate a correctly wired outlet, the other combinations indicate various faults. Build this unit into the front end of your battery charger. Then no matter where you plug in, you will know if that outlet is properly grounded and be assured of some degree of safety. Neon lamp assemblies with built in dropping resistors for 120 volt AC use are available at Radio Shack and other electronic parts stores.

CIRCUIT CONDITIONS

- Green & Yellow - Safe
- Green - neutral open - Danger
- Yellow - grnd. open - Danger
- Red - Hot open & hot on neutral - Danger
- Green & Red - hot & grnd. reversed - Danger
- Yellow & Red - hot & neutral reversed - Danger
- All three on - Not possible
- All three off - fuse or circuit breaker open



Chicago Tribune, Monday, August 6, 1990



Reuters photo

German ingenuity: Participants in the International Solarmobil Cup prepare their converted East German Trabant for the Hamburg-to-Berlin race Sunday. The Trabant, which produces more pollution than 100 Western-made cars combined, was converted to solar power by a team of engineers.

10/19	FVEAA Meeting Cragin Fed S & L 333 Wesley St. Wheaton, Ill. 7:30 PM Free	11/16	Hanfest & Computer Exposition Gardens Northmoor & Univ-ty Peoria, Ill. 9:00 AM \$5.00	11/17-18	Hanfest Allen County Coliseum Exposition Ctr. Fort Wayne, Ind. 10:00 AM \$5.50	12/21	FVEAA Meeting Cragin Fed S & L 333 Wesley St. Wheaton, Ill. 7:30 PM Free
9/15-16	FVEAA Meeting Cragin Fed S & L 333 Wesley St. Wheaton, Ill. 7:30 PM Free	9/21	FVEAA Meeting Cragin Fed S & L 333 Wesley St. Wheaton, Ill. 7:30 PM Free	9/22-23	Radio Expo & Fest Lake County Fgnds Rts 45 & 120 Grayslake, Ill. 6:00 AM \$5.00	8/17	FVEAA Meeting Cragin Fed S & L 333 Wesley St. Wheaton, Ill. 7:30 PM Free
8/17	FVEAA Meeting Cragin Fed S & L 333 Wesley St. Wheaton, Ill. 7:30 PM Free	9/9	Hanfest & Computer Inwood Rec. Ctr. 3000 W. Jefferson St. Joliet, Ill. 8:00 AM \$4.00	LOCAL EVENTS 1990			

Any requests for want ads (items for sale or wanted) will be published for one month only unless you tell me otherwise. Let me know if you want to continue your ad in case you didn't sell your stuff or get what you wanted. There is no charge for this service to club members so dig through your basement or garage and make a list along with prices of items that others just may be looking for. Next month we'll publish a list of items which the club has for sale. (Some good stuff)

Each month at the meeting there are publications, flyers, past newsletters, and newsletters from other electric auto clubs available for club members to take home and use as they see fit. All we ask is that they be returned so others may benefit from them. If you have any similar items you may wish to share, bring them in and we will add them to the club library.

WHERE ARE ALL THE EV'S?



Yes, where are the 10,000 Electric Autos the D.O.E. 160 million dollar ELECTRIC AND HYBRID VEHICLE PROGRAM was to put on the roads by 1986? Except for a few prototype cars built at cost of many millions, there is very little to show of any consequence.

Ford's Manager of Strategy for New-Product Concepts Richard Morrisett says, "We weren't particularly excited about the demonstration project. I happen to believe in free enterprise, and I hate to see the government involved in any facet of our business."

The lackadaisical efforts of the auto people to promote the Electric Auto are nothing but a ploy to pacify the government and hoodwink the people. We are more convinced than ever that they are fighting to keep the Electrics in the background and would do anything to deter others from getting them on the road.

Henry Ford II has said "I don't see the Electric Car as a feasible method of transportation in my lifetime."

Lee Iacocca of Chrysler has said "I've had so much experience with Electrics, all bad. WE put millions into Electric Cars at my former employer (Ford) and we never could cut it. Electric Cars need a breakthrough like a polio vaccine almost. You have to have a battery that really does the job. Once you have the battery, the car will follow. Until then forget it. In this century, no way. "

When you consider and analyze a few reasons, you can see why the auto companies will not or should not be self-assertive in advancing the Electrics.

Remember, the top officials in a company are holders of large blocks of stock not only in the auto firm but also may have many shares in the oil companies. They are not about to do anything that will jeopardize their dividends or earnings-like a no-gas car.

Reason #1 It is claimed that an auto plant will not set up an assembly line unless assured of yearly sales of 100,000 units of a single model. Such a market for Electrics at this time is most unlikely.

Reason #2 Detroit's tremendous investment in the piston engine is perhaps the strongest deterrent to a widespread takeover by electric power in the near future.

Reason #3 After-market sales. Thirty to forty billions are spent in the U.S.A. alone each year for auto parts like spark plugs; carburetors; filters; alternators; fuel and water pumps; starters; hoses; fan belts; mufflers; in addition to many other parts. Electric autos do not require such replacement parts.

Reason #4 When consumers revolt because of high new car prices and sales drop, prices on parts for the older cars can be increased to compensate profit wise.

Reason #5 Effect on used car prices and sales. If a sizable percentage of the 27 million families in America who own two or more cars were to get an Electric Auto as a second car, instead of keeping their old car when trading for a new car, the used car market would become flooded and prices could plunge, thus reducing profits.

Reason #6 Effect of dependable, long life of electric motors. While many people would purchase Electric Autos because they believe they contribute to eliminating air-pollution, conserving the country's energy pool and improving the international imbalance of payments, the auto people while admitting to the benefits of the Electric Auto may fear a loss in sales because the motoring public will keep the electrics longer.

Reason #7 Effect of competition. With plants operating under capacity, the auto companies are not in a position to give birth to another competitor of their own volition. They have enough competition already, trying to keep ahead of foreign makers