

F.V.E.A.A. NEWSLETTER

Dec/Jan 1993-94

President

Kenneth Woods
1264 Harvest Ct.
Naperville, IL 60565
(708) 420-1118

Vice President

Steven F. Clark
4533 Downers Dr.
Downers Grove, IL 60515
(708) 963-3110

Secretary

William H. Shafer
308 South East Dr.
Oak Park, IL 60302
(708) 383-0186

Treasurer/Librarian

Dale Corel
595 Gates Head North
Elk Grove Village,
Illinois, 60007
(708) 228-5952

Editor

Douglas F. Marsh
336 McKee St.
Batavia, IL 60510
(708) 879-8089

Director/Publisher

John Emde
6542 Fairmount Ave.
Downers Grove,
Illinois 60516
(708) 968-2692

NEXT MEETING

Jan 21 st, 7:00pm
College of Dupage
Student Resource Center
Room 1046

Use Lambert Rd. Entrance, Lot 7 at the Southeast corner of 22nd & Lambert
Nonmembers are always welcome!

Director

John Stockberger
2S643 Nelson Lake Rd.
Batavia, IL 60510
(708) 879-0207

MEMBERSHIP INFORMATION

Membership to the Fox Valley Electric Auto Association is open to the public. Anyone interested in electric vehicles or electric transportation are encouraged to join. The cost to join is \$15 per year from November to November. If joining in the middle of the year the cost is \$1.25 for every month remaining til November of that year. The cost for new members joining is \$13.75.

Fox Valley Electric Auto Association

336 McKee Street
Batavia, IL 60510

First Class

**ADDRESS
CORRECTION
REQUESTED**



PRESEZ

The election of officers for 1994 will be held at our December meeting. There will be a secret ballot with names of members appearing on the ballot who have agreed to serve for specific offices in the coming year. The ballot will also provide for write-in opportunities for each office.

This is also the time of year to pay the annual dues of 15 dollars. The dues period is from November 1993 through November 1994 for all members. Please mail your dues to Dale Corel or bring them to our next meeting. Only a financially sound organization can provide services to its members and successfully promote the use of electric cars.

Bring your ideas to the December meeting for maximizing the public relations effort when our club receives the Ford Ecostar from Commonwealth Edison. One idea is to coordinate this P.R. effort with the Village of Downers Grove. You will remember that the village was our target community in the recent infrastructure competition.

The "Chicken or the Egg" argument in connection with electric vehicles is false. The past twenty years of electric car experience by members of our club proves that electric car use does not have to wait for infrastructure development and that useful electric cars do not have to wait for new battery development.

Range extenders, such as the one used by member George Krajnovich in his electric for over ten years have been available for years. The Woods hybrid electric car was produced in Chicago from 1899 to 1919. Volkswagen has been testing a modern Golf diesel hybrid for over three years.

All alternative fuels, such as CNG, methane, and ethanol have serious shortcomings. Only electric or hydrogen have the potential to provide the clean air our lungs and heart require.

Ken Woods.

MINUTES OF NOVEMBER 19, 1993 FVEAA MEETING

The meeting at the College of DuPage was called to order by President Woods at 7:38 PM. 16 members were present.

The minutes and corrections published in the Oct/Nov Newsletter were approved; Sept 17 Meeting (Change videotape of Tour De Sol to slides), Corrections of July 22 Meeting minutes, and the May 14 Meeting minutes.

Secretary Shafer stated the October meeting minutes would appear in the December Newsletter. Member Emde noted the wrong masthead template was used for the Oct/Nov Newsletter.

Treasurer Corel reported \$ 2106.62 in the savings account and \$ 675.99 in the checking account. It was noted that annual dues are payable in November. His report was approved.

President Woods reported the nominating committee is still working on a list of persons willing to serve as officers for 1994. Candidates will be listed in the December Newsletter. The election was delayed until the December 17th meeting.

There was a discussion concerning preparation and mailing of future Newsletters following the final issue by Member Marsh. Member Shafer stated he will be getting a new computer which should enable him to assume the preparation and mailing tasks in January or February of 1994. He stated if this approved by the membership, he could not also continue serving as Secretary of the FVEAA.

Member Oviyach represented the FVEAA at the November 16th ceremony at which Commonwealth Edison turned over keys to the first of five prototype electric vehicles which utility has leased from Ford Motor Company. The ECOVANS will undergo a 30-month test program to confirm on city streets their test track performance. Vice President Clark noted the FVEAA Library should retain the Press Release Kit information obtained by Member Oviyach since it contains useful information about the vehicle. President Woods will prepare a summary of this information to be included in the December Newsletter.

The FVEAA will be loaned one of the ECOVANS as a part of the Edison test. There was a discussion of the FVEAA program. President Woods will arrange for members Stevens & Shafer to work out the battery charging technical details of the FVEAA test (Sept 17 meeting minutes). The FVEAA test program will be developed at future meetings.

President Woods reported writing a letter to Channel 2 regarding their statement that gasoline would have to reach a \$ 3/gallon level for EV's to be competitive.

Member Helenowska reported she has a 1982 Fiat Bertone Sport Sedan available for sale for an electric conversion. This mid-engine, 2-seat car is similar to a Pontiac Fiero. She is asking \$1500. Anyone interested may call her at (312) 775-8775.

Member Marsh reported a proposed group purchase of Advanced DC motors and Curtis controllers. The package price for both is \$ 2000. Anyone interested should call Doug at (708) 879-8089.

Member Corel reports he has 200-300 Amp power transistors available. Anyone interested may call him at (708) 228-5952.

Member Shafer led a discussion of the NIMH battery (Oct/Nov Newsletter). It was concluded that the battery has 3 times the energy storage efficiency, twice the power level, twice the volumetric efficiency, and 3-4 times the cycle life compared with currently used lead-acid golf cart deep discharge type now used for conversions. The projected cost of 4 times that of lead-acid is likely to make it prohibitive for this use by individuals.

The meeting was adjourned at 10:22.

Submitted by,
William H Shafer
Secretary

**MINUTES OF
SEPTEMBER 17, 1993
FVEAA MEETING**

The meeting at the College of DuPage was called to order by President Woods at 7:31 PM. There were 17 members and 9 guests present. Dr Rod Bohlmann from Valpraiso University brought with him 5 students involved in their EV project.

A considerable discussion took place about the August meeting minutes, as published in the newsletter. Vice President Clark noted a number of changes required. He also objected to Secretary's text, interpreting them as a personal attack on him. A motion was adopted to table approval of the minutes until written corrections are submitted to the Secretary and published.

Treasurer Corel reported \$ 2106.62 in the Savings and \$ 954.39 in the checking account. There are bills outstanding. Vice President Clark asked if the name badge bill was paid with the tax deducted. Treasurer Corel reported the bill has not been paid. His report was unanimously accepted.

Guest Bohlmann was invited to describe the Valparaiso conversion of an Escort to provide a test platform for development of a battery state-of-charge device.

President Woods reported on the FVEAA Summer Event held August 31 at the College of DuPage. There were 6 vehicles on display: Members Delmonico, Kranovitch, Mitchell, and Vana had their cars at the event. In addition, the Workman electric truck adapted from UK milk trucks and used for recycling pick up purposes in Hinsdale was arranged by Member Clark, and the Ahern Fiat was displayed.

President Woods reported on FVEAA participation in Naperville's Last Fling on September 5th. The Naperville Antique Auto Club invited the FVEAA to display electric vehicles along with the about 250 antique cars ususally shown at the event. We were assigned a choice position adjacent to the entry gate. Four EVs were displayed, Member Shafer's Mazda and Vana's Audi were there along with a 1993 Ford Ranger from Janesville, WI and the Workman recycling truck. The EV display was well received.

President Woods reported that Commonwealth Edison (CECO) has offered the FVEAA an opportunity to test and evaluate one of three Ford ECOVANs which CECO will be acquiring. Each of these prototype vehicles represents a \$100,000 expenditure. There was a considerable discussion about what the FVEAA could provide CECO. Suggested were an evaluation comparison with FVEAA conversions, a subjective analysis of the car from a consumer's viewpoint, and log of uses. Recharging of the sodium-sulfur batteries apparently requires a 3-phase, 240-volt source although this was inferred by looking at the charger connection. After discussion, it was agreed that President Woods would write a letter of acceptance to CECO and designate Members Stevens and Shafer to work out details with CECO.

The meeting program was viewing two videotapes, one of the American Tour De Sol attended by President Woods and the other of the crash testing of automobiles and safety belt material discussed by the August meeting speaker, Mike Rodgers from Packer Engineering.

The meeting was adjourned at 10:20.
Submitted by,
William H Shafer
Secretary

MINUTES OF FVEAA DECEMBER 17, 1993 MEETING

The meeting in the Student Resource Center at the College of DuPage was called to order by President Woods at 7:35PM. Fourteen members were present.

Treasurer Corel reported no change in bank balances since the November meeting. His report was accepted.

Reading of the November minutes was suspended, pending their publication in the next Newsletter.

President Woods announced the following slate of candidates for FVEAA Officers had all agreed to serve, if elected:

President - Ken Woods
 Vice President - Steve Clark or Bill Shafer
 Treasurer/ Librarian - Dale Corel
 Secretary - Dave Aarvold
 Directors - John Stockberger and John Emde

Steve Clark was nominated as an additional candidate for director.

Since this was a contested election, President Woods distributed paper ballots and appointed Members Kranovich & Ness as election tally clerks. A motion allowing Members Stevens & Johnson, who arrived late, to cast late ballots was unanimously approved.

The following persons were elected:

President - Ken Woods
 Vice President & Newsletter Editor - Bill Shafer
 Secretary - Dale Aarvold
 Treasurer & Librarian - Dale Corel
 Directors - John Stockberger & John Emde.

President Woods read his November 26 letter to CECO regarding the FVEAA testing of a Ford ECOSTAR being leased from Ford by Edison. A discussion of the FVEAA testing program followed. Electrical supply for recharging was a matter of some concern.

There are two on-board recharging options; 120-volt, 15 amps requiring 30 hours for a complete recharge and 240-volts, 30 amps requiring 7 hours. Members having an electric dryer circuit would probably have both available, but a portable cord would be required to plug into an electric dryer outlet and equipped with a plug on the other end compatible with the vehicle.

It was agreed that all members would be given an opportunity to test the vehicle; members having their own electric car could compare the ECOSTAR with their electric while other members could evaluate the van with the conventional cars they use. There was a discussion of what data the FVEAA might generate as a result of these tests. The matter of metering energy consumption was discussed.

It was agreed that the President would prepare an article for the January Newsletter inviting member's ideas on ECOSTAR testing by the FVEAA. Comments are due back to Ken Woods by January 31. It was also suggested that a working group be established to consider these comments and prepare a draft test program for discussion at the March meeting.

Formation of a project test subgroup was suggested as a way of defining test parameters and data for a March discussion.

The meeting was adjourned at 9:45

Submitted by,
Dave Aarvold
Secretary

FVEAA TESTING OF THE FORD ECOSTAR

Commonwealth Edison (CECO) is leasing 3 ECOSTAR vans from Ford and during this year will be using them to test the vehicle's suitability for a number of different applications. CECO has agreed to allow the FVEAA to participate in the test program using one of these vehicles.

The subject of testing was discussed at the December meeting. It was agreed that members would be given an opportunity to submit their ideas for discussion at the February 18th FVEAA meeting. From this discussion will be formulated a program to be presented to CECO for their consideration.

Submit your ideas for an FVEAA test program either in writing or call President Woods (708) 420-1118. Your ideas must be in his hands by January 31. Topics that need to be considered include:

1. Test objectives and data to be recorded.
2. Charging facilities available to members.
3. FVEAA responsibility for vehicle during the test.
4. Insurance & liability aspects.
5. Assignment of the vehicle.
6. Public relations aspects of each assignment.
7. Analysis of test data results and preparation of a report for CECO & Ford.



PRESS RELEASE

26 November 1993

The Dream Awakens

This Media Service is sponsored by

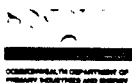


Department of the ENVIRONMENT SPORT and TERRITORIES

Official Suppliers



The Government of South Australia



An average speed of 84.96 km/h is a record smashed, not just broken. Honda's *Dream* has wakened scientists and inspired the world.

"When can I buy a solar powered car?" This was the question most asked by public and media during the 1993 World Solar Challenge. Honda's average speed of 84.96 km/h in the 3013.3 km race from Darwin to Adelaide gives the question more meaning. Solar assisted transport is a reality, not only a brain sport for scientists.

In 1987 the *GM Sunraycer* averaged 66.92 km/h to win the first World Solar Challenge. An astonishing feat, yet the Ford Motor Co's second place 44.63 km/h was considered more respectable for the gentle sport of solar car racing. The *Spirit of Biel/Bienne III* was third at 42.94 km/h.

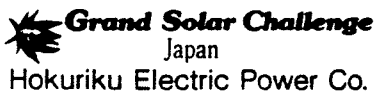
The Engineering College of Biel won in 1990 but poor weather kept *GM Sunraycer's* record intact. Biel won at 65.184 km/h with Honda second at 54.676 km/h and the University of Michigan third at 52.527 km/h.

Some said that speeds might reach 70 or even 75km/h for 1993. Only when the cars were subjected to public gaze during scrutineering, did the truth dawn - technical progress had been dramatic. Speeds would be even higher.

Racing cells have improved. Master of solar cell design, Professor Martin Green of the New South Wales University was joined by Germany's Deutsche Aerospace and a US newcomer, SunPower, in making race cells with around 20 percent solar efficiency. This means that 20 percent of the energy 'donated' by the Sun is converted directly into electricity - about 200 Watts per square metre. With an eight square metre array, the top race cars had around 1600 Watts of electricity to power their cars.

A revolutionary new motor appeared in three cars, the Honda *Dream*, the *Spirit of Biel/Bienne III* and the *Desert Rose* entered by the Northern Territory University. These low speed electric motors fit inside the hub (not a new idea in itself) but operate completely without gears. A gearing effect is achieved by computer control. The result is a motor with 96 to 97 percent efficiency. The hub motor is the electric vehicle motor of the future and it took the fierce competition of the World Solar Challenge to hasten its development.

..12



Bridgestone, Inoue and Michelin developed new tyres for the WSC. Rolling resistance was reduced by 30 percent. A significant improvement.

Honda's 1993 win at 84.96km/h is 18.04km/h faster than the 1987 record. Yet second placegetter the *Spirit of Biell/Bienne III* at 87.27 km/h also broke the *GM Sunraycer's* record. So too did the *Kyocera Son of Sun* at 70.76 km/h, Waseda University's *Sky Blue Waseda* at 70.35km/h and the *Aurora Q1* at 70.08 km/h. Technical progress between 1990 and 1993 meant that the first five cars broke the record.

In 1925 another General Motors vehicle set the record from Darwin to Adelaide. It was an Oldsmobile six and it covered the distance in nine days and nine hours. Typically, its fuel consumption would have been 18 litres/100 km. A modern car could cover the same distance in much less time using 10 litres/100 km.

An engineer calculated the petrol-energy equivalent for the *Spirit of Biell/Bienne III* at 0.17 litres/100km, but with no greenhouse gases from its non-existent exhaust pipe. Even the 5 kWh of battery power permitted to each race car is just 60 cents worth of electricity at a rate of 12c/kWh.

The 1987 World Solar Challenge inspired the Zero Emission Vehicle legislation due to take effect in California in 1998. The 1993 World Solar Challenge proves that solar assisted vehicles are now feasible.

The increase in greenhouse gases, global warming and the alarming 28 million square kilometre hole in the ozone layer recently, demands that industry and governments concentrate on research towards clean solar electricity as a matter of great urgency.

In 1996, the next World Solar Challenge once more will be an international showcase for research into the most promising form of sustainable energy - solar power.

For more information contact:

Brian Woodward, Media Liaison

Ph: 02-337 5390 Fax: 02-337 4569 Mobile 018-607 877

Energy Promotions

Ph: 02-988 4255 Fax: 02-449 8767

(Dialing Australia example: 61-2-988 4255)

Class Winners - 1993 World Solar Challenge

Placing	Car No.	Team	Avg. Speed km/h
First Outright	2	<i>Dream</i> Honda R & D	84.96
Second Outright	1	<i>Spirit of Biel / Bienne III</i> Ingenieurschule Biel	78.27
Third Outright	77	<i>KYOCERA SON OF SUN</i> Kyocera Corporation	70.76

Silicon / Silver Zinc Class:

First, Silicon/Silver Zinc Class	2	<i>Dream</i> Honda R & D	84.96
Second, Silicon/Silver Zinc Class	1	<i>Spirit of Biel / Bienne III</i> Ingenieurschule Biel	78.27
Third, Silicon/Silver Zinc Class	77	<i>KYOCERA SON OF SUN</i> Kyocera Corporation	70.76

School Private Class:

First, School - Private Class	6	<i>Philips Solar Kiwi</i> Team Philips Solar Kiwi	49.72
Second, School - Private Class	12	<i>Solution</i> Monash / Melbourne Uni.	40.27
Third, School - Private Class	32	<i>Solvogn Danmark</i> Sonderborg Teknikum	37.80

Two Seater Class:

First, Two Seater Class	25	<i>Intrepid</i> California Poly. Uni. Pomona	63.64
Second, Two Seater Class	101	<i>Sunburner</i> Stanford University	58.36
Third, Two Seater Class	22	<i>Alarus</i> Team Alarus	34.75

Silicon / Lead Acid Class:

First, Lead Acid Class	36	<i>Sofix</i> Team Sofix	46.41
Second, Lead Acid Class	29	<i>Solar Flair</i> Team Solar Flair	35.47
Third, Lead Acid Class	5	<i>ConSole to the Future</i> KIA Motors	35.26

1993 World Solar Challenge - Final Results from EDS

Position	Car No.	Car Name	Team	Country	Finish Date	Race Time (Hrs:Min)	Av. Speed (km/h)
1	2	<i>Dream</i>	Honda R & D	Japan	Nov. 11	35:28	84.96
2	1	<i>Spirit of Biel/Bienne III</i>	Engincering Coll. of Biel	Switzerland	Nov. 11	38:30	78.27
3	77	<i>KYOCERA SON OF SUN</i>	Kyocera Corporation	Japan	Nov. 11	42:35	70.76
4	55	<i>Sky Blue Waseda</i>	Waseda Uni.	Japan	Nov. 11	42:50	70.35
5	30	<i>Aurora Q1</i>	Aurora Vehicles Assoc.	Australia	Nov. 11	43:00	70.08
6	56	<i>Toyota-56</i>	Toyota Motor Corporation	Japan	Nov. 12	46:34	64.71
7	15	<i>Desert Rose</i>	Northern Territory Uni.	Australia	Nov. 12	46:50	64.34
8	25	<i>Intrepid</i>	California Poly Uni Pomona	USA	Nov. 12	47:21	63.64
9	34	<i>Sunforce 1</i>	George Washington Uni.	USA	Nov. 12	47:46	63.08
10	151	<i>Be-Pal III</i>	Zero to Darwin Project	Japan	Nov. 12	48:38	61.96
11	35	<i>Maize & Blue</i>	Uni. of Michigan	USA	Nov. 12	49:07	61.35
12	23	<i>Sun Favor</i>	Nissan Motor Co.	Japan	Nov. 12	50:21	59.85
13	19	<i>Solar Eagle II</i>	California State Uni. - LA	USA	Nov. 12	50:37	59.53
14	101	<i>Sunburner</i>	Stanford University	USA	Nov. 12	51:38	58.36
15	6	<i>Philips Solar Kiwi</i>	Team Philips Solar Kiwi	New Zealand	Nov. 13	60:36	49.72
16	39	<i>Lei's Sunjoy</i>	Mabuchi Motor Co. Ltd.	Japan	Nov. 13	60:57	49.44
17	36	<i>Sofix</i>	Team Sofix	Japan	Nov. 14	64:56	46.41
18	51	<i>Tokai-51SR</i>	Tokai Uni.	Japan	Nov. 15	74:22	40.52
19	12	<i>Solution</i>	Monash Uni/Melbourne Uni	Australia	Nov. 15	74:50	40.27
20	599	<i>Evolution 93/B</i>	Laughing Sun Racing	Japan	Nov. 15	75:48	39.75
21	38	<i>Mino Solar Special III</i>	Mino Family Team	Japan	Nov. 15	76:21	39.47
22	31	<i>Spirit of Oklahoma II</i>	Uni. of Oklahoma	USA	Nov. 15	79:37	37.85
23	32	<i>Solvogn Danmark</i>	Sonderborg Teknikum	Denmark	Nov. 15	79:43	37.80
24	555	<i>Sky-Ace</i>	Ashiya University	Japan	Nov. 15	79:48	37.76
25	8	<i>Aquila</i>	Dripstone High School	Australia	Nov. 16	81:17	37.07
26	7	<i>Hosokawa-Go</i>	Panda-san	Japan	Nov. 16	84:15	35.77
27	29	<i>Solar Flair</i>	Team Solar Flair	England	Nov. 16	84:57	35.47
28	5	<i>ConSole to the Future</i>	KIA Motors	Korea	Nov. 16	85:27	35.26
29	22	<i>Alarus</i>	Team Alarus	Australia	Nov. 16	86:42	34.76
30	18	<i>EOS</i>	Annesley College	Australia	Nov. 16	87:35	34.40
31	3	<i>Hokuden Phoenix *</i>	Hokuriku Electric Power Co.	Japan	Nov. 17	89:47	33.56
32	40	<i>Sulis IV</i>	Hokkaido Auto. Eng. Coll.	Japan	Retired	87:30	32.08
33	17	<i>Solaemon-Go</i>	Team Doracmon	Japan	Retired	79:50	34.77
34	320	<i>Mainichi-Go</i>	Solar Japan	Japan	Retired	80:10	31.73
35	41	<i>ISIS</i>	Mitcham Girls High School	Australia	Retired	80:10	27.39
36	111	<i>Photon Flyer III</i>	Morphett Vale High School	Australia	Retired	67:13	31.33
37	4	<i>Discovery 500</i>	Uni. of Puerto Rico	USA	Retired	62:36	30.08
38	28	<i>Team New England</i>	Team New England	USA	Retired	53:02	28.13
39	44	<i>Le Soleil</i>	Le Soleil	Japan	Retired	56:34	26.38
40	93	<i>SunStang</i>	Uni. of Western Ontario	Canada	Retired	63:51	23.37
41	50	<i>T.R.50</i>	Team T.R.50	England	Retired	71:20	20.92
42	9	<i>SDSU Suntrakker</i>	San Diego State Uni	USA	Retired	52:10	20.55
43	13	<i>Trader</i>	NT Institute of TAFE	Australia	Retired	37:34	26.22
44	888	<i>Sunseeker</i>	Meadowbank TAFE	Australia	Retired	26:17	24.05
45	150	<i>Solarcat III</i>	Villanova University	USA	Retired	20:50	15.07
46	24	$\Phi \Omega \Sigma II$	JCJC Solar Car Club	Japan	Retired	21:55	14.33
47	88	<i>The Banana Enterprise</i>	The Banana Enterprise	Brazil	Retired	16:40	15.12
48	0	<i>Hama Yumeka</i>	Hama Yumeka Team	Japan	Retired	15:26	15.03
49	16	<i>Heliox</i>	Team Heliox	Switzerland	Retired	08:23	24.69
50	21	<i>Helio Det II</i>	Helio Det Team	Germany	Retired	09:00	21.46
51	46	<i>Moscow</i>	Team Moscow	Russia	Retired	03:35	09.77
52	20	<i>Holy Cheat 1</i>	Team Holy Cheat	England	Retired	00:00	00.00

* Demonstration run



EDS

