



## March 2020 FVEAA Newsletter

Fox Valley Electric Auto Association

The FVEAA is a Not-For-Profit Illinois Corporation and the Chicago-area chapter of The Electric Auto Association

**This month's meeting is on Friday March 20, 2020 and will be VIRTUAL ONLY (NOT AT CCC) due to the Coronavirus outbreak for the purposes of "social distancing"**

We are using the Zoom video-conferencing platform to hold this ONLINE meeting. Zoom runs on all computers and phones. Some setup is required prior to your first use of Zoom on your device of choice. Connect to the meeting a bit early (6:45pm earliest) by using the link below to test your connection. Please call Ted Lowe (630-260-0424) if you want help getting Zoom installed on your device of choice. You can also dial-in on your telephone to have an audio-only connection (see phone number and meeting ID below). The audio on your device will be automatically muted upon entering the call to avoid disrupting the call.

Pre-meeting setup check starts at 6:45pm.  
Meeting starts at 7pm and will run until 9pm.

Use this information to connect during these times:

Topic: FVEAA March 2020 Monthly Meeting (VIRTUAL ONLY)

Time: Fri Mar 20, 2020 6:45 PM CST (pre-meeting setup check), Meeting 7:00 PM

Join Zoom Meeting

<https://zoom.us/j/383630041>

Dial-in for audio-only users:

Call: 312-626-6799

Enter Meeting ID when prompted: 383630041#

\*6 mutes/unmutes your line, \*9 raises your virtual hand

### Agenda

- 6:45 Virtual Meeting Starts (to test connections)
- 7:00 Introductions
- 7:15 Tracey M will give us his take on EV's

- 8:00 A break is still a good idea
- 8:10 Jeff M on Comed Real Time Pricing with Solar
- 9:00 Close up

## President's Words

Jeff Miller

### February meeting

Thanks to Howard and Simon for providing the update from Fully Charged, and on the Tesla EVSE management.

### March meeting

Tracey is going to give us his presentation on EV's which he has been providing to various organizations in the area. I have been involved in these presentations and he has done an excellent job on them. While most of it will likely be review for you, but there might be information you haven't heard before. Last month we had many new people, some of which have already signed up to be members. Those people were brought in by this presentation and I feel like everyone will enjoy it from a quality standpoint as it is that good. It is far better than my usual hacked together black and white with pictures tossed in.

Speaking of my black and white text with pictures tossed in, I will be doing a presentation Friday night. I will be looking at the dollars and cents around Comed RRTP in combination with Residential Solar. Should you cover your whole electric bill with solar capacity while owning three EV's? Let's crunch some numbers and try to find out! Disclaimer: past energy prices are guaranteed to NOT be the same in the future.

### Be SAFE

PLEASE be safe, stay home, keep your hands clean and follow the guidelines provided by the CDC. Check for updated guidance about once a day, don't drive yourself crazy, but don't lose track of what is going on. This virus is dangerous because it only kills a small percentage of the people it infects, allowing it to spread far and wide through the population and get to those vulnerable people we all care about.

### My more recent projects

I built a home theatre in my basement recently. It doesn't yet have carpeting, but it is looking good otherwise. I will show a few pictures of it at the meeting, but it definitely isn't worthy of a presentation. It still needs many new circuits added to power the audio system. My son is also working on building a pair of subwoofer cabinets for the room. He was going to do this as part of his wood shop class at high school, but they closed the schools. So we are building them here in my garage instead.

### The present

As many of you have likely heard the stock market has gone down a bit. I could speculate what this means and what the larger picture on the economy is, but I will save that for another time. What I will speculate on though is that many of the EV's that are presently being developed may find themselves delayed due to cash crunch at the manufacturers. Hopefully the Ford Mustang Mach E is far enough along to not be delayed, but vehicles farther out than that are at risk of being delayed in my mind, not just due to a lack of workers, but also due to a lack of cash to develop them.

### The future

I am guessing you all understand why we have had to move to a virtual meeting. Virtual meetings have

their advantages, people from far away can join, and people who have limited mobility can attend easily. It definitely is not the same, but it is better than a cancellation, and likely better than just posting videos of me talking awkwardly to a camera. The current guidelines from the CDC are saying 8 weeks before in person meetings might come back. Students of math and calendars will notice that this puts all April events out the window, which would be a problem for our various Earth Day plans. There is some discussion of it still being an issue in July or August, and that wouldn't be surprising. We are going to do the best we can to keep spreading the news of how great EV's are, but we will have to do it via virtual meetings for a while. Tracey and I did a virtual meeting on Sunday for the youth of my local Unitarian church and they loved it. We did run over on time, but nobody seemed to be complaining.

### **Long term virtual meeting additions?**

One thing I want you all to think about while we are doing this virtual meeting is do we want to keep virtual meetings as part of our long term strategy when this virus thing finally wraps itself up? We would go back to in person meetings but could set up provisions for virtual attendees. Just think about it, and when the time comes, I will ask everyone for their thoughts.

### **Articles I found interesting**

<https://jalopnik.com/this-tesla-model-x-has-driven-over-400-000-miles-here-1841761190>

My favorite article of the month

<https://earth.gizmodo.com/the-coronavirus-outbreak-has-caused-the-biggest-global-1842123322>

Mother nature fights back against global warming?

<https://www.cnbc.com/amp/2020/02/14/delta-air-lines-ceo-carrier-will-go-fully-carbon-neutral-next-month.html>

Also this will both be easier and harder than he expected.

<https://jalopnik.com/the-u-s-built-electric-ford-transit-will-change-the-va-1842100761>

<https://arstechnica.com/cars/2020/03/ford-readies-an-all-electric-transit-van-for-us-sales-starting-2022/>

<https://arstechnica.com/cars/2020/03/general-motors-announces-new-battery-platform-claims-100kwh-soon/>

Obviously we want GM to be successful.

<https://jalopnik.com/the-300-hp-fisker-ocean-wants-to-be-an-electric-suv-peo-1842093157>

It's Fisker, although it might be a Chinese vehicle rebadged for sale here.

<https://jalopnik.com/the-vw-id-4-will-be-americas-first-electric-suv-built-o-1842057568>

<https://arstechnica.com/cars/2020/03/this-is-our-best-look-yet-at-vws-new-electric-crossover-the-id-4/>

VW ID4 looks exciting!

<https://arstechnica.com/cars/2020/03/who-did-the-future-electric-sedan-best-bmw-or-hyundai/>

<https://jalopnik.com/this-french-start-up-has-a-solution-to-range-anxiety-1841894084>

Not sure about this working out. Can you imagine the desire for thieves to steal this trailer?

<https://jalopnik.com/more-ev-manufacturing-slowdowns-as-europe-scrambles-to-1841857577>

<https://electrek.co/2020/02/24/gm-menlo-electric-car-range-price/amp/>

Not for sale here :(

<https://arstechnica.com/science/2020/02/using-machine-learning-to-figure-out-how-to-charge-your-gadgets-batteries/>

<https://electrek.co/2020/03/13/tesla-model-y-deliveries-start/>

The Model Y is months early. I wouldn't have predicted THAT.

I do not hold any interest in any car manufacturer or any of their subsidiaries

## Upcoming Events

Rich Hirschberg

- **POSTPONED - MAYBE IN JUNE OR JULY**
- Sat., April 4, 10 am to 4 pm
- Elgin DEED (Drive Electric Earth Day) event [Elgin DEED](#)
- It is a part of the [Midwest Green Car Expo](#)
- ADDRESS: Old Library Parking Lot 240 N Grove Ave Elgin, IL 60120

## Outreach Update

Rich Hirschberg

### POSTPONED by the City of Elgin

#### 1. The 2020 Midwest Green Car Expo

For the Chicago, Illinois Metro area – USA.

Please save the date for the 2020 Midwest Green Car Expo (MGCX).

The Fox Valley Electric Automobile Association is hosting a huge Alt-Fuel Vehicle expo coming up this April 4th to celebrate Elgin Earth Month, the 50th anniversary of Earth Day, and "Drive Electric Earth Day". Hoping to make this the largest gathering of EVs, Hybrids, and AFVs in the Midwest.

Web site: <https://the2020MidwestGreenCarExpo.weebly.com/>

Date: Apr 04, 2020 --- 04.04.2020.

Location: 240 N. Grove Ave. (old library lot), Elgin, IL 60120.

Times: 10 am to 4 pm.

Don't forget to check out <https://DriveElectricEarthDay.org/index.php>

We are partnering with the Elgin Earth Month Green Expo right next door as well as events at the Elgin Public Library across the street. A couple thousand people are expected to attend this huge event combination.

At the MGCX, make sure to vote for your EAGL Awards recipients. And check out the Ride-n-Drives of 'Drive Electric Earth Day', and the many businesses, clubs, and organizations that support AFVs.

Contact Rich Hirschberg, [MGCX@yahoo.com](mailto:MGCX@yahoo.com), Car Expo Chairman about booths, registrations, and sponsorships via email.

Would love to see you there

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### A quick check revealed nothing, but I'd bet it will be canceled or postponed.

#### 2. The Naperville 2020 Earth Day Fair.

Date: Sunday, April 19th

Times: 1 to 4 pm

Location: Fort Hill Activity Center, 20 Fort Hill Dr., Naperville, IL.

They have a ton of free family-friendly events scheduled.  
And they're expecting 600-800 visitors.

Let me know at [GoAFVs@yahoo.com](mailto:GoAFVs@yahoo.com) if you are going so I can let the organizations know how many people from our club are coming.

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## **POSTPONED**

### **3. The 2020 Green Drives Conference and Expo**

The Chicago Area Clean Cities Coalition invites you to attend its...  
9<sup>th</sup> Annual Green Drives Conference and Expo  
Thursday, April 30, 2020, 8 am to 4 pm  
Northern Illinois University Conference Center  
1120 E Diehl Rd, Naperville, IL 60563  
Tickets: \$75 – 95

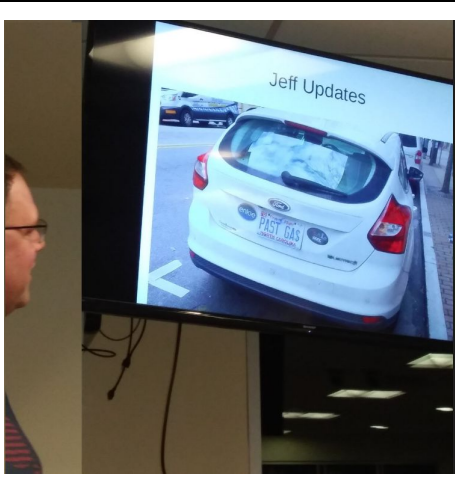
This one-day program is a must-attend event for fleet managers, corporate sustainability officers government officials, supply chain management professionals those who specialize in the environment, clean tech, and clean energy and the public in general.

Speakers and highlights of this year's program include: John Davis, the Emmy Award-winning host of "MotorWeek," television's longest-running automotive series, will once again serve as the program's emcee. Kevin Campbell, Manager of Fleet Services, City of Chicago is the keynote speaker. Advanced technologies, electric vehicles, and alternative fuels will be showcased.

## **Photos of our Meeting in February**



**Jeff Miller's 12kWh battery backup**



**Jeff's Updates on the world of EVs**



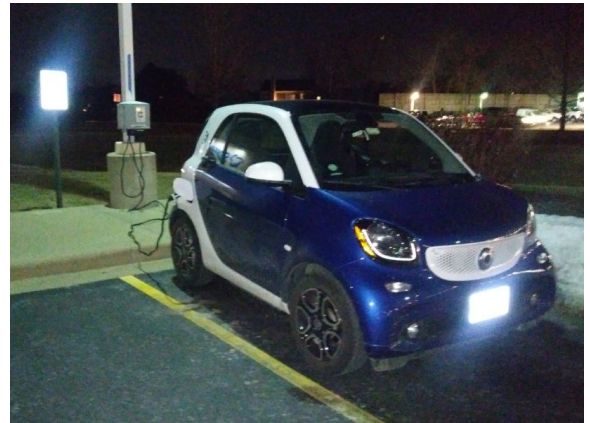
Normally the EV is in charge of the Charging process. Simon Gibson however, delves into how it may be possible to control the process via the EVSE



Howard Hansen provides an excellent overview of the "Fully Charged Live" conference he attended in Austin Tx. Feb 1 and 2, 2020



Mike Padberg's Model 3



Fred's Smart for 2

**New FVEAA Website Online! Login and check it out!**

Ted Lowe

Hi Folks, If you haven't logged in to our new website already, please check your email for instructions and login as soon as you can! Please let me know if you have any questions. Thanks, ted





## Website Registered User Statistics

Statistic	Value
Total Users	52
Users Never Logged In	27
% Active Users	48.1%
Ave. Days Since Last Visit	52.1 days

Rich's Ramblin (yes! From long time FVEAAer Rich Carroll)

Rich Carroll

## Illinois License Plate Renewal

As many of you know there are several ways to license an antique vehicle in the state of Illinois.

First, let me deal with those few who own trucks. If you intend to use them as trucks all year round, you need truck plates in Illinois, usually plated as a "B-Truck" This is the appropriate license for something that can carry commercial goods, and weighs less than 8000 lbs loaded.

As to antique cars, Illinois owners can select one of three types of plates.

- 1) Passenger
- 2) Antique Vehicle, and
- 3) Expanded Use Antique Vehicles.

Here are most of the differences.:

- Passenger Cars can be used year round, and can have small commercial uses, provided they are not subject to extensive advertising on the body.
- Antique vehicles must be 25 years old but *"may only be driven to and from an antique auto show or exhibition, service station or demonstration. The mechanical and physical condition of the vehicle, including brakes, lights, glass and appearance, must be the same or as safe as originally equipped."*
- Expanded Use license (like for the 1930 Hupmobile that Bruce Jones has converted to a Plug-in Hybrid Hot Rod) essentially works like an antique vehicle plate from November of one year to March of the next, but works like a passenger car plate for the months of April through October. Specifically, Illinois states, *"Vehicles displaying these plates during the months of January-March and November-December may only be driven to and from an*

*antique auto show or exhibition, service station or demonstration. Vehicles displaying these plates during the months of April-October may be driven on the highways without being subject to the restrictions of a standard antique vehicle plate.”*

Driving your licensed A/V to work every day is not allowed. Once in a while, provided you demonstrate the vehicle to someone at work, is allowed.

The State also allows you to choose special numbers and sequences (if not already taken) depending on what will fit on the plate. Basically, there are Random Numbers (the state picks the number or the letter-number combination from their piles of plates,

Vanity plates (all alphabetic characters, no numbers), or Personalized plates (letters, then numbers for passenger cars, numbers, then letters for antique and expanded.) There are a few exceptions to this, for example a license with a low number (under 1000) is charged a VANITY fee, and they won't produce a plate that is difficult to read, or one that is offensive.

Since the A/V designation (for antique) or the E/A (for Expanded Use) takes a space, they won't print more than seven characters on a plate. So the following plates are not allowable:

“CORVAIR1” (Too long, eight characters)

“66 MONZA A/V“ (Too long, remember the A/V takes a space)

“YENKO01” (They won't put zeros and O's together)

And once in a while, their logic just doesn't make sense, especially if you ask for spaces by using a “/”. Ask for “MY/BAD/66” (thinking you would get “MY BAD 66”) and you may or may not get it as the spaces take up enough room that it doesn't fit and still make a plate the police can read.

In the past, the state issued A/V and E/A plates for five years, and all plates in these series expired 12/31/14, and then 12/31/19. If you bought a plate in early 2015, you paid \$30 for a five year plate, if you bought it in 2017 they prorated it and you paid \$18 for the five year plate. Renewal notices sent recently indicate an increase in fees, but DO NOT STATE it is for a five year plate. Curiously, the Illinois Secretary of State web site also does not clarify if the new A/V and E/A plates are for one year or five years. One legislator had strongly suggested the new fee increases all correspond to one year plates.

I took a moment to start an online renewal of one of the A/V plates. Nowhere did it indicate if the registration would expire in 12/20 or 12/24. I finally paid for the plates, it sent me a receipt, which also did not indicate what year the plates expired.

However, the Illinois SOS maintains a very interesting, not well publicized part of their web site where you can research any car in the state database by VIN.

<https://apps.ilsos.gov/regstatus/> And, as a bonus, if your VIN is in the state computer, at the bottom of that page is a link to check registration status. Click on that link, mine showed me several things, including the expiration of my registration is now 12/31/2024, so they are still five year plates:



## Title and Registration Status Inquiry

### Results

Registration Status Inquiry Information	
License Plate Number	66VAIR-AV
Registration Expiration Date	12/2024
Renewal Notice Sent	No
Last Payment Received	No payment information is available.
Sticker Mail Date	No renewal sticker mailing information is available.
Multi-owner	No

That web site, if you can get to it is at: (

<https://apps.ilsos.gov/regstatus/StatusCheck> ) (If not go through the former link, or just Google search IL VIN.)

There is one other curious fact shown on this report, and I had not found this information before. When your state employee or local law enforcement personnel looks up a license for an antique vehicle, they won't find it without the perfect format.

None of these work: "66 VAIR A/V" "66 VAIR AV" "66VAIR A/V" "66VAIR AV" nor "66VAIRAV" It only works with all the plate characters run together, then a hyphen, then AV.

"66VAIR-AV" works.

Now, you know Rich Carroll has 66 VAIR A/V on his car, a 1966 Monza. Suppose you have a 1966 Corvair, and you want a similar plate. You might (or might not) find "66 VAIR E/A" in the expanded use series, but if you want "MONZA" or something with 5 characters, you will be able to find one (at a greatly increased annual fee than \$6) at:

<https://www.ilsos.gov/pickaplate/> Pull down the license plate type selector, and pick something like "specialty" or one of the others. By the way, sometimes the specialty plate graphics interfere with the space, so only five characters can be placed on the plate.

Let's look at costs.

	Passenger Car	Expanded Use	Antique Vehicle
Renewal Cost per year for a "Random number" plate	\$101/yr	\$51 5 yr (\$10.20/yr)	\$30 5 yr (amounts to \$6 per year)
Renewal cost of Personalized plates	\$108 /yr (\$101 fee and \$7 personalized fee)	\$58 5 yr (\$51 exanded fee and \$7 personalized fee) (\$11.60/yr)	\$37 5 yr (\$30 antique fee and \$7 personalized fee) (\$7.40 / yr)
Renewal cost of Vanity plates	\$114 /yr (\$101 fee and \$13 vanity fee)	\$64 5 yr (\$51expanded fee and \$13 vanity fee) (\$12.80/yr)	\$43 5 yr (\$30 antique fee and \$13 vanity fee) (8.60/yr)

**First time issuance fees include plate creation fees and title transfer fees and are a different structure.**

As you can see, while there are significant limitations on the A/V and E/A plates, they are so small they encourage old car owners to keep their cars registered, even if they don't drive them.

**If you don't like working with the computer, there is a paper form at SOS offices, also downloadable at:**

[https://www.cyberdriveillinois.com/publications/pdf\\_publications/vsd414.pdf](https://www.cyberdriveillinois.com/publications/pdf_publications/vsd414.pdf)

**Rich Carroll**

**FVEAA On Facebook - Join Us! Like Us!**

Ted Lowe

In October 2015, I created a **Facebook group for the FVEAA** and invited all the past and current FVEAA members I know that are on Facebook. There are 86 members as of 3/11/19. If you're on Facebook but not in the group, yet please join us! If you're not on Facebook yet, please consider joining so you can join our group there! This group supplements our forums because it is much easier to use, read, post pictures and videos and get notifications. Please let me know if you have any questions/comments/suggestions. Hope to see you there! <https://www.facebook.com/groups/889497691136309/>

Grant Gerke started **FVEAA's Facebook Page**. Like Us!

<https://www.facebook.com/FoxValleyElectricAutoAssociation>

**Membership Update**

Ted Lowe

We currently have **51 active paid-up** members. Three members have already taken advantage of the multi-year renewals offered by the new website! **Please renew & recruit new folks in 2020!!!**



## FVEAA Membership Report

as of 2020-03-16 04:58:06

### Count of Members by Type

Membership Type	Count	Paid Up
Business	2	2
Family	5	5
Individual	43	42
Lifetime	2	2
<b>Totals</b>	<b>52</b>	<b>51</b>

### Other Statistics

Statistic	Value
% Paid Up	98.1%
Avg. Paid Up Days	251.7 days
% With Email	94.2%

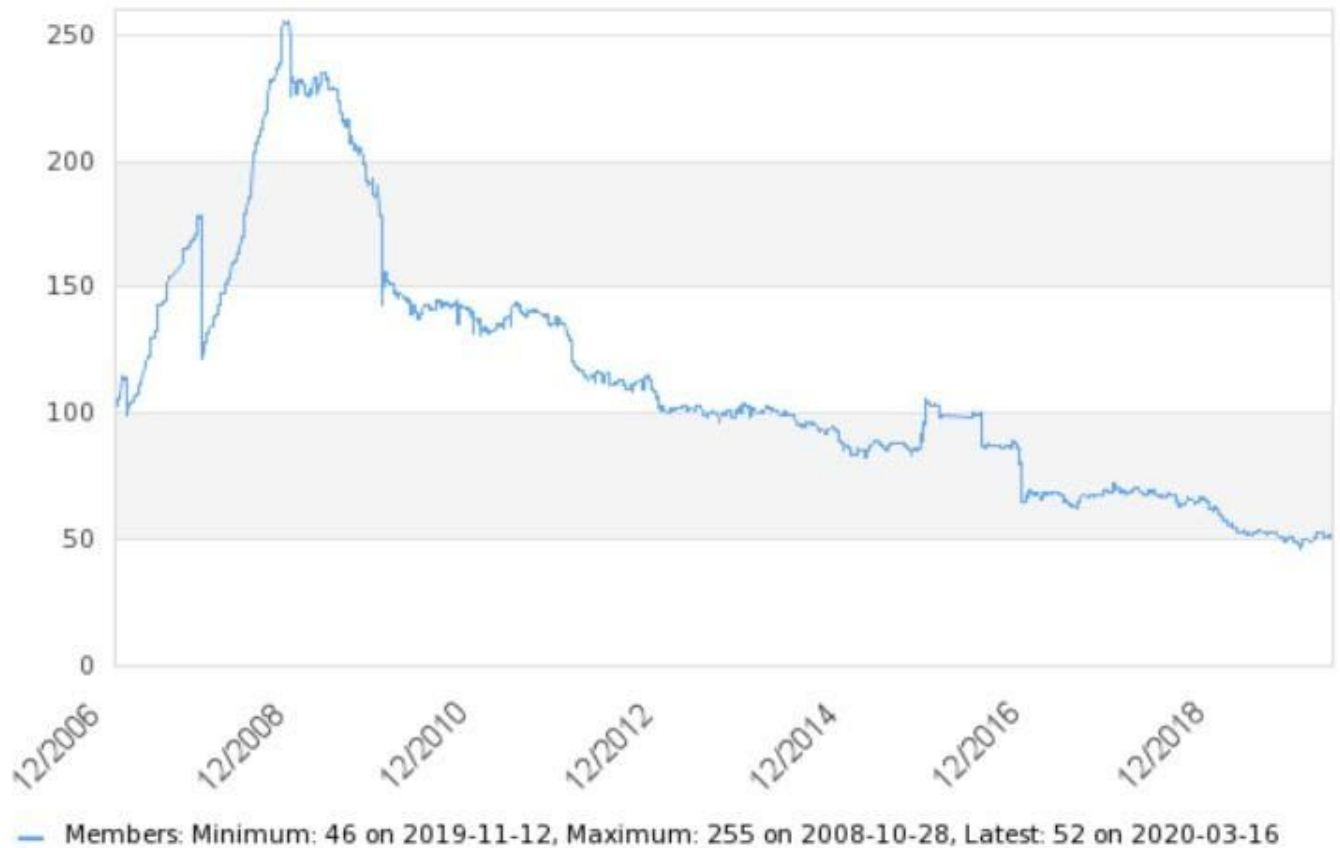
### Encouraging Our Membership To Grow in 2020 and Some History

Ted Lowe

**Happy 2020 EVeryone!** We live in a large metro area with 8 million people and EVs are the latest buzz so we should be able to grow the FVEAA! **Please invite your friends, neighbors, family, colleagues**, etc. to FVEAA meetings and EEvents. Volunteer to attend EEvents on behalf of the FVEAA (with or without an EV)! Your ideas on how to help grow the FVEAA are welcomed at anytime, thanks! Howard Hansen had a **great idea**... giving an FVEAA membership as a gift!

Here is a time-varying graph of our membership size from 2007 to now. Note that we peaked at 255 members in October 2008 when gas was nearing \$5 per gallon. We were also attending lots more invitational EEvents with our EVs. **Let's get out there and grow the FVEAA in 2020!!!**

## FVEAA Paid Up Members as of March 16, 2020 9:39am



### Monthly Treasurer Reports

Ted Lowe

As Treasurer, I am publishing a brief Treasurer's Report to our forums around the time our monthly newsletter is published.

i am publishing our various cash balances (Money Market, Checking, PayPal) to this location:  
[FVEAA Committees](#) > [Finance](#) > [Treasurer Reports](#)

This area of the forums can only be seen by FVEAA members. As an IL Non-Profit corporation, we have no requirement to publish our assets or financial statements publicly.

Feel free to contact me if you have any FVEAA financial matters to discuss.

### Membership Renewals

Ted Lowe

Our membership system sends out "renewal reminder emails" before your membership is due. You will receive up to 3 before being marked "not renewed" (inactive). The sooner you renew, the fewer emails you will

receive :) So please pay attention to your email from the FVEAA and renew online using this link (for the easiest approach for all of us):

<https://www.fveaa.org/renew>

**THANK YOU for your continued support of the FVEAA!**

**FVEAA Meeting**

- **President Jeff Miller opened the meeting at 7:08**
- **Note Jeff is traveling the next 3 months so backup will be running the next meeting(s)**
- **Jeff provided an update on charging stations and his purchase (with assistance from Kyle) of a Mitsubishi iMiev for \$2900 that he detailed in the newsletter. Used EVs make a great car for a new driver!**
  
- **Attendees!**
- **The attendees introduced themselves and there were many new faces. Welcome everyone! And here are some of the first time FVEAA attendees (or first in a long time attendees so please forgive me for any misspelled names! – Bruce)**
  - **John McGowan converted a car to run on a Nissan Leaf pack**
  - **New attendee Maureen drives a Tesla Model 3 with 13k miles**
  - **Tim Kaiser from Plainfield drives a Bolt**
  - **Don Brown of St Charles drives a 2019 Bolt**
  - **Jeff Stibel works at Navistar and built 2 electric vehicles**
  - **John Bogg of Geneva is learning about EVs**
  - **Daniel Maja drives a Model 3**
  - **Steve Schwärmer from Wisconsin drives a Chevy Volt**
  - **Dave Teets from Oswego drives a 2014 Volt**
  
- **V.P. Rich Hirschberg Presentation on Upcoming Events**
  - **Please refer to two sections in last month's Newsletter with upcoming events especially The 2020 Midwest Green Car Expo**
  - **Check out Rich's web site below as he's been very hard at work setting up an outstanding presence on the Web for Alternative Fueled vehicles**
  - **[The 2020 Midwest Green Car Expo](#)**
  
- **Howard Hansen "Fully Charged Live" presentation**
  - **Howard traveled to Austin, Tx at the beginning of February and provided an excellent multi-media presentation on everything going on at the "Fully Charged Live" show for Electric vehicles**
  - **This included meeting many TV/uTube celebrities of the EV world**  
**Thanks Howard!**





<Break>

### Simon Gibson Presentation on Automation and Control of Tesla Charging Stations

- After a short break, Simon discussed technical aspects of Tesla Electric Vehicle Charging Stations and his current work to develop a method to control through the RS485 connector, Python programming and open source software.
- Including references to the Tesla wall connector and controlling it externally along with other stations.
- Keep us updated Simon, this may be quite useful in discussions with utilities

The meeting adjourned at 9:25 p.m.

**FVEAA Membership Application Form - Version 2014-01-01**

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

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

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

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

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

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

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

**Membership Types and Annual Dues** (please circle one):

Individual	\$20
Business	\$100
Premier Business	\$250
Charter Business	\$500

**Newsletter Delivery Type** (please circle one): No Newsletter      Electronic

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

**FVEAA**

**PO Box 214**

**Wheaton, IL 60187-0214**

Attn: Membership

**FVEAA Business Members**

**Best Hybrid Batteries**

Michael Bradley  
18600 IL-59  
Shorewood, IL 60404  
Phone: 708-669-9402  
Email: [besthybridbatteries@gmail.com](mailto:besthybridbatteries@gmail.com)  
Web: [www.besthybridbatteries.com](http://www.besthybridbatteries.com)



Best Hybrid Batteries is a technology company dedicated to providing a flexible, lower-cost approach to defective or worn out hybrid car batteries. Founded by an engineer, a professor, and a long-time hybrid enthusiast, we are committed to using the latest technology to bring costs down and get you safely back on the road. Our solutions were developed through years of testing, and our employees undergo extensive safety training. We fully back all of our work with one of the strongest warranties in our industry

**EV Converters LLC**

Rolly Waller  
1401 Burr Oak Rd, Unit 208 C  
Hinsdale, IL 60521  
Cell: 630-865-5744  
Email: [rollywaller@gmail.com](mailto:rollywaller@gmail.com)



EVC will become a Franchisor (when the US government approves the conversion rebate) to appoint Franchisees (eg, service stations, oil change shops, transmission shops, independent mechanics, etc.) to convert Internal Combustion Engine (ICE) vehicles to electric vehicles (EV).