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ARECC News ● June 2018

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**ARECC Monthly Meeting**  
**Sunday, June 10, 2018**  
**FIELD TRIP TO**  
**SECOND-LIFE BATTERY**  
**WORKSHOP!**

**2:00 p.m. - Meet at ACEnet**

**2:15 p.m. - Carpool leaves for Morgan's Farm**

**2:45 p.m. - Presentation/Q&A with Morgan Hager**  
**(More info follows below)**

**Invite Your Friends!**

*ARECC meetings are open to the public.*

*Anyone interested is invited to attend.*



**Field Trip to Second Life Battery Workshop**

The MakerSpace is not quite ready for us to set up our workstation for processing Second Life batteries. So, the project engineer, Morgan Hager, has begun processing our first batch of Second Life batteries in her garage. She has invited ARECC to come

out to her place to see how the processing is done. While we are there, we will also get an introduction to her off grid solar array and passive solar house design.

Morgan will show how we start with the laptop battery and the steps for safely disassembling it, separating the individual cells out and testing them. We will also get a first look at the VRUZEND DIY Battery Kit that we hope to incorporate in our process for reassembling Second Life batteries into new battery packs.



The schedule for the Field Trip is:

**2:00 Gather at ACEnet**

**2:15 Carpool from ACEnet to Morgan's Farm**

**2:45 Arrive at Morgan's Farm**

**2:45 – 3:30 General Presentation and Q&A by Morgan**

**3:30 – 4:00 Carpool back to ACEnet**

Feel free to invite other interested folks and please let Roger Wilkens know if you will be joining us. **Carpooling is encouraged, since parking is limited at Morgan's Farm.**

If you are not able to meet for carpooling, here are detailed directions for reaching

#### **Morgan's Farm:**

From Athens, take 33 east until it meets 681. Go west on 681 about three miles. You will pass McGraths tractor on the right. My turn is on the right (just after Gilkey Ridge), it is called Haning Ridge Rd. Keep going on this road until you see my house on the right, solar panels right up next to the road. My address is 37870 Chase Run Rd.

- Submitted by Roger Wilkens

## **Reconsidering the Focus for the ARECC and CCC Collaboration**

By Roger Wilkens

Over the past couple of months CCC has partnered with ARECC to consider moving ahead on two projects:

1. High Efficiency Wood Stoves (HEWS)
2. Recovering Second Life Batteries for reuse in EVs and Stationary Storage.

### **High Efficiency Wood Stoves (HEWS)**

At the March meeting, I proposed a plan for moving forward with the HEWS project. The steps involved in the project offer members many opportunities to work toward getting it ready for a roll-out as early as late summer of this year. However, after laying out the detailed workplan and discussing it, no other co-op members stepped forward to form a work committee. Given the lack of a work committee, lack of funding and no available pollution settlement to subsidize rebates for low-income households, **I am going to suggest to ARECC that we put the**

## HEWS project on hold and focus on the Battery project, especially the Second Life Battery project.

While interest in the Second Life Battery project is heating up rapidly, **interest in stationary battery packs, especially Salt Water batteries from Aquion**, continues. A few weeks ago the regular ARECC meeting was devoted to a fieldtrip to Mark Cohen's place to see his Aquion Battery installation. About 10 people joined in and explore the 8-battery installation and Mark's wide-ranging talk about



the energy transition. Since Mark has contact with an Aquion distributor, he will be exploring the possibility of ARECC organizing a bulk purchase of Aquion Batteries for co-op members.

### Second Life Batteries Project

The Second Life Batteries Project is attracting a lot of interest. We have a loose-knit team of half a dozen skilled professionals – engineers, solar installers, EV carmakers and mechanics. About a week ago five of us took a field trip out to Dennis Miller's garage, where he is working on his third generation self-designed and built EV, which he is powering using Second Life batteries out of a Chevy Volt. It was a very interesting and engaging visit. Dennis is urging me to use the same Second Life batteries to get my EV VW back on the road. However, the main focus of our group's efforts are aimed at learning how to test and assemble battery packs composed of Second Life 18650 cells, which is different than using Volt packs.



We are eagerly awaiting our work area in the **MakerSpace**, which should be available later this month. where we be able to disassemble, test and reassemble 18650 battery packs of any size or specification.

One of our goals is to design a DIY kit and manual that will enable ARECC co-op members to come to our MakerSpace workstation and recover their spent battery packs.

The UN's *GLOBAL OPPORTUNITY REPORT 2018* identifies the Reuse and Repower of Second Life Batteries as a major global opportunity. The report says:

*The huge growth in the number of electric vehicles (EVs) on our roads means a growing supply of used batteries, which are considered depleted when their capacity is reduced to*

*80%. While no longer suitable for mobile energy storage, these batteries could still have long lives in stationary settings. Second-life batteries can be used at*

*utility-scale, commercial-scale, and even in community or local power applications...*

*There are expected to be as many as 37 million EVs on the road by 2025 ...Worth an anticipated \$93.1 billion by 2025, the lithium-ion battery market is growing at a CAGR of 17%, representing significant business opportunities. Second-life batteries can become an important element in virtual power plants, a market expected to grow from an estimated \$193 million in 2016 to \$709.2 million by 2021, with a CAGR of 29.68%...*

*EVs are forecast to account for 95 GWh of used battery capacity by 2025, no longer suitable for mobility uses...*

These projections as well as other encouraging reports that are beginning to appear, encouraged me to begin planning a local worker cooperative that might both facilitate ARECC members in doing their own recovery and reuse, but also provide flexible employment for a small group of worker co-op members. Such an employment plus resource recovery effort could be a boon to our area and also to other areas. As I investigated the legal, regulatory, liability and organizational challenges organizing such a worker co-op would entail, I realized that it would help the worker coop greatly if it could focus on the technical issues of recovering and reusing Second Life batteries, while CCC focused on the wider set of issues.

In the past month, I have met with a group from Yellow Springs and an individual from Western Michigan who are interested in working with CCC to organize local worker co-ops to recover and reuse Second Life batteries. We also began the discussion of a second level co-op that would take over supporting the worker co-ops by dealing with the wider set of legal, etc. issues.



## **"Electrify Everything! A Practical Guide to Ditching Your Gas Meter"**

At the May meeting, Roger shared a link to this article from Greentech Media. (You can find it [here](#).) Author Nate Adams explains the premise of getting rid of your gas meter:

"If we want to decarbonize quickly and run much as possible on renewable energy, we need to electrify everything. " He goes on to say that moving from theory to reality involves three things:

1. Make electrification exciting (because it is!)
2. Dispel myths about electrification for contractors and consumers
3. Remove policy and market barriers

He begins with making electrification cool, because he says if demand for electrification is great, it can override policy. That idea spoke to me as something important to

consider in today's political climate. But the word "practical" in the title was still troubling me, because - even with our terrific solar installation - we are still carbon users: we use gas to heat our home and hot water, not to mention using gas to cook. Unfortunately, our furnace(s) are fairly new (installed in 2015), before we were sure we'd be able to switch to solar. It was a cold January when the previous gas furnace failed, and we were dealing with health issues that made a cold house kind of dangerous. We used electric space heaters until we arranged purchase of the new furnace. Not the most efficient way to heat, which may have been part of our rather high estimate of solar power needs (More on that from Mike). At any rate, completely ditching gas doesn't seem practical for us.

So what can we do to help create demand? We've got a plan: As gas appliances near their end of life, we'll replace them with electric. If we outlive the gas furnaces, we'll replace them too.

In the meantime, we're experimenting with some ways to reduce using gas for cooking, about which Adams says, "Induction electric cooking is a better experience than cooking with gas. **It's also the keystone to electrification.**" Until we get an induction "hotplate," we're using our small electric appliances as much as we can. At the May meeting, I pondered the idea of using something other than my gas oven for baking. Here's the result of my experiment:

**Use this Turkey Roaster:** Has a thermostat and a rack; should hold a breadpan as easily as it holds a turkey.



**Hey, that worked really well!** And it was delicious! Sorry, I forgot to take a "before baking" picture, so you'll just have to trust me that it really baked in there.

**Next: try baking cookies in this thing,** if I can find a cookie sheet that will fit.



- Adeline Bailey



## **Interview: Mike Bailey Talks about the ARECC Effect on Energy Use**

During the May ARECC meeting, members shared what they've learned over the past several years through participation in the co-op. Presented in an interview format, here's some additional information from Mike Bailey.

**ARECC News:** When did you join the co-op? Why?

**Mike Bailey:** I wouldn't have even known about the Co-op except for Harry Coffey. He knew of my interest in Global Climate Change and among its many possible solutions, renewable energy. I've been especially interested in solar energy since I first heard about it. I had worked with my UU congregations Green Sanctuary Committee since 2006 and ARECC was a natural progression when I first attended about a year after it began, in 2013. So when we joined was in the fall of 2014.

**ARECC:** At the May meeting, you talked about the significant reduction in electric usage at home that was accomplished through many small steps taken over time. Can you expand on that?

**Mike:** When I joined ARECC, I fully bought into the idea that the first step toward getting your own solar installation is to make your home as energy efficient as possible. And what got that started was the whole house meter/monitor that I received as part of my membership with ARECC. Although I never got it to talk to my computer well enough to give reports, it did give real time readings that got me curious about my power usage and wanting more detail. That led to research and to buying individual appliance monitors and starting to think about how to have more control over my usage. As luck would have it, we soon discovered a book titled "Green Living Handbook: A Six Step Program to Create a Sustainable Lifestyle". It was a workbook to be used as a group study and though a bit outdated it was full of useful suggestions. I was appalled when I first calculated our carbon footprint and became determined to bring it down to something reasonable. We implemented many of the ideas that we learned in the workbook and did research to learn more. We didn't do them all at once, but we did work to change our habits and the results were gratifying. Few of the suggestions were surprising. We've heard many of them over the years; change the light bulbs, hang clothes out to dry, eliminate electrical leeches. What did surprise me was that some ideas had indirect effects beyond their intended targets. For instance, water and gas saving measures such as low flow faucet filters and shorter, fewer showers also makes our electric pump on the well operate less often. According to my spreadsheets, our electrical usage measured as the previous 12 month average has dropped every single month since the beginning of 2015 except for a five month stretch in the fall of 2016. Our average per month in 2014 was 2347 kwh: in 2017 it was 1007 kwh – a 57% drop! Our most recent single month usage was 650 kwh, somewhat below what my panels are producing.



**ARECC:** What motivated you to keep records of your usage?

**Mike:** Early on in my association with ARECC I found out that the size of your grid will be determined almost exclusively from the history of your usage as stated on your electric bills. After looking at my bills, I decided I wanted more information, and, I really like to play with spreadsheets, so keeping the info all in one place was a no-brainer.

**ARECC:** How did belonging to ARECC help you in achieving your conservation goals?

**Mike:** Renewable energy is a major part of fighting AGW. I've learned and I've been inspired. I have the example of people who are ahead of me on the road to responsible living on this planet. I admire the founders and core members of ARECC and thank them for everything they've done.

**ARECC:** Do you think you would have installed a solar array without your experiences with ARECC?

**Mike:** Besides the information about things renewable and the electric meter/monitor I received, the Co-ops association with what is now Solar United Neighbors really made it possible to make our install happen. We might have gotten the panels eventually, but they would have cost more and we would probably not have become more energy efficient.

**ARECC:** What do you think about the project areas ARECC is developing?

**Mike:** I'm very interested in the Second Life Battery project and looking forward to seeing how that works this coming Sunday. I'm even more interested in Salt Water Batteries, as our next big purchase will be battery backup for our panels. If the power goes and out and I can't use my panels, I will not be a happy camper.



## Mid-Ohio Valley Climate Action Launches Billboard Campaign

The MOVCA has collaborated with Solar United Neighbors and Pickering Energy Solutions to promote solar energy in the Parkersburg-Marietta area through digital and static billboard postings. A prototype of their billboard is pictured here.



## **In the News**

### **- [Athens, Ohio Passes Pioneering Ballot Measure: Carbon Fee for Community Solar](#)**

During the May 8th primary election, southeast Ohio saw a key victory for the environmental movement. The city of Athens went to the polls and passed a carbon fee, by over 76 percent in favor, to be incorporated into their pre-existing community aggregation.

### **- [Marietta Municipal Court](#)**

The City of Marietta, OH has partnered with Pickering Energy Solutions to provide renewable energy to power a portion of their Municipal Court Building located in historic Downtown Marietta. This project, developed over a multiple-year program, will provide approximately 40% of the energy used by the facility in an average year.

Published for the Appalachian Renewable Energy Consumer Cooperative (ARECC). ARECC is organizing this network of energy cooperatives in Appalachian Ohio to help members transition from fossil fuels to renewable energy. First, we'll reduce energy consumption (conservation) and then work towards creating energy from renewable sources. ARECC is a non-profit cooperative operating in southern Ohio. Adeline Bailey, Editor

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