

**Living Energy Farm**  
August - September 2024 Newsletter

**Speaking Tour Postponed -- Many Thanks!**

A number of people responded to our request to help us set up speaking events in the last newsletter. Thanks! We have realized however that we were moving too quickly. Other projects have been demanding our attention (see below), as has the farm. At this point, the speaking tour is officially postponed until the spring. We are deeply grateful for the folks who are trying to help, and regret we have not been better able to plan our time. Please stay in touch!

**Solar Kits to North Carolina**

As you probably know, hurricane Helene was a major disaster in western North Carolina. Entire towns have been wiped out, public infrastructure destroyed. Power is expected to be out for weeks in some areas. To help, we sent 43 of our 12AH solar battery kits to western NC with Veronica, a seed grower we know from the Ujamaa network, who is from Asheville and has connections with mutual aid networks in the area. The kits are small, but they can provide a few lights and charge phones, which is a whole lot better than nothing.

Most of the kits are being donated, while others are being sold at or below cost. We are fundraising to cover our costs, so we can replace this equipment and help more people in the future. Please consider donating if you can: <https://www.gofundme.com/f/help-lel-send-solar-kits-to-western-nc>



*Veronica (left) and Debbie with solar kits on their way to the mountains of western North Carolina.*

We have a lot of friends and connections in the greater Asheville area. Western NC is a thriving hub for homesteaders, climate activists, and permaculturalists. Our friend Lucy, who came to our training in July, is a solar installer who works in and around Asheville. She had planned to spend a week with us this fall building Roxy Oven solar cookers to bring back to NC. Her house was flooded in the storm, but she still plans to come to LEF when she can. The need and desire for off-grid systems is greater than ever in Western NC, but it's also a hard time to be installing any solar system. (The lithium kits we sent down are plug-and-play, but a full DC Microgrid takes time, skill, and a whole lot of parts to install. All these things are harder to come by in NC right now.) We will continue to encourage people pro-actively build resilient, off-grid renewable energy systems, before being forced to by a natural disaster. In the coming months and years we will probably have an eager audience in Asheville, NC.

## The Easy Reaper Project Moving Forward

There have been two developments concerning the Easy Reaper- that's our simplified combine harvester that we hope can help make small scale grain farming economically viable all over the world. We are getting ready to attend an event organized by the World Food Prize in Des Moines, Iowa at the end of October. We will have a prominent exhibit at a large conference attended by a lot of people -- academics, equipment makers, all kinds of folks who are involved with supporting farmers all over the world. This could be an ideal opportunity to connect with people who could fund or manufacture Easy Reapers.

The current version of the Easy Reaper was made with scrap we could get our hands on. The main thresher drum was made with a very heavy oil drum. That was cheap and easy at the time, but also made for a very heavy machine to be transporting across the country. We are rebuilding the main thresher drum to make it lighter and more transportable. We are also improving the grain cleaning apparatus.

In cooperation with the University of Missouri, we are also moving forward with plans to build Easy Reapers in Africa. An African businessman (based in the U.S.) who has a long history of working with U.S. AID is working with us to make the combine drawings into Computer Aided Design (CAD). He will then start making Easy Reapers in Ethiopia. That's also a big step forward. This machine could have substantial impacts in Africa, so we are working hard to update and improve the drawings and convert them to metric so the CAD can get finished.

## Washing Machine

Our third prototype, simplified DC washing machine is operational. Thank you David! It uses a simple, upright stainless steel drum, and a commercial washing machine "impeller" at the bottom of the drum to wash the clothes. David put quite a bit of work putting the machine together, setting up the electronics to control the motor, as well as fill and drain valves. We like this design. It's very simple, very rugged, very well adapted to direct drive. It's much better than our earlier, front loader style prototype in that it has a much smaller footprint, and it can be used indoors or outdoors, because it doesn't splash water our like our previous model. This prototype does not in its current configuration have a spin



*David and the new direct drive washing machine. David has put a lot of work into it, and we are pleased with the design.*

cycle. Hanging drippy clothes is fine for a clothesline, though you would not want to do that with a tumble drier. The next step is to add belt guards, and standardize the electronics and production methods such that they are easier to make.

### Spreading Direct Drive DC Microgrids

We continue to support solar direct drive projects in **Puerto Rico** with plans to do another education and installation trip in early 2025. Additionally, friend of ours who was involved in our first project at The Source Farm in Jamaica is now working with Wa Samaki permaculture center in **Trinidad**, and wants to incorporate DC Microgrids into their renewable energy and natural building curriculum. We are working to consult and support their work, and may visit their site in Trinidad to teach a workshop during their permaculture training next February. More on these projects as they move forward this winter.

We are also in the early stages of a potential housing project in **Baltimore**. There are a lot of abandoned row houses in Baltimore, and funding is available to revitalize that housing. The Waterbottle Co-op is a worker owned cooperative that has been re-habilitating abandoned row houses and renting them at modest rates. They already build to high insulation standards, and are very interested in energy independent housing. They are connected to a substantial network of organizations who train disadvantaged youth, provide low income housing, and work on climate change mitigation. Our vision for a collaboration with Waterbottle is to purchase several contiguous row houses, wrap them in a thermal shell and retrofit them with a full direct drive DC Microgrid, including solar thermal features and biogas production. For now we're mostly working on identifying organizations that may be able to support and bring resources to the project. We are organizing a symposium of interested parties to be held in Baltimore in the middle of November.

We are also talking with nonprofits and organizers in our area (Louisa County) about doing energy independent, low income housing here. We will keep you posted.

### Biogas

Our relationship with biogas continues to improve. September for us was relentless clouds and rain, almost not sun at all. Needless to say, that provides some challenges for our largely solar economy at LEF. Mostly, we are fine in such periods, though we do have to adjust -- be more careful with water, turn off the internet router at night, etc. For cooking, we sailed right through with no trouble at all using biogas. Biogas has had a big impact on our quality of life. Being able to cook without any wood fires, especially first thing in the morning, is very nice. Our large biogas bag is making a big difference. We have lots of storage and the pressure is stable, regardless of weather or usage.

We have been talking to an organization called the Northeast Biogas Initiative. They are experimenting with using wood chips for insulation and a compost-based heating systems for their biogas digesters. We are looking at grants to document what we are



*Our new, very large biogas storage bag is very helpful. All the gas we want, and stable pressure. Seymour (the digester) is nestled in the straw bales on the right.*

doing, and to compare the short and long terms costs of different approaches (solar heat vs woodchips, etc). Then we will be better able to provide instruction for other people who want to use biogas for cooking or powering small tractors.

Our biogas tractor is also coming along. We built a filter that removes moisture and hydrogen sulphide (H<sub>2</sub>S). One pass through the filter and there was no measurable H<sub>2</sub>S in the gas at all. We are using a commercial product -- pelletized iron oxide -- to absorb the H<sub>2</sub>S. We have set up a small compressor and regulators to pressurize and de-pressurize the gas for use on the tractor. Finding natural gas carburetors for old, small engines is not easy. But we recently found a company that has developed a different approach. They sell a "snorkel" that slips in between the carburetor and the intake manifold so you don't have to replace your carburetor at all to run biogas (see <https://www.uscarburetion.com/>). Looks like a very smart idea. We will let you know how that works.

## **The Farm**

The farm, and our farmers, are mostly doing well. We have finished harvesting most of our crops. The relentless rain has caused the loss of some fruit, but otherwise the farm did well this year. We planted our peanuts and sweet potatoes on beds this year, which helped them get through the wet weather. This week we brought in our finest sweet potato harvest yet. Our watermelon crop did not do as well as previous years. The Nikita persimmons did not make much, but the Rosseyankas will have a large harvest. Squash, okra, tomatoes, peppers and corn (all seeds crops) did well. We will almost certainly be running a biogas tractor next summer. We may or may not try to take the farm fully off of fossil fuel at that time, or that might have to wait another year. It will be exciting when we do.

Please support us if you can.

*Living Energy Farm is a project to build a demonstration farm, community, and education center in Louisa County that uses no fossil fuels. For more information see our website [www.livingenergyfarm.org](http://www.livingenergyfarm.org), or contact us at [livingenergyfarm@gmail.com](mailto:livingenergyfarm@gmail.com) or Living Energy Farm, 1022 Bibb Store Rd, Louisa VA, 23093. Donations to the Living Energy Farm Institute are tax deductible. **To make tax deductible donations, do not go to the Virginia Organizing website, go here instead: <https://donatenow.networkforgood.org/1388125>** **Make sure to designate your donation for Living Energy Institute.***

## **Articles and videos about LEF:**

Low-Tech Magazine (based in France) did a lengthy, well-researched article, largely about LEF, entitled **Direct Solar Power: Off-Grid Without Batteries**. It's at <https://solar.lowtechmagazine.com/2023/08/direct-solar-power-off-grid-without-batteries/> That article talks a lot about optimal utilization, translate "community is the magic bullet that makes renewable energy work."

Matt Dhillon at Cville Weekly did one of the best brief summaries of LEF we have ever seen. The article is entitled **Power Shift, Award-winning Living Energy Farm Makes Living Off-grid Sustainable**. It is at <https://www.c-ville.com/power-shift>

Truthdig did an article on LEF by Megan McGee, an excellent review of our work in Puerto Rico. It is entitled **Decolonizing Puerto Rico Through Solar Power**. It's at <https://www.truthdig.com/articles/decolonizing-puerto-rico-through-solar-power/>

We continue to post new videos on Youtube. The latest is *Solar Power Systems That Last Forever*,

focused on our solar powered kitchen. See  
<https://youtu.be/6XiHClx8d2Q>

### **How to Never Pay an Electric Bill**

<https://www.youtube.com/watch?v=N5Wk7inoIxI&t=201s>

This video is a walk-through of our energy systems at Living Energy Farm. It is a concise summary of how these systems work, and why they are not in common use already.

### **Solar Installations In The Navajo (Dine') And Hopi Reservations, March 2020**

<http://livingenergyfarm.org/solar-installations-2020/>

This is a photo essay about our project to bring durable solar energy systems to the Dine' and Hopi Reservations, where thousands of people live without grid power involuntarily.

### **Support Living Energy Farm's Climate Justice Campaign, and Bring DC Microgrids to People Who Need Them**

<http://livingenergyfarm.org/support-our-climate-justice-campaign/>

This is an updated web page describing our broader social justice ambitions.

**How to Live Without Fossil Fuel (Introductory Video)** <https://www.youtube.com/watch?v=Ri2U6u8p65E>

**Powering a Community with Solar Electricity** (LEF has the only DC powered community that we know of, here's how it works) <https://www.youtube.com/watch?v=FvdExgvHnRI&t=23s>

**The Best Way to Store Off-Grid Energy** <https://www.youtube.com/watch?v=2wOxQ3sL9zc>

**Batteries that Last (almost) Forever** <https://www.youtube.com/watch?v=dfrgLsyFs0E>

Virginia Homegrown created a program at LEF (the LEF part starts at the 29 minute mark in the program)

<https://www.youtube.com/watch?v=MDGP0C9MIzU>

International Permaculture has done 2 articles on LEF. One is in issue #93, Autumn 2017, and the second is in issue #94, Winter 2017. See <https://www.permaculture.co.uk/>

Article about LEF at the Atlantic Online Magazine

<https://www.theatlantic.com/politics/archive/2017/01/anarchism-intentional-communities-trump/513086/>

Article about LEF in The Central Virginian

<http://www.livingenergyfarm.org/cvarticle.pdf>

LEF on CNN

<http://www.cnn.com/interactive/2015/09/us/communes-american-story/>

Cville weekly in Charlottesville VA

<http://www.c-ville.com/off-grid-model-environmentalism-made-easy/#.VcHobF054yo>