Stop Climate Change with Living Energy
Webinar Series Outline
Starting Friday, 1 PM EST, April 26, and each Friday for 7 weeks after that.

Liv·ing (lĭv′ĭng) En·er·gy (ĕn′ər-jē)
The application of integrated, village-level renewable energy systems in a manner that is accessible for peoples around the world.

Our purpose is to live comfortably, peacefully, equitably, and sustainably. We are seeking real solutions, not just palliative assurances of a "transition" to sustainabilty. What does that mean in a practical sense? Living Energy Farm is a community of people living without grid power or fossil fuel. Based on the practical lessons learned there, we can offer real answers to the hard questions of what it really takes to live sustainably.

Webinar 1) Designing Tools and Lifestyles to Embrace Living Energy

How can we design our villages, our homes, and our lifestyles to embrace Living Energy? The steps of a real transition to living without fossil fuel are:

A) Assessing Context

We will look at case studies of different efforts at establishing renewable energy. Using American average energy use as a benchmark, we will look at communities and private homes that vary from 9% to 140% of American average residential energy use. All of these case studies are in a similar region and face similar challenges. What makes a 15-fold difference in how much energy the people in these communities use? We will see.

B) Design for Conservation

We will look at different methods of building communities and homes, and assess the costs and benefits of different energy saving approaches. Does it make more sense to install solar photovoltaic, or solar hot water, a rock-mass heater, or to spend time and money on increased insulation levels? Where did our inherited building traditions come from? We need to re-think how we build shelter, and how that shelter relates to the rest of our lives.

C) Planning Integrated Renewable Energy Systems

Once demand is reduced in an appropriate context and with cost-effective conservation measures, then renewable energy becomes an enormously powerful and liberating. An integrated renewable energy system allows one modest energy source to fulfill the needs of many people.

D) Living Energy Farm as a Case Study

We will look at the layout of LEF as a case study of a Living Energy community. A bird's eye view of LEF shows the relationship of different aspects of sustainable design. We will look at how the different components -- context, insulation, renewable energy -- come together in an energy self-sufficient community. This is not theory, this is the real thing! We don't talk about "moving beyond fossil fuel" someday, or with some magic as-yet-invented technology. We are doing it, and improving our model, right now.

Webinar II) The DC Microgrid at Living Energy Farm (and how to build you own)

Disclaimer -- High voltage DC electricity is more dangerous than high-voltage AC (household) electricity. Viewers proceed at their own risk.

Living Energy Farm has pioneered the use of a DC microgrid to support a comfortable lifestyle in a temperate climate. Our home stays warm in the winter and cool in the summer. We can take a hot shower, surf the net, or drink a cold glass of lemonade any time we want. We built our zero fossil fuel home for about $12,000 per person. How do we do it?

A) Brief Look at the Basics of Conversions and How that Applies to Renewables

Are you throwing away precious, high-grade energy to buy modest amounts of low-grade energy? If you are following the advice of the mainstream environmental organizations, you are doing precisely that. We can do better. Here's how.

B) What's the Most Efficient, Effective Way to Use PV Power?

The energy return on photovoltaic (PV) panels is good, *if you use the energy instead of trying to store electricity.* The electrical system at LEF never shuts down, never fails, and is not backed up by a toublesome gasoline generator. We will look at the multi-linear system at LEF, and how to make a robust, reliable and efficient electrical system at a fraction of the cost of normal off-grid design.

C) Daylight Drive Motors

Daylight drive is a super-efficient, effective way to use PV power. We will look in detail at LEF's daylight drive systems. We use our daylight drive systems to cut heat our buildings, heat water, process seeds, cut firewood, dry food, and run a fully tooled shop. We will look at all of these machines, and how they work together to support an energy self-sufficient lifestyle.

D) Daylight Drive Charging System

Want to surf the net on the cheap? Keep your smart phone running without grid power? Here's how.

E) Tools and Toys

DC electrical systems are as flexible and powerful as AC systems. Here's how we keep our refrigerator running, run portable power tools, irrigation pumps, and other tools and gadgets to maximize comfort and keep our farm running. We will look at battery systems in our next webinar.

Webinar III) Nickel-Iron Batteries for Sustainable Lighting Systems

Many people are imagining a life after fossil fuel, but no one wants shiver in the dark. Wind and sun are the most widely available sources of renewable energy, but they are fickle. Billions of dollars of research money has gone into finding the best battery technology to harness wind and sun energy for later use. But what if all that research has been mis-directed? What if the assumption that batteries have to be small, light and portable has caused us to leave the best battery technology behind?

A) Battery Options

We will look at options for keeping the lights on without a gasoline generator. Did you know that the system for rating the storage capacity of batteries is completely inaccurate? We will look at the *actual, measured* storage capacity of lead acid batteries, and look at the cost comparisons of different battery systems.

B) Nickel-Iron Batteries

We will look at nickel-iron batteries (NiFe), how they work, how they compare to other batteries. NiFe batteries are tremendously durable and powerful compared to any other battery technology. They are the only battery technology that does not degrade with each charge cycle. They

can also be homemade. Were Nife batteries pushed off the market because they challenge the disposable consumer society?

Webinar IV) Green Building, The Nuts and Bolts

We will go through the process, step by step, of how to build super-insulated, super-efficient homes and buildings at no more cost than conventional, energy consuming designs.

A) Design Principles

What assumptions and principles are necessary to build super-efficient, off-grid communities? We will look at the trade-offs of different approaches to generating and using renewable energy systems. What is the relative financial return of super-insulation, solar hot water, and photovotaic energy? We will look at different grades of energy, and how make sure you invest wisely. We will look at how such wise investment is discouraged by mainstream approaches to building and renewable energy.

B) Foundation to Rooftop, Super Efficient Building

We will go through, step by step, the process of building super-efficient buildings. We will look at foundations, floor, walls, all the way up to the roof. We will look at windows, ventilation, heating and cooling systems.

C) Resources

We will go through a list of suppliers and sources for all the tools and materials you need. We will show you sources for new material and used, cheap, free, and necessary things you need to build super-efficient buildings.

Webinar V) Holistic, Sustainable Food Production, Food Production at Living Energy Farm

How can we sustainably feed people in a crowded world? How can you grow you own food, in a sustainable, satisfying, and healthy way.

At LEF, the strategies we use to work towards our goals are inspired by several agricultural philosophies, including permaculture, bio-intensive mini-farming, and large-scale (mechanized) organic farming. We aim to balance the strengths and weaknesses of each approach. Permaculture design is strong on earth care, but often does not focus on productivity or land use efficiency. Bio-intensive methods are strong on land efficiency and productivity, but are very labor intensive. Large scale, mechanized organic farming is labor efficient, but often does not meet our earth care goals. But all these philosophies, as well as what we know about indigenous farming methods, have a lot to offer a balanced approach. Using a mix of these approaches, LEF is developing the means to feed ourselves without fossil fuel. We are developing a prototype that we hope can be spread around the world.

Webinar VI) Growing Food on Trees, Orchard Planning

Trees are the most benign and easy way to grow food, but you have to know how! We will look at the difference between commercial orcharding and what you need to know to grow your own food. If you buy a bunch of trees from commercial nurseries, you will not grow much food. Those trees are bred to respond to industrial agriculture. The needs of homeowners and villagers are very different, so you need a different plan. We will look at uncommon fruits and nuts that are highly productive without chemicals or sprays. We will look at the role of conventional fruits and nuts in supporting homegrown food. For fun and for food, there's nothing better than sweet, homegrown fruit!

Webinar VII) Propagation Fruits, Nuts, and Berries

We will teach you all you need to know to create your own orchard, at almost no cost. You can grow your own rootstock, and propagate your own plants. Every fruiting plant is easy to propagate if you know the right method for the right plant. We will teach you how to grow from seed, how to layer, how to root cuttings, and show several different grafting techniques. While there are many grafting demonstrations available, knowing when to which technique for which plant is critical. We will bring it all together and show you how you can be food self-sufficient.