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->Greetings from the folks at [Hundredfold Farm](#) and [Seven Springs Tree Farm](#)!<-

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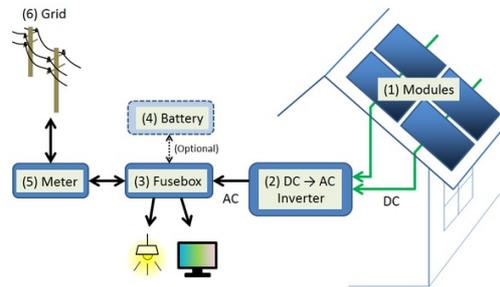
*Hundredfold Farm is an old-fashioned neighborhood with a green future - a rural, ecologically sustainable cohousing community located just west of Gettysburg, Pennsylvania.*

*Seven Springs Tree Farm is an organic choose & cut Christmas tree farm that specializes in growing holiday traditions and creating lasting memories.*

## Fundamentals of Solar Electric

In [last month's newsletter](#), we talked about passive solar home design. This month, we'll look at active solar electric generation and solar hot water at Hundredfold Farm.

The type of active solar that most people are familiar with is silicon-based solar panels, which act to capture the energy generated by the sun and turn that energy into electricity.



*Simplified schematics of a grid-connected residential PV power system, from "Solar Cells and their Applications 2nd Ed." by Lewis Fraas, Larry Partain, Wiley, 2010, Section 10.2.*

The form of electricity that the solar panels generate is direct current (DC) but since most household appliances work on alternating current (AC), there needs to be a conversion, which is where the inverters come into play.

Inverters convert direct current to alternating current, but they also act as computers, determining the load (how much electricity the house is using), how much electricity is being generated by the solar panels, and, if more electricity is being generated than is needed, then the inverter sends the extra out into the electrical grid. [Adams Electric](#), our electric supplier, in turn will create a credit for future use, for the amount of electricity put into the grid.

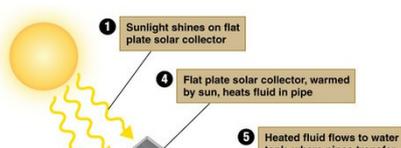
If the solar panels are not producing enough electricity (for instance, on a cloudy day), then the inverters will pull electricity from the electric grid to satisfy the load on the house.

This sounds complicated, but it is all done automatically. At the end of the year, Adams Electric will determine if there is a credit and, if so, the homeowner will receive a check.

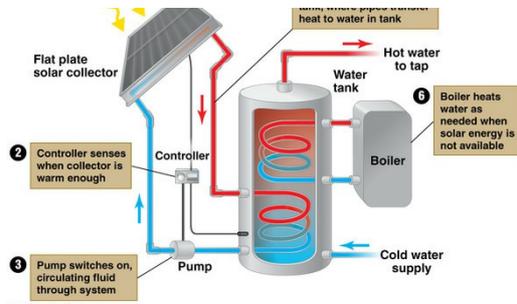
We also have a series of deep-cycle batteries which store electricity generated by the solar panels, and can then supply us with electricity for up to three days during blackouts.

In Pennsylvania, there is [a fund](#) that can help you offset the cost of your solar system, as well as [a federal program](#) that can do the same.

There are also [Renewable Energy Credits \(RECs\)](#) which help you pay for your system. Utility companies will buy your electrical production and compensate you accordingly so they can have some renewable energy production in their portfolio, as required by federal and state law.



Solar domestic hot water features a series of tubes in a rectangular box on the roof, it's like a solar panel, only this panel is designed to heat an antifreeze-type solution



Solar hot water diagram from "Essential Environment: The Science behind the Stories" by Jay Withgott and Matthew Laposata

which will, in turn, heat the domestic hot water. Sometimes in the summer, all you need is the [solar hot water](#) to produce enough domestic hot water, but in the winter, this system needs to be supplemented by our natural gas boiler. Even in the winter, the hot water solar panel will, at minimum, pre-heat the water so that the natural gas boiler is not doing all of the work.

Some of the benefits of active solar include energy security, in knowing that the power will always be on, even during a blackout, and always knowing what the cost of your electricity will be, since you are in control of your electricity generation. Click on the links in this article for more detailed information.

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## Recent Events



Rainy weather didn't dampen our spirits for the open house on Saturday, March 24th. We talked with visitors about the history of Hundredfold Farm, as well as the green construction features and sustainable energy systems, while enjoying tea and cookies with our guests.

*If you would like to visit before our next open house on Saturday, June 9th, please call Gretchen, our Outreach Coordinator, at 717-334-4587 to arrange a tour.*

## Upcoming Event

**Saturday, June 9th from 10 AM - 2 PM - Third Annual June Open House at Hundredfold Farm**

Conversations with Penn State Master Gardeners, as well as tours of our innovative greenhouse and environmentally friendly homes. Master Gardener times and topics To Be Announced.



## Spring Culling at Seven Springs Tree Farm



Spring culling is an important part of managing the farm. The partners and local volunteers help get the farm into shape by cutting and grinding down stumps, removing vegetative debris from last year's Christmas tree season, and then cutting down designated trees.

These steps have a number of purposes. First is to remove trip hazards from hidden tree stumps; second is preparing for the upcoming spring planting; and third, removing undesirable trees

that are diseased, oversized or misshapen to make way for better specimens.

Once the debris and cut trees are collected, they are distributed to various burn piles around the farm. The burn piles will help to return the nutrients back into the soil faster than Mother Nature could though the process of decay. This keeps nutrients available for uptake by our trees so they grow into healthy Christmas trees. The other purpose is to kill any disease-causing pathogens that could spread to other trees.

Since we choose a pesticide-free approach to managing our trees, to protect the environment



and to keep pesticides out of your home at Christmas, we use culling as one of our methods of disease management. It is more expensive to do it this way, but we think you are worth it!



## Speakers Bureau

We are pleased to announce that Hundredfold Farm now has a speakers bureau! If you would like to have a representative come and speak to your group about a particular topic related to cohousing or sustainability, please leave a message at 717-334-9426 or email [info@hundredfoldfarm.org](mailto:info@hundredfoldfarm.org).

## Classifieds

### Solar home for sale at Hundredfold Farm

Built in 2007, this beautiful home is located in Pennsylvania's first ecologically sustainable rural community, just 8 miles west of Gettysburg. The kitchen, dining room, and living room feature an open floor plan with south-facing windows and panoramic views. There is a large master suite, with two additional generously sized bedrooms and two full baths. Ceramic tile and hardwood floors throughout. Bonus 600 sq.ft. unfinished walk-up cape cod-style attic that can be used for storage or a workshop, studio, playroom, etc. Solar electric and solar hot water systems, combined with renewable energy credits, result in no net utility bills. Enjoy 80 acres of private secluded property with scenic mountain vistas, organic vegetable gardens, and over one mile of walking trails. Read more details here: [1134 Evergreen Way](#) or look up [MLS #21105782 on Realtor.com](#). Contact Prudential realtor David Sites at 717-487-4000 to arrange a showing.



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### Building Lots for Sale

*Build your green dream home at Hundredfold Farm – five building lots are still available.* Cohousing balances the traditional advantages of home ownership with the benefits of shared common facilities and involvement in community governance. Individual homes are arranged to preserve privacy while, at the same time, encouraging neighborly interaction. If you are interested in a pastoral, secluded location that can provide food and energy security, while sharing your living experience with a group of like-minded neighbors, you should come and take a closer look!

Community members enjoy shared meals, social events, and gardening together. Our eco-friendly designs include solar hot water and solar electric systems on each home plus an innovative living machine wastewater treatment and recycling system. Call 717-334-9426 for more information.



### Overnight packages

Get a taste of the small, friendly village that is Hundredfold Farm ~ tour our ecologically sustainable homes, wastewater recycling facility, and Christmas tree farm, plus enjoy a community meal.

Hundredfold Farm is a peaceful, relaxing oasis, located 10 minutes from the historic Gettysburg Battlefield. You can also enjoy wine tasting at local wineries, a day trip to Washington DC, and hiking the Appalachian Trail. Schedule your visit to take advantage of seasonal activities and

events, including the reenactment of the Battle of Gettysburg and various local festivals such as the National Apple Harvest Festival, the PA Lavender Festival, and the Gettysburg Festival celebrating American art, music, and cuisine. December visitors will have the opportunity to experience a working choose & cut Christmas Tree farm. Skiing and snowboarding are also available locally at Ski Liberty and other nearby resorts.

A great getaway for individuals, couples, families and groups. Stay for a weekend or a week ~ contact us at 717-334-9426 for pricing.

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*Please let us know if you are interested in staying on our list and/or take the opportunity to update the information in our records. Following the "subscribe" link at the bottom will take you to a form where you can enter updated information (and there's an "unsubscribe" link at the bottom if you decide to opt out). You can also forward this message to someone who may be interested in being added to our contact list and receiving this newsletter.*



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