

# 1

HAPPY ACRES - Kurt & Joanne Reinhart  
[715 Schappell Rd., Hamburg, PA 19526](#)

2,500 sq. ft. ranch home with 8.4 kW rooftop Photovoltaic system. Home is super-insulated, airtight, with heat recovery ventilation, all electric. HVAC via Mitsubishi mini-splits, standing seam steel roof, 4,000 gal rainwater catchment system used for toilets, cold water laundry & exterior hoses, heat pump for domestic hot water, approaching Net Zero (structure produces as much energy as it consumes). Note: Recently added 13 rooftop panels to increase system from 5.1 kW to 8.4 kW.

# 2

Dave & Laura Kennedy  
[213 Snyder School Road, Bernville, PA 19506](#)

A 10.78 KW Ground Mount Array was installed in 2012 with 44 Suniva 245 Art245-60 Modules, 44 Enphase M-215 Inverters, and 1 Inverter per Module. A Battery Backup System was installed in 2015 consisting of four Deka 8A8D, 250Ah rated, and maintenance-free batteries. A standby generator can be used to charge the batteries if weather does not permit the solar system to do so. With the grid-tied system, in general when there is a power outage for area Met-Ed customers we do not even know it is happening since the power switches automatically to the battery system with no discernible change. A grid-tied system without battery backup requires the need for a generator. When the grid goes down, the solar system shut offs automatically to prevent back-feeding into the grid and electrocuting workers doing repairs.

## **Background**

For many years, we were interested in installing a solar system at our rural property for a more sustainable existence, reducing utility bills, and being less dependent on the aging grid infrastructure. With numerous, lengthy power outages experienced since we're at the end of the electric utility line, restoration of power was not considered a priority by the power company.

Laura Kennedy also attended a solar energy class at RACC taught by Bill Hennesey some years ago in which she calculated the cost of the system and the payback in terms of number of years. It exceeded 9 years at that time, therefore it did not seem to make sense to install it.

In a few short years, Met-Ed received approval to raise rates dramatically (almost 30% in year 1) and a recalculation showed that the payback for solar panels would drop to 7 years, and the Pennsylvania incentives would be ending soon. So in 2012 we decided to make the purchase and install the system, leaving it grid-tied.

### **Sustainable Living Features**

**Home Heating System** - The home is heated by a dual fuel hot water boiler manufactured by Benjamin in Canada. The system is fueled by either oil or wood and can automatically switch to oil if the wood fire dies down or is not maintained. It takes up the same space as a traditional oil boiler. The boiler also has a coil for heating our hot water for domestic use.

**Garden** - A raised bed vegetable garden has been established in front of the Solar Array. A gutter system on the array captures rain water and fills rain barrels which supply water to the garden.

**Grapevines, small fruit, and Fruit Trees** - The property also has numerous grapevines, blueberry and raspberry bushes, and several fruit trees.

**Water and Septic** - Onsite water well and septic system further reduce the need for outside resources.