



**MAREA Solar Tour 2017**  
**Berks, Chester, Lehigh, & York Counties**  
**Next Tour: Sat, May 6, 2017 10AM to 3PM**

## See active solar energy technologies in the Berks, Chester, Lehigh and York Counties!

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Heating, cooling, electricity and hot water can all be provided with free fuel from the sun and solar houses that take advantage of this free offer are starting to sprout throughout the area. Solar houses receive financial, environmental and comfort benefits from the use of free sunlight through lower electric, hot water or heating or cooling bills. These houses can also provide electrical backup when the grid is down.

Solar homeowners have invited the public to a free tour of their installations from 10 a.m. to 3 p.m. Saturday, May 6, at sites in Berks, Chester, Lehigh and York Counties. Sponsored by the Mid-Atlantic Renewable Energy Association (MAREA), review the sites below that interest you and plan your travels accordingly! And watch for future updates!

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### **BERKS COUNTY (3)**

**(1) Name: HAPPY ACRES - Kurt & Joanne Reinhart**

**Address:** 715 Schappell Rd., Hamburg, PA 19526

**Description:** 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. [Click for Map](#)

**(2) Name: Dave & Laura Kennedy**

**Address:** 213 Snyder School Road, Bernville, PA 19506

**\*\*\* NOTE: 10 AM TO 1 PM ONLY, PLEASE \*\*\***

**Description:** 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.

**(3) Name: Peter Karch**

**Address:** 91 Deer Run Road, Kutztown, Pa, 19530

**Directions:** I - 78 to exit 45 (New Smithville). Left turn and over highway to stop (Old Route 22). Right turn on Old 22 down grade ~ 1 mile past Antique car shop to Mill Creek Rd. Left turn on MCR for 2 miles to stop. Right turn at stop = Long Lane Rd for 1/4 mile. Right turn on Deer Run Rd for 1/3 mile to 1st drive on LEFT (not right) = 91 (DRR) on mailbox. Small pond to left/across small bridge/up steep hill. Blow car horn (panels are 1/4 mile away or call Peter on cell at 484-225-9312. Owner will lead you to the panels. Your patience is appreciated.

**Description:** 10 kW PV array with ground-mounted panels located in a small vineyard about 1/4 mile from the residence which is surrounded by beautiful, mature conifers planted 40-years ago by the owners. The rest of the 10 acres between our home and the panels is a beautiful, ~200 year old mature hardwood forest (oaks, beech, maples). The owners' focus is to reduce their use of fossil fuels whenever they can and in the best manner possible. Their system philosophy is simple - they like what it does and it does what they expect it to do; they track the production of the system

regularly. And, by using a "green" electricity supplier for the balance of their electrical needs, they like the peace of mind that using 100% renewable energy provides.

## CHESTER COUNTY (3)

**(1) Name:** John & Sue McVicker

**Address:** 111 Wagontown Rd., Coatesville, PA 19320

Please RSVP John at [jmcvicker@yahoo.com](mailto:jmcvicker@yahoo.com) to let him know you'll be stopping by!

**Description:** John and Sue live in Chester County, about 3 miles from where Sue grew up. John got interested in Solar PV by reading Homepower Magazine back in 2008 or so and attended two MAREA renewable festivals in Kempton, PA. Also, at the same time, John took an interest in electric cars (EVs) while going RC car racing with his son. There, he saw a transition of the RC cars from fuel to Li-Ion batteries and thought that we should be driving such cars on the roads. John followed the Volt and Leaf developments and was part of online communities for them back in 2009, before they were generally produced. The couple got bids on Solar PV in 2010 and 2011 but were not yet ready to purchase. In 2012, John decided to "go all in" and lined up a purchase of a 1-year old (but new) Chevy Volt - a 2011 model bought in July of 2012. At the same time, plans for Solar PV were begun. A larger shed was purchased and a combination ground-mount and roof mount 8.1 KW solar PV was installed by Smucker's Energy in December, 2012 using SolarWorld 255W modules and two PowerOne Aurora 3.6 inverters. Peak production of 8KW is seen often in cooler weather. In addition, a 6.6 KW L2 charger station was installed for the Chevy Volt. The only thing missing is standby

power for this "almost" net zero electrical power home.

**(2) Name: Mark & Betsy King**

**Address: 16 Griffith Avenue, Malvern 19355**

**Description:** 10.15 kW roof mounted, grid tied system consisting of 35 Winaico panels using DC optimizers on each panel and running through a SolarEdge inverter. The electric service was upgraded from 100 to 200 amps to make sure they could handle future electric vehicle charging needs. The system started up on February 1, 2016 when PECO installed the dual IN and OUT meters to measure energy going to and from the house to PECO. The system produced almost 11 MWh of electricity in the first year of service and they had 2,500 kWh in excess production since the array was built larger than current needs.

Background: Mark thought we should use more solar energy back in the 70's when he was growing up. The opportunity for him to make this happen came in 2015. While a new roof was being installed on their house in June, Mark received a phone call from SolarCity asking if he wanted to consider installing solar panels on their roof. That began a four month process of talking with several solar panel installers and deciding how many panels to install. They wanted the array to meet their daily 20 kWh need and also allow for future electrical demand increases that could come from converting their oil furnace to a heat pump and transitioning their two gas powered autos to electric vehicles. The installers also needed to estimate how much a tree shading the roof in the afternoon would reduce their production. They finally decided to have Advanced Solar Industries in New Holland, PA install their system.

**(3) Name: Michael Craner**

**Address: 115 Rising Hill Lane, Chester Springs, PA 19425**

**Description:** A 15.75 kW roof mounted, grid tied array was installed in 2010 by [Advanced Solar Industries](#) with 50 Sunpower 315 Solar panels (at 19.3% efficient) and 1 each of SMA 3000, SMA 5000, and SMA 7000 inverters fed by 2, 2 and 3 strings of panels, respectively. A Natural Gas Generac Whole House Backup Generator was installed in 2015. Heating and cooling is supplied by a 5 ton vertical loop geothermal system. Michael was an early adopter of electric vehicles. He has a 2009 Tesla Roadster 1.5 (#245) which he drove across country that year during his [Renew America Roadtrip](#) cross country renewable energy campaign, along with a 2012 Signature Red Model S P85 (#242) and a 2016 Model X 90D, as well as two reservations for the Model 3 that will be coming out later this year. He previously owned a 2012 Nissan Leaf and both Prius and Honda Civic hybrid. Visitors are welcome to go for a ride in one of the Telsa's.

Background: Michael is an electric vehicle and renewable energy advocate and investor. He is passionate about increasing renewable energy to reduce the harmful effects of climate change. He has been driving electric vehicles since 2009, derives most of his household electric use through rooftop solar panels, and installed geothermal for heating and cooling.

## **LEHIGH COUNTY (4)**

**(1) Name: Teena & Mike Bailey - Red Cat Farm**

**Address: 6113 Memorial Rd, Germansville, PA 18053**

**Directions: [Map to Red Cat Farm](#)**

**Description:** Small-scale solar and sustainability define Teena and Mike Bailey's Red Cat Farm at Germansville, PA. They specialize in greens, vegetable transplants and herbs as well as mixed vegetables that are sold to restaurants and at local farmer markets.

Teena Bailey has operated a solar-powered greenhouse and water pumping system for the past 10 years. The greenhouse is covered with two sheets of plastic that are kept separated by a layer of air that's pumped by solar power. The air gap provides low-cost insulation from the cold. The greenhouse beds are heated with horse manure and the plants are watered with a solar-powered pumping system. The greenhouse system has four, 120 Watt modules, a 48-volt flooded lead acid battery bank and a Grundfos submersible pump.

A separate solar-powered system with battery backup provides uninterrupted power for the walk-in cooler, lighting systems and a pump for the farmhouse wood-fired boiler. The 2.88kW AC-coupled system has 12 modules mounted on a shed roof, a Fronius grid-tied inverter, a Magnum back up inverter and a no-maintenance Deka gel cell battery bank.

**(2) Name: Reuben & Tessa DeMaster - Willow Haven Farm**

**Address: 7686 Herber Rd, New Tripoli, PA 18066**

**Directions from Interstate 78:**

Take exit 49B, Route 100 North. Drive for 7 miles and turn left on Holben Valley Rd. This road is easy to miss - you will be able to

find it by looking for a left turn lane. Continue on Holben Valley Rd. for less than 1 mile and take the 2nd right onto Weisenburg Church Rd. Continue for 1.5 miles and turn right onto Herber Rd. The farm is the big white house in the valley. [Map to Willow Haven Farm](#)

**Description:** A solar water pumping system with drip irrigation was installed in three acres of a row crop field to provide water for vegetable production. The system is also used to provide water for pastured pigs and chickens.

The solar pumping system includes three 285 Watt modules, a Grundfos submersible pump with controller and two storage tanks. Last season, solar power provided 525,000 gallons of water to drip irrigate the three acres of veggies and tomatoes.

Willow Haven Farm provides fresh, organically grown vegetables delivered to your home and at its seasonal Saturday market on the farm. Pizza and organic sourdough breads will be baked in the outdoor brick oven on Saturday. Reuben, Tess and their family have operated the 50 acre diversified farm/CSA since 2009.

**(3) Name: Matt & Shawn Keller** (Note – on the Berks/Lehigh County Line)

**Address:** 10952 Folk Road, Breinigsville, PA 18031

**Description:** 3.2 kW solar array on the workshop roof, grid tied, installed January 2010. 30 Megawatt Hours to date. The solar array, inverter, and meter are located in or on workshop alongside the driveway for easy access.

**BONUS:** In addition to my solar system, enjoy speaking about Chevy Volt and WVO diesel Volvos.

Directions: From route 222, turn South on Folk road at Premise

Maid Candies. Take 1st left - country lane about 1/3 mile from 222 and drive to workshop. [Click Here for Map](#)

**(4) Name: Wes & Linda Loder**

**Address:** 1394 Greene Hill Court, Kutztown, PA 19530

**Directions:** The house is at the end of a long driveway that passes through woods off the end of Greene Hill Court, Kutztown-located in southwestern Weisenberg Township, Lehigh County.

FROM the north, west or east:

Take Interstate 78 (Route 22) to Exit 45 (New Smithville). Turn south, cross Old 22 and continue south up a rise on State Route 863 (Independent Road). The road bears left down into a valley, but you will head straight onto Siegfriedale Road. Continue for less than a mile, then turn left onto Helffrich Road. Take second right onto Greene Hill Court and follow to its end and through the red gate. There is parking by the house and along the driveway.

FROM the south:

Take Route 222 to where it intersects Route 863. Turn north on 863 and cross Schantz Road. In 1.6 miles you will enter a wooded valley. Turn left onto Helffrich Road and proceed up a steep road that rises to the turn for Greene Hill Court on the left. Follow to the end as per instructions above. [Click Here for Map](#)

**Description:** Self-designed timber-frame home (1,375 Sq Ft) with passive-solar design heat (300 ton heat sink), off-grid home. Solar alone is enough to heat the house until December. Back up masonry heater at center of home heats into March with less than two cords of wood/season typical). Electric power from 1.2 KW of photovoltaic panels except for well water supply (has own panels and a 2000 gallon, gravity fed tank). Backup generator used only twice in the five years they've lived here. Power stored in four six-

volt batteries. An inverter changes the DC to conventional household AC current. Hot water comes from a solar panel with a tank and heat exchanger. Have an on-demand, propane-powered backup heater which is almost never used.

## **YORK COUNTY**

**Name: Tom Bechtel**

**Address: 1550 Baltimore Road, Dillsburg, PA 17019**

**Description:** Tom provides outside sales functions for Wind and Solar Company located in Lancaster, PA. He has installed a net metering ground-mounted 11.5 kW PV system utilizing 36 320kw Canadian Solar ground mount panels with Solar Edge power optimizers and a 10k Fronius inverter in 2016 and a Geo-thermal heating and cooling system. The use of power optimizers enables each panel to act independent of the other, thus increasing overall output. The system is designed to replace 100% of the homes electrical, heating and cooling needs on an annual basis.