

ENERGY MATTERS

Jack Harrod, New London Energy Committee

When you think of solar power, you probably also think of sunny climes such as California or Arizona. But harnessing the sun's rays is perfectly feasible right here in New Hampshire, which on average gets more hours of sunshine annually than, for example, Germany – one of the international leaders in the use of solar energy. All you need is an unobstructed southern exposure to take advantage of Mother Nature's own power source.

One of the most common and cost-efficient ways to use solar power is to install a solar hot water heater. The sun can't entirely replace the conventional fuel (oil, propane, electricity) used to heat your hot water, but it can provide up to 70% of the heating power, reducing your use of those increasingly-expensive conventional fuels. And an investment in a solar hot water heating system generally pays for itself in three to five years.

Solar photovoltaic (p.v.) panels can also be used to generate electricity. They can be used as self-contained systems, with or without backup storage batteries, to provide electric power for remote locations not connected to the utility grid, such as a summer cottage or mountain cabin. Solar p.v. panels can also be used in conjunction with or to supplement the existing electric utility service, in what is called a "grid-tied" system, again either with or without backup battery capability. In the case of a grid-tied system, electricity generated by the solar p.v. panels in excess of current usage is fed back into the grid and can offset normal utility bills. Because it connects with the grid, this option requires coordination with and approval from your regular electricity provider. The payback period for a solar p.v. system is, unfortunately, much longer than for a solar hot water heater; depending on individual energy consumption, the size and options (such as those backup batteries) it usually ranges from seventeen to twenty years. It is a long-term commitment.

Because my house is already serviced by PSNH, I opted for a grid-tied system. And the frequent power outages I've experienced over the past four and a half years convinced me to invest in the backup batteries. I felt that batteries would be a better solution than a noisy, gasoline-powered emergency generator.

Working through the Clear Mountain Solar Store in Claremont, we assembled all the components: 12 180-watt solar p.v. panels (with a generating capacity of 2.16 kilowatts at maximum); eight batteries (each about the size of a truck battery); and the "inverter," which converts direct current from the solar panels to alternating current, and charges the batteries. And there was some uncomplicated paperwork to go through to enroll in PSNH's "net metering program." The actual installation, handled by MaySun Renewable Technology Installations from Bellows Falls, VT, involved a couple of young, agile fellows (not me!) clambering around on my roof and in my attic and cellar for a few days.

There was also some electrical rewiring necessary to concentrate those essential functions that would be supported by the batteries when the grid goes down (I chose the furnace, the refrigerator, a septic pump and the garage doors, sticking with basics to extend the battery life in case of a lengthy outage). My system went operational, as luck would have it, on a bright, sunny

day towards the end of April. So I immediately was able to watch the digital read-out on the inverter inform me that I was now generating almost 2 kilowatts of electricity, three-quarters of which was being “sold” back to PSNH. My electric meter was actually running in reverse!

Also as luck would have it, two days later the grid went down, right in the middle of a Red Sox game. It made me think that maybe I should have connected a few more wall outlets to that battery backup capability! So, while I couldn't watch the Sox (they lost that day anyway), I was able to listen to the fridge hum away and hear the furnace kick in. That's mighty reassuring.

So I'd recommend serious consideration of solar options, whether hot water heater or p.v. panels, especially if you're already planning to build a new home or remodel an existing one.