

Does Solar Really Work in Vermont? A Report from the Green Buildings Open House

By Meghan Houlihan

After spending a few months at NESEA helping organize the Green Buildings Open House, I was eager to see the sites I had been reading about first hand. I decided to spend Saturday, October 5th in the verdant hills of southern Vermont where local organizer Shana Frank had arranged for an impressive assortment of events—a renewable energy fair that included exhibitors and several short workshops, and, of course, tours of homes participating in the open house.

As I drove north to Brattleboro with my friend Robert, I was delighted to see that my repeated entreaties for good weather had paid off. The sun made a spectacular appearance, offering us a perfect fall day and, more importantly, providing energy to all the photovoltaic cells and collector tubes that are helping power homes throughout the Northeast.

Brattleboro was a hub of activity; the renewable energy fair was peacefully coexisting that morning with an anti-war march, which had drawn several hundred participants. Robert and I made our way to the centrally located River Garden, the fair's hub, where we were able to view an exhibit showing how solar electricity works, poke our heads into a workshop on wind and solar power, and replenish our supplies of compact fluorescent light bulbs. Heads and pockets full, we were ready to see renewables at work.

"It's So Quiet!"

Our first stop was Adam Gebb's house in Guilford, featuring a photovoltaic array, passive solar, daylighting, and a wind turbine. The contemporary 2900 square foot house was stunningly situated at the top of a tall hill. It took us a minute to locate the wind turbine, which sat on an 80-foot tower just above the tree line and only 30 feet or so from his house. I was amazed to find that I could barely hear it, though the wind was strong and the blades were turning rapidly.

Adam joined us outside to answer questions about his PV system (8 Solarex 60W panels) and turbine (a Whisper H1500). We learned that he and his wife had only recently decided to connect to the grid; with the birth of their newborn, owning a large refrigerator had made life much easier. But Adam seemed very pleased, nevertheless, with his hybrid system, noting that on days when solar gain is minimal, the wind source tends to be strong. It's the best way to do renewables in Vermont, he stated.

Doing It Solely on Solar

We left Adam and the steady stream of cars that were winding their way up to his house and turned our attention to our second stop, Andy Hauty's solar home in Marlboro. An effervescent young girl and friendly golden retriever greeted us and another set of visitors who had arrived at the same time. Andy introduced himself and began the tour by

showing off his 12-panel solar array, which, combined with a back-up generator, provides the electricity for his off-the-grid home. As we moved indoors, it became very apparent that Andy's house was lacking no creature comforts—this timber-frame saltbox was a veritable playground, with open bright spaces, an attached greenhouse perfect for Andy's lavender and herb farm, and numerous areas for children's play. The warm, cheerful feeling I had in this home was cemented when I noticed a swing mounted in the hallway upstairs. The Sunfrost refrigerator met their refrigeration needs, the large cooking stove provided heat and hot water, and the gravity-fed water system obviated additional electricity demands.

After a quick walk through the house the crowds were growing, and it was time to give others a chance to take a look. Alas, we realized as we drove off that we never made it to the basement, home to the really interesting stuff, such as inverters and batteries.

Made from Scratch

Our third stop was just down the road, another solar home in Marlboro, this one belonging to Gary and Celeste McArthur. Celeste greeted us and apologized that her husband, who built the home himself and who was intimately familiar with the systems, wasn't able to be there. Celeste, nonetheless, was able to give us a great tour of their home, which, we were quick to discover, was a fascinating example of a home "made from scratch."

Gary had built an original log cabin on the property when he was young, which over the years formed the basis for their expanded 1650 square foot home. The PV systems comprised miscellaneous panels 2 to 30 years old, approximately 900W in total, some of which Gary had resuscitated from scrap piles. Most amazing, though—in addition to the homemade refrigerator and hand-crafted wind turbine, currently defunct—was the fact that this charming off-the-grid home supported the lives of not only Gary and Celeste, but their three children as well, two of them teenagers.

It was getting to be late in the day and we had one more house to visit, several miles north.

The Basement

We arrived at our final destination, Kathy Abbott and David Haaren's house in Westminster Station, with an hour to spare before the close of the event. Robert and I were beginning to feel enervated at this point; I could only imagine what the homeowners were going through, particularly when Kathy and David explained that a school bus of children had just left the house!

Truly off the beaten path, Kathy and David had built their house far from power lines and found solar power more affordable than hooking up to the grid. David had put together much of the impressive system himself—photovoltaics with a back-up generator for all electricity, space and domestic water heating from solar panels with wood back-up, and radiant floor heating supplemented by wood-fired radiators with solar and wood heat stored in a masonry thermal mass. Two small thermo-syphoning freeze-tolerant hot water

systems at 12 square feet each and a larger anti-freeze system at 80 square feet were tied to the radiant floors. It was an interesting, and clearly effective, mix of systems. But best of all, we were treated, at last, to a long look at a basement, home to enough batteries, inverters, radiators, and wiring to make your head spin.

The End

We checked a clock and it was already 4:15, officially the end of the tour. It was time for the trek back to Greenfield, and Robert and I had plenty to discuss. Gravity-fed water systems were a definite yes, though we disagreed over the best way to handle a heat source backup. I hoped that the wonderful, inspiring homeowners who were so generous with their time and their homes would be able to relax after a long, fulfilling day. I certainly would.

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