Ten Stones Community Solar Collective

It all started in April 2011 when Rebecca Foster invited the Vermont Public Interest Research Group (VPIRG) to come speak to her neighborhood about its "Solar Charlotte" program, which aimed to inspire homeowners to install rooftop PV at a 25 percent discount, in partnership with solar installer Alteris Renewables. Several residents in the 17-home co-housing community in Charlotte, called Ten Stones, found they couldn't go solar for one reason or another. Most had unsuitable roofs and some didn't have good southern exposure. Foster led the effort to convene interested co-housing residents and explore options for sharing output from a group array on their communal property.

Ten Stones owned a meadow ideal for ground-mounted PV, but neither they nor the developer had any direct models for how to organize such a system. After much hard work and diligence, however, the Ten Stones Community now hosts a ground-mounted 24-kilowatt solar array that provides clean, renewable, affordable electricity to five households as well as the pumps for the community's wetland, which pre-treats sewage. It's estimated the project will annually offset about 20 tons of carbon.

The three-row solar array is located in a meadow 1200' from the closest electrical meter, because it was the only location large enough. The installation is mostly hidden from sight, even from the road, much to the chagrin of some Ten Stones residents who are committed to celebrating and communicating the benefits of sun-powered electricity. Though only five homes and the community wetland meter receive solar credit from the project, forward-looking Ten Stones residents easily and affordably installed a fourth cable in anticipation of future interest in expanding.

"We haven't paid an electric bill in a year and a half. If the system pays off in 10-12 years, that's great. But it's just the right thing to do."

Rebecca Foster

How It Worked

Like many community-scale projects, this project relied on Vermont's group net-metering law to make it possible. "If you don't have a suitable roof or solar access, a collectively-owned ground mount is a great way to go," Foster said, articulating the access problem net metering solves for many solar-interested Vermonters.

After creating the group of interested people and deciding to give it a go, they had to figure out how to size the system and apportion the ownership. Using a year's worth of electricity bills, individual members chose the amount of kW they wanted to own. Those sums were added together to determine the total size of the project — 24 kW. From there, the amount members' owned was calculated as a percentage of the whole. For example, a member owning 4 kW would own 16.67 percent of the system. The percentage of ownership is crucial to all of the Collective's transactions; it is the percentage the member paid for the system and pays for all ongoing expenses, such as insurance. It is also the percentage amount of the solar credit to which the member is entitled.

Like all solar projects, homeowners use a variety of financing and funding tools to make it possible. The total system cost was $130,000, after the 25 percent discount from Alteris Renewables (which, by the start of construction, had been bought by Real Goods Solar). That cost included the 1200' trenching, the additional cable for future expansion, electrical upgrades and all other construction incidentals. As individuals, the solar collective owners received the 30 percent federal Investment Tax Credit (ITC) on the amount they each paid for the system, as well as Vermont's Small-Scale Renewable Energy Incentive. Solar collective members can also sell their excess power back to the grid at $0.20 cents kW (about $0.06 cents above the average retail price of power), driving down their costs even further. To pay for the upfront capital costs, most homeowners took out 0 percent 18-month EnerBank loans on their ITCs. Some took out affordable VSECU loans and others paid for their portions of the system outright.

Project payback will be 10-12 years and members, like Foster, now enjoy getting their energy bills. "I haven't paid an electric bill in a year and a half!" she said.

To make this both financially and legally possible, members of the Ten Stones Solar Collective had to put several pieces together to tap the tax credits and structure both the legal and financial frameworks needed for the shared system. Real Goods Solar recommended that the Collective become a Limited Liability Company (LLC), which is very easy to do online. As an LLC, the utility has one entity with which to correspond, and it has the added benefit of liability protection for the members. The Collective had to create two legal frameworks for their project. Since there was no pre-existing model, they decided to draw up the documents themselves. Over the course of long and detailed meetings, they created one document governing the operation of the Ten Stones Solar Collective, in terms of membership, voting rights, payment for and from the system, etc. The other legal document is between the Ten Stones Solar Collective and the Ten Stones Housing Association, which owns the land on which the system was built, stipulating proper uses of the land and responsibilities of the Collective to it, such as potential decommissioning issues.

Keys to Success

The Collective built off of the existing community ethic of the co-housing neighborhood and utilized group net metering to maximize efficiency and allow multiple households to share in costs and benefits. Some keys to their success included:

- Participating in VPIRG's Solar Charlotte program, which made the project costs feasible.
- Utilizing the federal Investment Tax Credit, the state renewable energy incentive and the $0.06/kWh solar adder.
- Working with Real Goods Solar, which wanted this to serve as a successful demonstration project.
- The billing system of their utility, Green Mountain Power, makes administration of the net-metered project easy. Each member household receives its own statement, which lays out the total solar power generated by the system, the member's percentage of that power, as well as the usual layout of usage on utility bills.

Contact

Rebecca Foster
carpegreenum@gmail.com