



Solar power: One family's experience with reliability and security

Jim and Marcy Emberger

When Jim and Marcy Emberger moved to Taymouth, N.B., from Baltimore, Md., they wanted to be as self-reliant as possible in their new bungalow in the country.

It was 2006, and oil prices were high. Jim, a retired computer systems consultant, and Marcy, a teacher, had been involved in environmental causes. As much as they wanted a large garden so they could grow their own food, they also believed it was important to reduce their reliance on power made by coal, natural gas and hydro produced from large dams.

Initially, Jim and Marcy explored putting up wind turbines or building a micro hydro system for their property. But there wasn't enough water on the property to make a small hydro project work, and erecting a wind turbine was too costly.

Their home faced south, though, making solar power an option that would work.

The Embergers hoped they'd be able to store enough solar energy to disconnect from the provincial electrical grid. They installed two, 200-watt solar panels on the roof of their garage, and invested in a battery system that can store enough energy that they could sell power back to New Brunswick's electricity grid if they eventually added more panels.

The solar panels worked well. They allowed Jim and Marcy to charge their cellphones and run crucial appliances, including a large freezer that could keep



the harvest from their vegetable garden safe even during power outages, like the one tropical storm Arthur caused in 2014, cutting their power for 11 days, or the January 2017 ice storm that knocked out power for more than 130,000 homes in the Acadian peninsula.

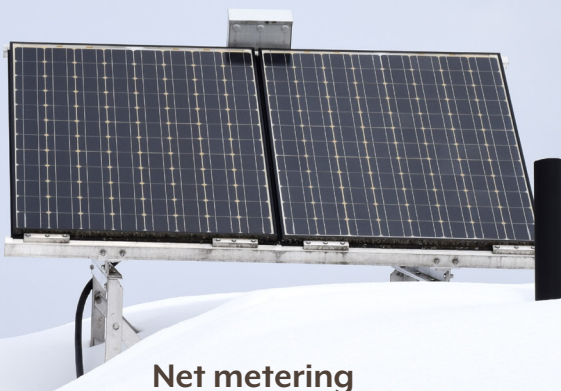
"We have a tendency in New Brunswick to lose our power frequently, and as the person who has to make sure we have meals on the table, having this solar [powered] freezer that's dependable is really important to me," says Marcy.

Although food security wasn't their initial goal when the Embergers choose solar power, it paid off in 2014 when the storm

hit and cut them off from traditional power sources.

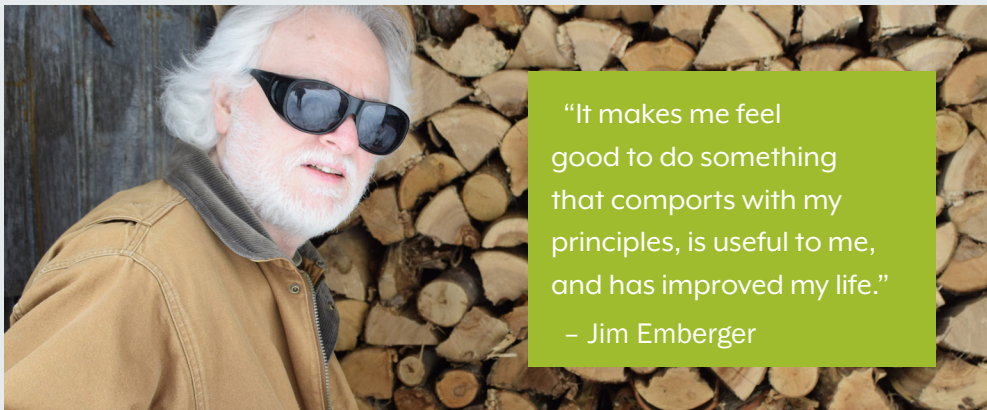
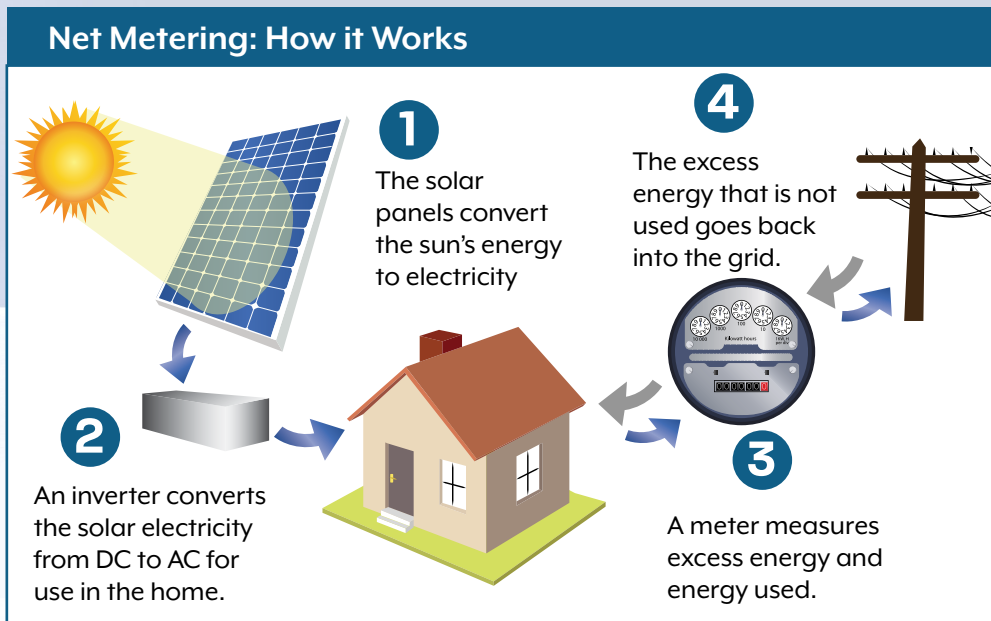
"With the solar panels, we didn't lose our freezer. We were able to take ice from the freezer and move around our refrigerator stuff into coolers, and we could charge cellphones and stay in contact that way. It was a nice feeling of reliability," says Marcy.

The Embergers also installed two wood-burning stoves and upgraded the inadequate heat pump that came with their house. Now the heat pump kicks on for a few hours in the early morning until Jim and Marcy get up to rake the coals and get their wood stoves going again.



Net metering

The Embergers plan to research their options for expanding their system and selling power back into the electric grid, through a process called net metering.



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– Jim Emberger

Disconnecting from the grid, however, was tougher than the Embergers had hoped. They had expected both information and incentives from the province and/or New Brunswick Power to help them move to solar power and to connect to the provincial electricity grid. They had also assumed there would be several companies and individuals with the expertise to help them install and maintain their solar system. But none of those resources were easily available to them at that time.

Through word of mouth, Jim found a small businessman who helped them install their system. Maintenance has been straightforward and his system has been reliable. Twice a year, Jim gets on the roof and changes the angle of their solar panels to ensure they are getting optimal value from their sun exposure. Even without his adjustments, the system would probably capture enough sunlight to power the home, he says. He also checks the system's four batteries periodically to make sure the

distilled water in them is properly balanced, and no adjustments have been needed so far.

"Other than that, it's taken care of itself," Jim says.

The system's batteries are currently 11 years into their 20-year lifespan. Because the price of solar systems has come down in the last decade, the Embergers plan to research their options for expanding their system and selling power back into the electric grid, through a process called net metering.

Jim also hopes the province will develop better incentive programs to encourage more families like theirs to install solar panels or choose other forms of energy that don't rely on coal, natural gas or large hydro projects. The lack of incentives, combined with scant resources, were the biggest barriers the Embergers had to overcome in using solar power.

Still, the couple feel proud of their ability to reduce their reliance on harmful forms

Questions?

Most of us have questions about the energy we already use, and where to find information if we want to know more. We'd like to spend less money for the power we need, but we're unsure about how to sort out the options. We're curious about the different kinds of energy that could power our homes, like solar or wind or other forms of renewable energy. Many of us don't know which energy source would work for us, what steps we should take first, or whether changing the type of energy we rely on would mean we'd have to change our lifestyle.

To learn more your energy choices and to find a list of resources in New Brunswick, visit:

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of energy and to be self-sufficient. They're also happy to serve as role models as they continue to work to protect the environment.

"It makes me feel good to do something that comports with my principles and is useful to me, and has improved my life," says Jim.