Living off-Grid: A Leap of Faith

Jenn and Jay Hannigan

Jenn and Jay Hannigan's journey to building a sustainable home so they could live off the provincial electricity grid started with a documentary.

The Hannigans decided to construct a home from rammed earth (made with natural raw materials like soil, sand, clay, lime and stone) and tires after watching ***The Garbage Warrior***. The 2007 documentary describes self-sufficient, sustainable housing made from earth and other natural and recycled materials.

"That was the starting point for designing the house," says Jenn.

Long committed to the principle of reducing their consumption of scarce and non-renewable resources, the Hannigans had already begun reducing their use of electricity before they decided to live off-grid on their Bayswater, NB property. Deciding to live off-grid conformed with their values and felt intuitively right, they say.

"All that was missing was the practicality of living in an off-grid location," says Jay.

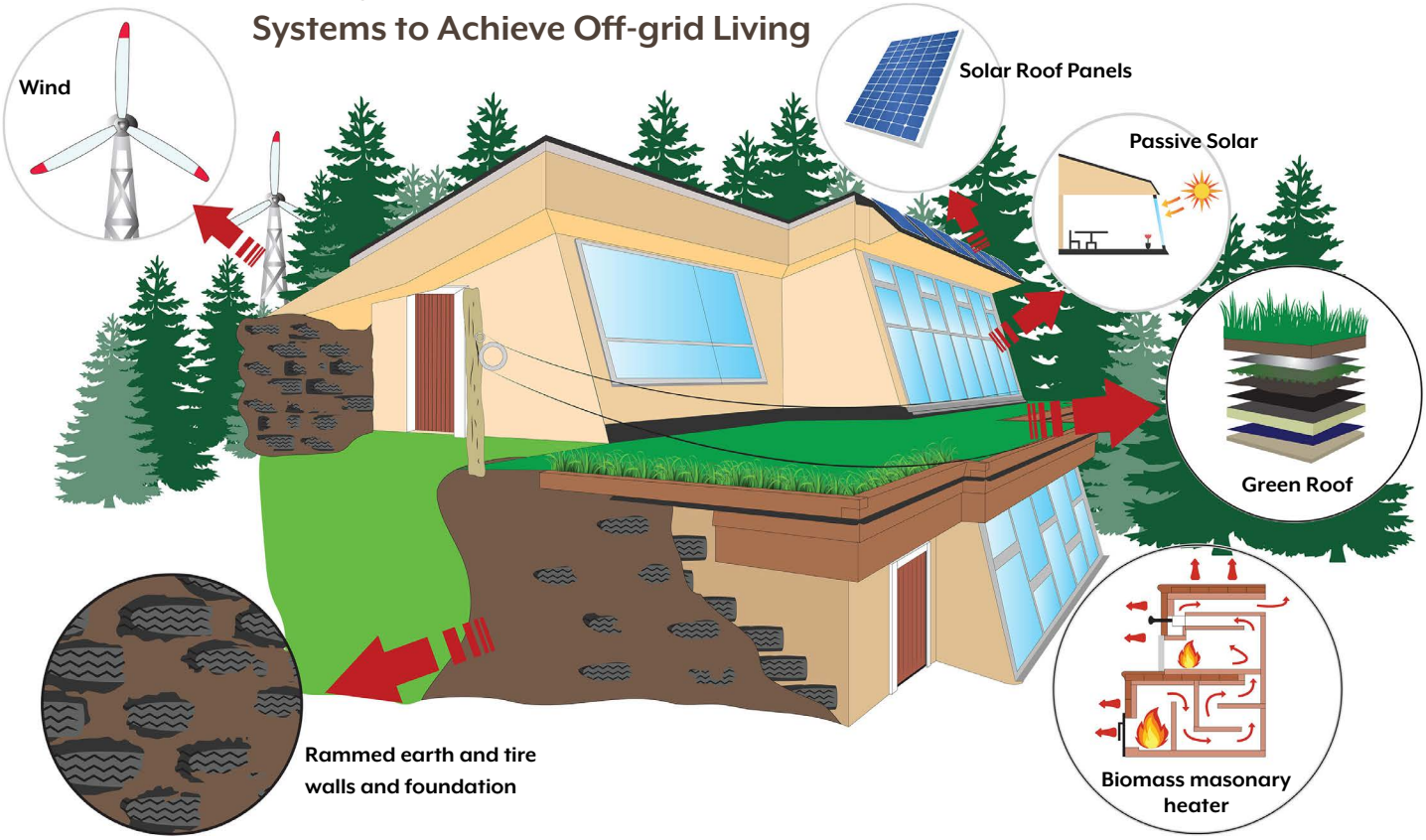
After thoroughly researching the renewable technology available and considering their options, Jenn and Jay took what Jay calls a "leap of faith." They built a home that connected them more directly to the environment and requires them to conserve water and rely only on energy not produced by oil, gas, or larger hydro products.

The Hannigans were drawn to the practice of using earth for their walls, foundation and floors. They chose tires to contain the earth and a design based around passive solar principles, wind generated from a turbine, and thermal heat storage. For five years, while they built the house, they lived in a small cabin on the property, gradually transitioning to the new building when it was ready in 2017.

The Hannigans' new two-story house relies on a hybrid system to generate electricity, melding the wind energy from a turbine beside their garage with solar energy from six photovoltaic panels mounted on the front of the house. The family – now including their two-year-old son Tighe – also uses passive solar heating. Their double-paned windows, designed to retain as much heat as possible, are tilted at 75 degrees to maximize light in the winter. The earth that makes up the foundation and walls, contained in tires, serves as a storage site that traps the heat streaming through the windows. At night, the earth in the floor releases the heat it has absorbed throughout the day.

In the winter, when they don't get as much sunlight, the family uses a biomass masonry heater: a more efficient type of wood-burning stove that functions as a wall separating the kitchen from the living room. The masonry heater extends upwards through the second floor via its stone walls, which absorb the heat from a large hot fire that burns rapidly once or twice a day. The thermal mass slowly releases the heat even after the fire is out, and that heat radiates into the house for the next 18-24 hours. The Hannigans cut the wood they need from their own woodlot, replanting as needed. Although they have a backup generator, so far, they haven't needed to use it – even during New Brunswick's famed ice storms.

Hannigan House: A Combination of Systems to Achieve Off-grid Living



The Hannigans also collect rainwater, filtering it to provide their drinking water source. They use their wastewater in their garden, and the "humanure" generated from their compost toilet is also safe for gardening, they say.

> **"We are off-grid. We are self-reliant for all our needs," Jay says proudly.**

Although reducing their energy costs was not the driving force behind the Hannigans' decision to live off-grid, they did want to be less vulnerable to the changing costs of energy. With the help of an architect and local engineers, as well as a neighbor who had experience in off-grid living, the Hannigans designed the house specifically around the combination of systems that would generate heat and electricity.

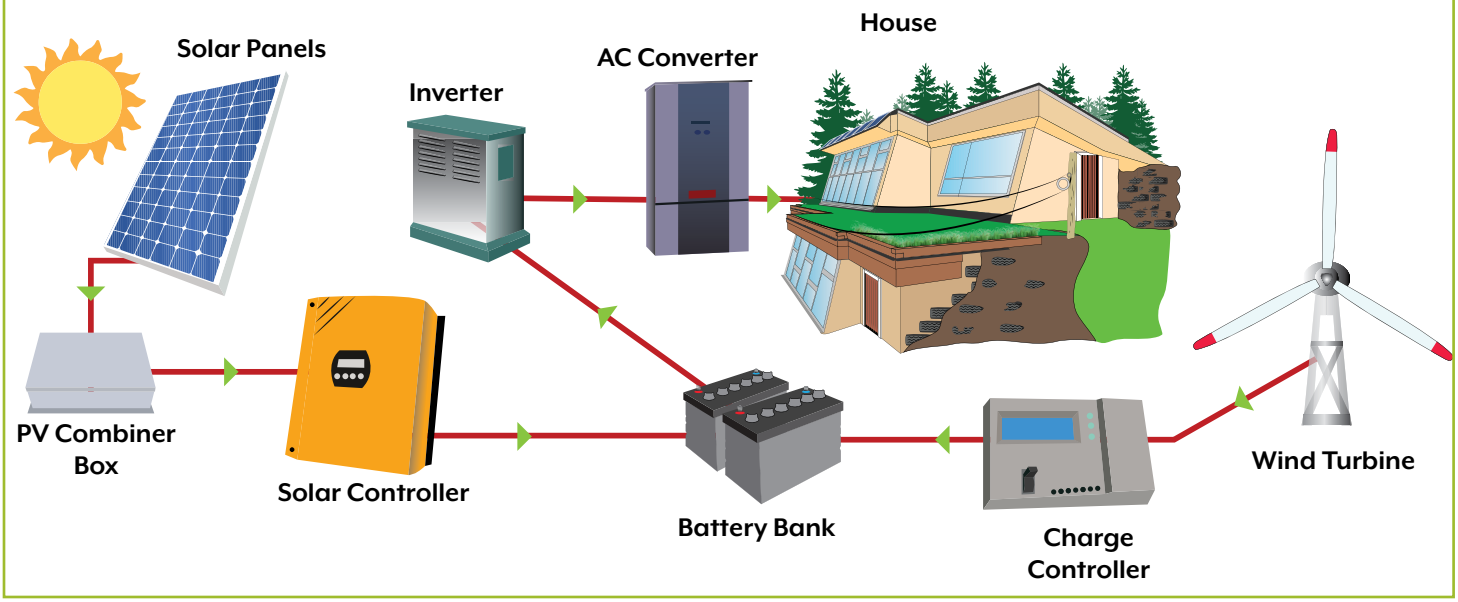
The result is a home that makes Jenn feel a part of her surroundings in a way she has not felt before, she says.

"We all are connected to our environment whether we like it or not, but actually experiencing that integration on a day-to-day basis makes you appreciate the value of that even more, knowing how the environment is dependent on us and we're also dependent on the environment," she says.

Although the house's systems are integrated to alleviate the need for any extra resources, they do require attention, says Jay.

"We have to monitor and assess and maintain these systems, so it requires more personal time to live in a home like this," he says. "At the same time, the integration and requirement of attentiveness keeps you centred on the home and makes it a focal point, rather than just a place where you sleep at night and eat during the day."

Hybrid solar and wind power generation system



Having a hybrid wind and solar system has proven to be a wise choice. There have been periods in the winter when the Hannigans have experienced up to three weeks without much sunshine. Without their wind turbine, they would have had to rely more on the battery component of their system.

"With the wind, we have a huge excess of power here, which is great," says Jay.

Unlike many rammed earth homes, which are more cave-like, the Hannigans' wanted a house that was higher and more open, which is why they built the second story. At their architect's suggestion, they added a green roof over the sunroom at the front of the house, which also houses a water filtration system, reduces heat loss and moderates temperatures inside the house.

So far, the couple has not encountered any major challenges they could not solve. Their biggest obstacle in getting started was to find reliable information and resources they trusted, as well as help with the building. They are pleased that the Conservation Council of New Brunswick is helping to fill the resource gap by providing trustworthy information about options for people wanting to live a more renewable lifestyle.

Information, though, is not enough to bridge the gap that exists between people's desire to live more sustainably and their actions, says Jay.

"It's more than knowledge," Jay says. "People just have to involve themselves; they have to experientially get involved with it to understand it."

"You need to speak with people who have done it; you need to speak with the people who are doing it, in order to really get a feel for it."

The Hannigans hope that once the province provides more incentives, others will feel empowered enough to explore using more renewable technology.

"The public will then follow through and then maybe people will start engaging more practically, experientially in their own private lives and say 'this is something I can actually take a leap of faith on'," says Jay.

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:
www.conservationcouncil.ca

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