

Off-Grid Economics



How this off-gridder is living rich on the cheap

While many U.S. homeowners who disconnect from the grid do so for environmental, social or personal reasons, Steve Rowe's decision came down to simple economics: In his circumstance, off-grid energy was half as expensive as connecting to the local utility.

"I didn't actually choose to go off the grid," says Rowe, who in 2014 purchased a house on a remote peninsula in Maine's Casco Bay. "There was no working power system in the house, no heat, no hot water system... it was like camp."

Rowe is clear about why he lives off the grid: "If I had a reasonable choice, I wouldn't have done it." Simply put, he wanted to live where he wanted to live — it was a matter of independence, which quickly became a matter of economics.

Living off-grid doesn't always mean cost or sacrifice, as demonstrated by this installation.

KEY TAKEAWAYS:

- Steve Rowe saved \$50,000 by choosing to install an off-grid system.
- Rowe was able to take advantage of significant Federal tax incentives.
- Adding a wind turbine provides a near-constant power supply for batteries.
- Off-grid system sizing is complex, and every project is different.

The Setup



ROWE'S OFF-GRID SETUP

- 1.5 kW Pika T701 wind turbine on 63' guyed tower
- 1 Outback MATE3 System Display and Controller
- 1 Outback Radian Inverter
- 2 Outback Flexmax Charge Controllers
- 24 Rolls batteries
- LED Lights
- Propane appliances



Steve's home power station, well equipped

In truth, Rowe's system is on the beefy side of off-grid projects. He intentionally sized his system for 20 kWh per day — a relatively high energy profile for an off-grid system. His setup includes a 6.7 kW solar array on a tilt tracker and a 1.5 kW wind turbine. Rowe says a full third of his installed cost was in batteries alone.

Rowe says the original owners of the home probably wanted a "back to the earth," remote lifestyle. While he can appreciate the appeal of a home that offers that lifestyle, Rowe and his family weren't willing to sacrifice the comforts of grid-tied living.

"We didn't want to make any sacrifices in our energy usage. We don't think about whether or not we can do laundry or vacuum the house," he says. "We're making more energy than we need."

Grid-connecting Rowe's new house, which lies on a remote spit down a mile-long private driveway, would have cost upwards of \$100,000. When he priced out an off-grid system using wind, solar and batteries, his installed cost was closer to \$75,000. Realizing he could then claim the Federal Investment Tax Credit (ITC) and knock 30% off the project cost, the decision was even easier.

“If you have a near continuous charging source, like the wind turbine, it helps a lot”



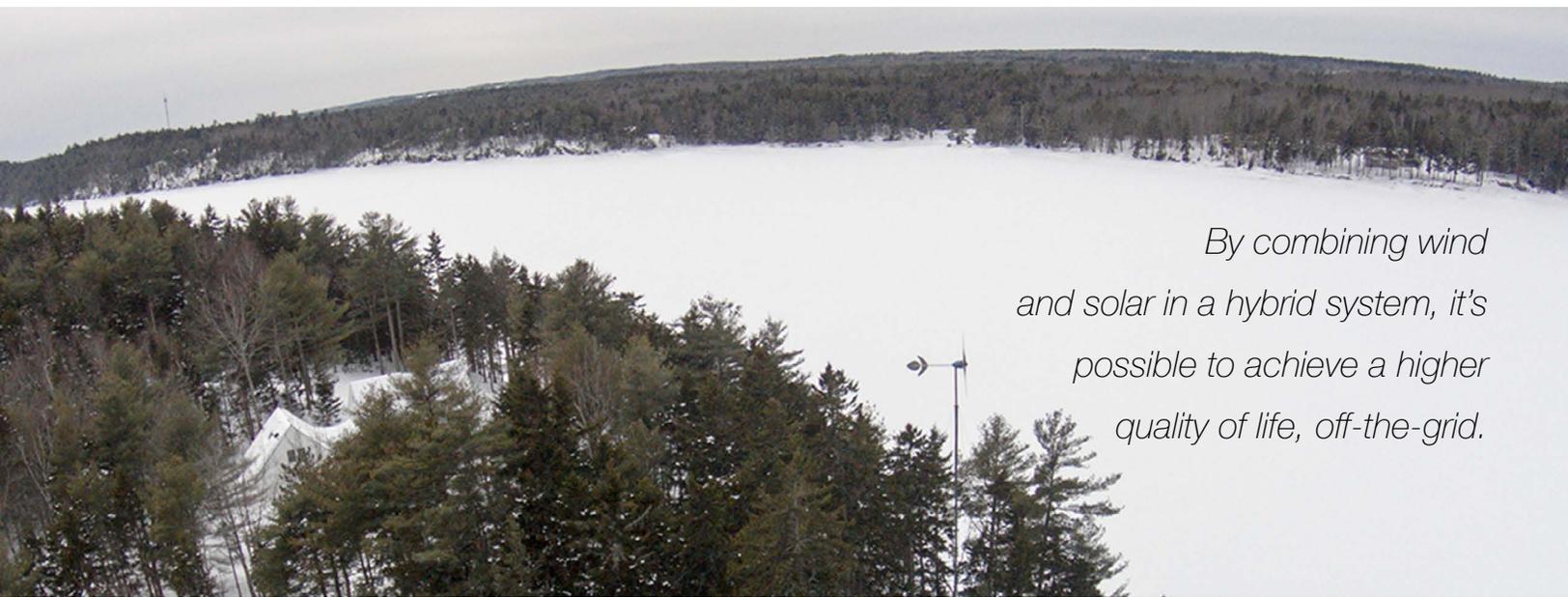
The Wind Advantage

Rowe’s lifestyle isn’t as spartan as that of some off-grid homesteaders, but it’s not without challenges.

Before Rowe added a wind turbine to his off-grid setup, he was complementing his solar production with a propane generator at a cost of \$2 per kWh. His economic pragmatism pointed him in the direction of wind as the next building block to complete his off-grid energy configuration.

*“Solar panels get jammed with snow, the tracker needs to be oiled, the batteries have to be watered... and there are cold days when the generator doesn’t start. But the **wind turbine has been maintenance-free, which makes it unusual in that regard.**”*

Rowe likes that his wind turbine works through the night, adding critical power to keep his batteries charged when his solar array is producing nothing. One recent winter day, his Pika turbine alone generated 30 kWh. “If you have a near- continuous charging source, like the wind turbine, it helps a lot,” he said.



By combining wind and solar in a hybrid system, it's possible to achieve a higher quality of life, off-the-grid.

Conclusion

Off-grid system sizing is complex. Every home will have different variables, and every homeowner will have different lifestyle needs. In Rowe's case, his home and lifestyle required a generous amount of solar working in tandem with his wind turbine. Many off-grid homeowners use far less annual energy — closer to 3,000-4,000 annual kWh.

Federal incentives and some state-level rebate programs are reducing the upfront costs of purchasing home renewables. In Rowe's case, this made all the difference. For his wind turbine, he calculated a 5-year break-even on the installed cost versus the costs he was previously paying for his propane generator.

To learn about how off-grid living can give you the independence to live where you want, click below:

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